Government of the Northwest Territories

Northwest Territories

Resource Development Impacts

Impact on government programs and expenditures of non-renewable resource development

PURPOSE

The purpose of this report is to examine the impacts on government programs and services of current and future non-renewable resource development in the Northwest Territories.

ORGANIZATION OF THE REPORT

The report has been organized as follows:

1. Impacts of Development
    - Project Phases
    - Drivers
2. Current and Projected Non-Renewable Resource Activity
    - Overview
    - Development Assumptions
        i. Mackenzie Valley Gas Project
        ii. Mining
3. Our Challenges
4. Demographics
5. Funding Formula and Population Growth
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    - Health and Social Services
    - Resources, Wildlife and Economic Development
    - Justice
    - Municipal and Community Affairs
    - Education, Culture and Employment
    - Transportation
    - Government Wide Impacts

Project Phases

Impacts of development differ according to the stage of development. The typical project life cycle has four phases

Pre–construction/ feasibility assessment – Prior to a go-no go decision, additional demands are placed on government to develop baseline labour force/environmental data. It is necessary to plan for maximizing opportunities and mitigating potential harmful effects. The pre-construction/assessment phase marks the beginning of the economic and social adjustment phase. In the pre-construction phase investments will begin to be made for the development of monitoring and enforcement systems and preparing people and businesses to participate in resource development activities. This includes the development of relevant programs to ensure that the training to obtain the required skills is available to people. It is also critical that government makes investments to develop and implement proper regulatory oversight that will facilitate the expansion existing service capacity and the development of adequate infrastructure requirements that will be necessary to meet the increased demands as the project moves into the construction phase.

Construction – The intensity of effects on communities is often the greatest during the construction period. This is the period where the greatest social and economic adjustment occurs. Government investment in training, technology and infrastructure may need to be increased and revised to ensure that industry's investments are aligned to government's to maximize overall benefits. As a general rule, the greater the investment in the pre-approval stage in establishing common expectations about the responsibilities of industry, standards of operation, protocols for dealing with communities and understanding potential social and economic impacts; the greater the likelihood that development will proceed in accordance with the approved plans.

Production – During the period immediately after construction, employment rates will fall. Eventually they will stabilize at levels appropriate for production. The inevitable economic contraction experienced after a period of high growth typically contributes to post construction unemployment, business failures and out-migration.

Governments' resource allocation priorities will shift to monitoring developments and building local business capacity and associated secondary industry.

Post development/abandonment – It is important that the skills gained are transferable to a post development construction economy and that measures are taken to diversify the economy. Normally, in the contraction that follows the production period, the employment rate drops, laid off workers leave the territories and prices fall.

Demands on government programs and services also vary during the investment cycle. In the pre-construction phase the priority is on undertaking baseline surveys, consultations, negotiating industrial agreements and developing appropriate transitional programs. Many of these costs are one-time. In the construction phase, investment shifts to the developing and implementing of monitoring and enforcement systems and preparing people and businesses to participate in construction and production activities. In the production period, additional public expenditures may be required to facilitate the reintegration of laid off construction workers and to ensure that northerners receive the skills to fully participate in ongoing activities. In the postproduction period, the government's priority shifts to

reintegrating laid off workers into the work force, providing transitional income assistance and ensuring that the reclamation activities are undertaken as required.

Governments' expenditures are also directly impacted when an economy reaches or exceeds its capacity resulting in labour shortages and price increases.

It must be recognized that in the Northwest Territories there are, and will be, multiple large projects underway and pending. From the diamond mines to Liard gas developments to the potential Mackenzie Valley Gas Pipeline the number of large projects continues to expand. As a result, at any one time the NWT is dealing with projects at the feasibility/preconstruction phase (e.g. Mackenzie Valley Gas Pipeline), at the construction phase (Diavik Diamond Mine) in production (BHP Diamond Mine, Fort Liard Gas Fields) and in post development/abandonment (e.g. Giant Mine).

Drivers

Population driven impacts – Population impacts relate to the permanent in-migration of people to the NWT, or migration between communities within the NWT to work on non-renewable resource projects. Population driven impacts include: housing shortages, higher utilization of public services, expansion in retail and business demand, etc.

Population growth also adds to the normal stresses on community social and organizational infrastructure. As case loads rise, increased pressure is put on front line workers which inevitably leads to higher turnover, worker burnout, etc. Many of the employment opportunities are expected to be filled by southern workers during the construction of the pipeline. These "itinerant" workers tax the system with respect to enforcement costs, increased usage of community water and sewage systems, higher wear and tear on roads, and the "unreimbursed" costs related to the provision of health care services.

Net in-migration will also affect the age profile of the NWT population. The NWT will have a higher proportion of younger workers in the early stages of family formation. This will create additional demands on current services – schools, recreation, housing, etc.

Income-driven impacts – New jobs and higher wages paid by the resource companies will result in higher disposable individual and family incomes. Limited facilities for saving money and a lack of experience in money management often lead to poor choices on how income is spent. This may result in an increase in alcohol and drug abuse, gambling, increased levels of violence, and crimes against persons and property.

Competition with resource companies will induce labour shortages in government and other sectors. This will drive up wages. Both consumers and employers can expect to pay more for goods and services. Those employers not restricted by equal pay legislation, will adjust to a competitive labour market by paying higher wages, which in turn will result in price increases. As prices increase, those on fixed incomes or income support will suffer a loss in their standard of living. Ultimately this will result in increased pressure on government to raise income support levels. It should also be recognized that with new jobs and higher wages there would be a reduction in income support as well.

These inflationary effects are not currently addressed in the funding formula. Income driven impacts can either be structural (long term) or cyclical (short term). .

Activity driven Impacts - Activity driven impacts relate to the fulfillment of government responsibilities to prepare for and manage development, to protect and conserve the environment and to ensure the safety and security of the work force. More intense resource use results in higher government expenditures in resource use planning,

regulation and enforcement. Also, during the periods of high activity existing infrastructure can be overtaxed, limiting the engineered life span of affected infrastructure or requiring its upgrade..

Opportunity costs - There is also opportunity costs associated with non-renewable resource development. For example, the tourism industry is adversely affected if there are no hotel rooms available. Also, service levels are affected because of the difficulty in recruiting and training staff. There also may be a lag in recapturing markets share lost due to accommodation and staff shortages.

2. CURRENT AND PROJECTED NON-RENEWABLE RESOURCE ACTIVITY

Overview

The current round of major non-renewable resource development activities commenced in the NWT in 1999 and will continue for at least another 25 years (the estimated operational life of the diamond mines and the Mackenzie Valley gas pipeline). Non-renewable resource activity is attributable to the following projects:

BHP Billington Ekati mine began production in late 1998. By 2009 BHP will have been in production for ten years and will have completed its expansion plans for three new kimberlite pipes, thereby extending the life of the mine from 12 to 15 years.

Diavik Diamond Mines, which will begin production in 2003. The mine is expected to have a life of 18 years.

De Beers' Snap Lake project will begin in production for late 2005.

The Mackenzie Valley Pipeline will have been recently completed by 2009. The expansion and development of the gas fields feeding into the pipeline will have commenced. This expansion would include feeder lines from the Beaufort Delta.

There will be increasing exploration activities throughout the NWT.

Development Assumptions

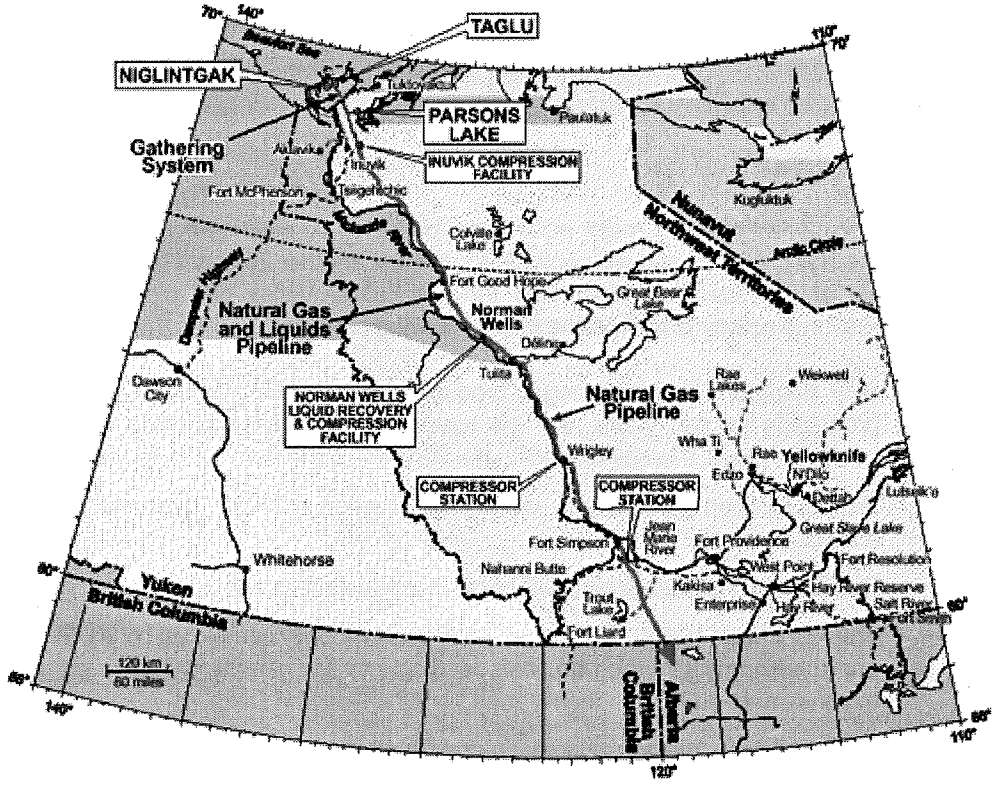
During the construction phases of each project, there will be an almost NWT-wide economic boom. There will be more jobs during this period (in most sectors and most communities) than available workers and more business opportunities than available entrepreneurs. The period will be characterized by development activities leading to occasional stressful aboriginal-community-industry-government relationships.

During the twenty-plus operating years of the production and pipeline facilities, it is expected that there will be steady growth in a few communities, with continuing employment and business opportunities. This period will be characterized by events that will require the development of collaborative aboriginal-community-government-industry relationships.

Mackenzie Valley Gas Project

Overview Map

The following overview map shows many of the potential sites for the facilities along the pipeline route.



Major Components of the Mackenzie Valley Gas Project

The project consists of individual field developments, a gas gathering and a Mackenzie Valley Pipeline system

Field Development - Wells

Most of the wells at the three natural gas fields will be directionally drilled. Directional drilling will minimize the number of surface sites required.

At Taglu, about 10 to 15 wells will be drilled, most likely from a single surface site.

At Parsons Lake, about 10-15 wells will be drilled, likely from 2 sites.

At Niglintgak, 6 to 8 wells will be drilled from two or three surface sites.

Surface Facilities

Gas compression facilities will be installed at Niglintgak.

Compression facilities will be required at Taglu and Parsons Lake at a later date.

The gas will be conditioned to meet the gathering system and pipeline specifications. Conditioning the gas may include cooling, hydrate control and dehydration. The conditioning facilities and necessary utilities, such as electrical generation, will be located at each field site.

Well pad and field gathering facilities will be remotely controlled and monitored and will not normally be staffed. These facilities will be accessible by winter road and helicopter. They may be able to be accessed by boat in the summer.

Pipeline Gathering System

The gathering system will take natural gas from the fields to the compression facility near Inuvik. The gathering system pipeline will be mostly buried.

Mackenzie Valley Pipeline

Pipeline from Inuvik to Norman Wells

A 500km pipeline (approximately a 36 inch line, mostly buried) will carry natural gas and liquids from the Inuvik compressor station to Norman Wells.

The pipeline will follow one of several potential routes that were previously identified by developers in the 1970s and the 1980s.

Norman Wells Facilities

At Norman Wells, there will be facilities where the liquids will be removed and the gas will be compressed and cooled. The liquids will be injected into the Enbridge oil pipeline for transportation south.

Pipeline from Norman Wells to Northwestern Alberta

An 800 km pipeline (approximately a 36 inch line, mostly buried) will carry natural gas from Norman Wells and connect with existing gas pipeline systems in Northwestern Alberta.

The proposed route for the natural gas pipeline will run largely parallel to the corridor of the existing Enbridge oil pipeline.

Compression Facilities

There will be a compression facility in Norman Wells. There are likely 2 other compressor stations, one near Wrigley and one near Fort Simpson.

These 2 compressor stations will likely be accessible by winter road and helicopter, from the nearest regional centres. .

These stations will not normally be staffed.

Additional compression facilities and pipeline segments can be added along the route, if an increase in pipeline capacity is required at a later date.

Project Schedule

The producers have used this table to present their schedule for the period.

Feasibility Study 2000-2001	Project Definition 3 to 4 years	Construction 3 to 4 years	Operation
Assess: • Northern support • Pipeline involvement • Regulatory process • Fiscal terms • Markets • Reserves	• Public consultation • Technical studies • Benefits • Regulatory application and review	• Detailed design • Drill wells • Purchasing and service contracts • Construction	• Start-up • Operations for 25+ years • Potential expansions • Abandonment and reclamation

Construction

4 Spreads for Pipeline Construction

Each spread is completed over 2 winter seasons. This means that half of the spread is constructed in each of the 2 winter seasons. The camp locations, the direction of the spread construction are all organized in a way that maximizes the efficiency of construction.

Spread 1: KM 0 to KM 270.

Spread 2: KM 270 to KM 585.

Spread 3: KM 585 to KM 940.

Spread 4: KM 940 to KM 1350.

Sequence of pipeline construction.

Spread	Winter 2	Winter 3	Camps
1A	south to north		Near Inuvik
1B		north to south	
2A		south to north	Near Norman Wells, Fort Good Hope
2B	south to north		
3A		south to north	Near Tulita, Wrigley
3B	south to north		
4A		south to north	Near Simpson, Jean Marie River
4B	north to south		

Construction activities

The construction activities that will take place along the spreads are outlined as follows.

Activities along the Spreads - Winter Seasons	
Year 1 Pre-construction activities	Year 2 and 3 Construction
Pipeline contractor mobilization Access roads Temporary bridges Facility sites clearing Surveying Right-of-way clearing Barge unloading facilities, Pipe stockpile sites Camps and camp support facilities	Right-of-way grading Delivery of pipe Preparation for welding and placement Ditching Welding Inspection and weld examinations Placement and backfill Pressure testing Right-of-way reclamation

Compressor Stations

Compressor station construction will probably take place over a 2-year period (Year 1 and 2) with installation activities taking place year-round.

Construction Camps

There will be approximately six major construction camps with approximately 600 workers in each camp during the two winter construction seasons.

There will probably be camps located near Inuvik, Norman Wells and Simpson. Other camps will be located along the pipeline right-of-way, near Wrigley, Tulita and Jean Marie River. There will probably be camps near the production facilities near Parsons Lake and Taglu.

The camps will likely be moved at the end of each winter season to their location for the next winter season.

The camps will have access by winter road and helicopter, from the nearest regional centres.

The camps will probably be completely self-contained – fuels, supplies, electricity, communications, waste management and other services, including medical (emergency response) services. There will be medical staff, which will respond to workers' injuries. The industry planners will try to take into account thresholds for existing services that may be nearby. For example, a 600-person camp will not depend on water from a 100-person town or on the single line telephone system of another small community.

There will probably be few rotations of workers occurring during the winter months. Spread workers would likely be at their campsite for long work periods on order to maximize the use of the short winter season. They will probably work 12-hour shifts and 6-day weeks for much of the 3-4 month period.

Access both into and out of camp locations will be strictly controlled and restricted. Workers will be transported from their camp to their worksite and returned to their camp at the end of their shift. If a community is nearby the camp, residents won't be allowed to visit the camp.

Other sites

There will likely be storage yards located at each camp.

There will be other storage areas at compressor station sites, along the pipeline right-of-way and on the Mackenzie River.

Exploration Forecasts

Oil and gas exploration activity (seismic and wells) in the Sahtu region is expected to increase moderately from current levels to about 10 activities per year requiring regulatory approval

Oil and gas exploration activity (seismic and wells) in the Gwich'in region is expected to remain constant at 2 activities per year

Oil and gas exploration activity (seismic and wells) in the Inuvialuit region is expected to more than double from the 12 applications in 2001-2002 to 27 applications in 2010-201requiring regulatory approval

Oil and gas exploration activity (seismic and wells) in the Deh Cho region is expected to double from the 14 applications in 2001-2002 to 24 applications in 2003-2004 requiring regulatory approval

Land is offered in yearly issuances in all areas by 2002.

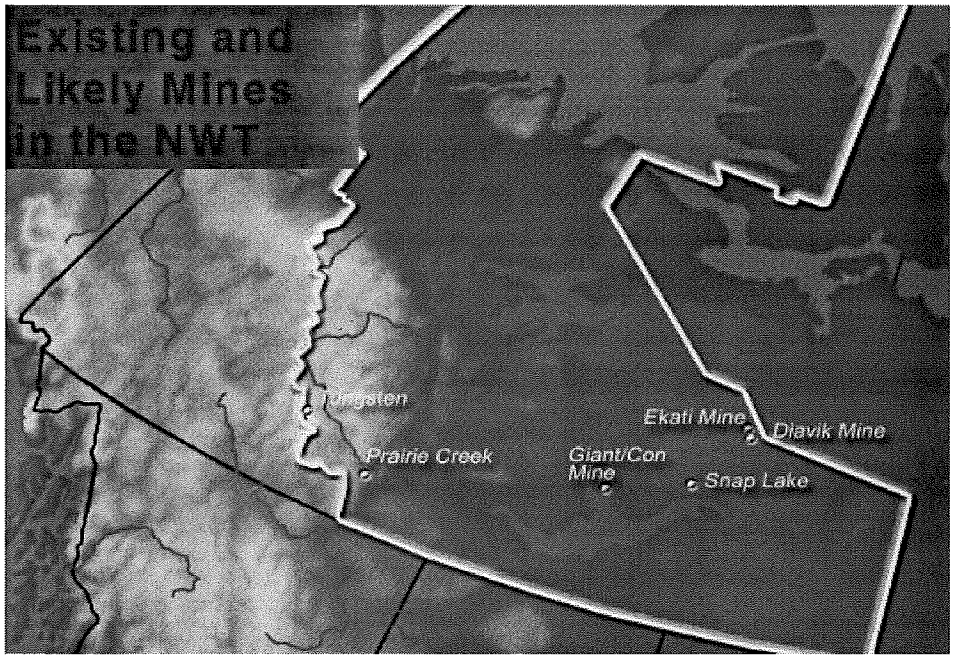
Expectations for nominal oil prices average approximately US$21.60/bbl and gas averages Cdn$4.70/GJ from 2002-20011.

A Mackenzie Valley gas pipeline is assumed to be operational by the winter of 2007-2008.

Mining

Overview Map

The following map indicates the existing and proposed mines in the NWT.



BHP Billiton

The Ekati mine began production in October 1998, 7 years after diamonds were first discovered in the NWT. Applications have been made for mining at the Beartooth, Sable and Pigeon pipes. If approved, the life of the Ekati mine will be extended by 3 years to 15 years.

Production is estimated at 3.285 million tons per year from 2000 to 2006. Expansion of operations will then increase production to 6.5 million tons per year until 2020.

The production estimates do not take into account the proposed changes to the mine development plan. These changes are expected to further improve mine profitability.

Market prices range from U.S. $77 to $130 per carat.

Diavik Diamond Mines

Construction on the Diavik mine began during the winter of 2000. Production is scheduled to begin in April 2003. The mine is expected to have a life of 18 years.

Production is estimated to rise to 2 million tons per year in 2003 and remains at that level until 2014. Production then declines each year until 2020 when it is estimated at 1.334 million tons.

Market prices range from U.S. $49 to $55 per carat. Prices were based on the value of the last bulk sample conducted by Diavik during the summer of 1999.

Snap Lake Diamond Mine – De Beers

De Beers' application to the Mackenzie Valley Environmental Impact Review Board was filed in April 2001. A schedule to begin construction in 2004 is based on the receipt of development and operating permits during the first quarter of 2003. Production is expected to begin in the third quarter of 2005 with full production scheduled for the first half of 2006.

While the Snap Lake project is not as far along in the approvals process as the Diavik project, the proposed Snap Lake project is a diamond bearing kimberlite dyke, as opposed to kimberlite pipes. This results in far less engineering obstacles and complexities in bringing the mine into production.

It should be noted that results released by Winspear Resources have been the highest in the NWT to date, in terms of quality and quantity of diamonds per sample. Royalties and taxes have been estimated at 75% of those collected from the Diavik mine.

3. OUR CHALLENGES

Despite the bright potential outlined above, there are several challenges to be overcome before the NWT and Canada can reap maximum benefit from resource development. Social and demographic pressures continue to push up territorial spending requirements, leaving little flexibility for the Government of the NWT to make the required proactive investments in development.

Low educational levels

Although the overall levels of educational achievement in the NWT are improving, many segments of our population are still significantly below the national average. These low educational levels contribute to higher unemployment among aboriginal residents in many of our communities, resulting in reliance on income support

programs for too many NWT residents. The low education levels are a limiting factor in the ability of our residents to take jobs. Their education levels are such that upgrading would be required prior to entering into any specific job-training program.

Regional disparities

The NWT does not enjoy the same service levels as other regions of Canada. Transportation and communications infrastructure are struggling to narrow the gap between NWT levels and the standards enjoyed by other Canadians. NWT residents must travel farther to access specialized health care and advanced educational opportunities. At the same time, we share the same demographic and technological pressures that every Canadian jurisdiction is facing in its social program delivery. Lack of infrastructure has also been identified as a deterrent to mineral exploration investment and development in the NWT, as indicated in the most recent Fraser Institute Annual Survey of Mining Companies. In addition, depending on where the development is occurring in the NWT, regions will be affected much differently.

Boom-and-bust economy

Because of the large role that nonrenewable resources play in the NWT economy, the NWT has been particularly vulnerable to the "boom-and-bust" cycle. The downturn in Beaufort Sea petroleum exploration and development in the 1980s, and the more recent impact on the Yellowknife economy of lagging gold prices, has highlighted the need to diversify the NWT's economic base.

Biophysical and socioeconomic impacts

The northern biophysical environment is sensitive to environmental disturbances and less able to quickly recover. People rely heavily on renewable resources for economic and cultural well being. Small communities are susceptible to disruption from in-migration. Little is known about how the NWT biophysical and socioeconomic environment will react to large-scale development.

Undeveloped private sector

In many cases, the NWT private sector does not yet have the experience or resources to take advantage of the opportunities that will be created by large-scale infrastructure development projects.

Complex and evolving regulatory environment

Developers generally perceive the NWT regulatory environment as cumbersome and unresponsive. Developers face uncertainty surrounding the royalty and tax regime, given that devolution of resource management authority has not occurred, and a resource revenue sharing agreement between the federal and northern governments has not been completed. Developers also express concerns about the impact of unsettled land claims on their ability to proceed with exploration. Barriers in gaining access to land for exploration purposes has stalled exploration in many cases.

A 1999 report by the Canada West Foundation noted that putting decision-making within the hands of northerners, and providing NWT residents with greater control

over resource revenues, are essential components of an effective economic development strategy for the NWT. The Legislative Assembly's vision *Towards a Better Tomorrow* identifies broad strategies that will help to tackle these challenges. As emphasized in the Legislative Assembly's vision, however, the challenges are not the NWT's alone. The goals can only be achieved by working in partnership with the Government of Canada and with our Aboriginal government partners. But if we are to realize the opportunities before us, we need the capacity to make strategic investments today. The GNWT's constrained fiscal situation prevents us from making the investments necessary to tackle these challenges and to ensure that both the NWT and Canada can benefit fully from the NWT's resource development potential.

Recognizing the need for action, we have not hesitated to act in key areas. For example, in the absence of a federal government policy or support framework for the secondary diamond industry, the GNWT has invested over $5 million in directly supporting and promoting this industry. However, every such investment is made in the full knowledge that it increases our operating deficit – and that the GNWT will realize only a small portion of the revenues generated.

Common Ground, the report of the multi-party NWT Economic Strategy Panel convened by the Minister of Resources, Wildlife and Economic Development, cites the GNWT's inability to make strategic investments as a major impediment, stating that, "While GNWT and Aboriginal governments are ready to participate in a major non-renewable resource development, they are handicapped by a lack of capital...(The GNWT) has no money to invest in resource development or preparations for resource development".

It is not only the NWT that stands to benefit from devolution of resource management authority, sharing of resource revenues and effective investment in a resource development strategy. Canada will benefit from an improved climate for resource development, through the establishment of a more co-ordinated and cost-effective regulatory process, and through enormous potential for enhanced resource revenues through both royalties and taxes. Primary and secondary industries throughout Canada will also benefit from the increased opportunities. A 1994 Conference Board of Canada report on potential development in the Slave Geologic Province estimated that 35% of GDP impacts, and 75% of employment impacts, would occur outside the NWT – primarily in British Columbia, Alberta, Ontario and Quebec. As well, the Canadian Energy Research Institute has estimated the employment impacts of construction of a Mackenzie Valley / Prudhoe Bay pipeline to be 11,110 person years for the NWT, but 60,020 for all of Canada. Tapping new Canadian natural gas sources will increase our nation's security of supply, and support both national and international efforts to reduce greenhouse gas emissions by enabling U.S. and Canadian jurisdictions to replace coal and diesel-fired power sources with natural gas.

Aboriginal governments will benefit from this development in two ways. There will be business opportunities for Aboriginal Development Corporations. As well, the establishment of a sound financial position for the GNWT will ensure that the GNWT has the capacity to support implementation of self-government initiatives, and that the integrity of GNWT programs and services is maintained in anticipation of the transfer of authority through self-government agreements. There is an unprecedented opportunity today for the Northwest Territories to become Canada's first "have" territory. But it cannot be done on our own. The support of the federal government is essential – to help us make needed investments now. The window of opportunity will not last forever. Twenty-five years ago

excitement about northern resource potential waned due to lack of political support, and changing market conditions. The Government of the Northwest Territories is determined to seize the opportunity that exists today and promote the development of NWT petroleum and mineral resources so that NWT residents, and all Canadians, can realize the benefits while maintaining a healthy environment.

4. DEMOGRAPHICS

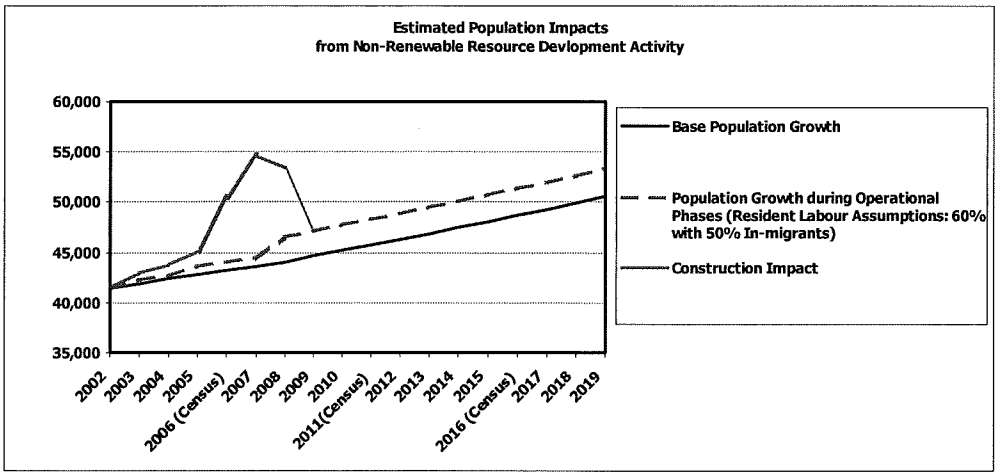
Appendix 1 provides a package of demographic information that was considered by departments in determining impacts on their programs and quantifying those impacts. The demographics information includes:

1. NWT population impacts related to resource impacts – operations
2. NWT population impacts related to resource impacts - construction
3. Statistics Quarterly (available at GNWT website)
4. Common Assumptions

5. FUNDING FORMULA AND POPULATION GROWTH

The GNWT's primary source of funding is the Grant from Canada, the amount of which is determined according to a Formula Financing Agreement. This agreement provides adjustments to the *Gross Expenditure Base* based on, among other factors, estimates of NWT and Canadian population figures based on census data obtained every five years. The following chart depicts three scenarios: the general population growth that is projected to occur in the NWT over the period 2002 to 2019; the population growth that is projected to occur during the operational phases of the non-renewable resource development for the period 2002 to 2019t; and the population growth that is projected to occur during the construction phase of the non-renewable resource development.

This report has been developed on the assumption that the population growth impacts associated with the general growth and the population growth impacts associated with the operational phases of the non-renewable resource development will be "picked-up" through the population adjustment mechanisms in the formula financing agreement, assuming accurate census counts. However, the formula financing agreement will not provide for the population growth the NWT will be experiencing during the construction phase of the non-renewable resource development.



The resource requests that are included in the financial summary section of this report (section 6) are net of the population impacts to be realized through the formula financing agreement. In this section of the report, the total funding impacts on departments are identified. The total benefit to be derived from the formula from population adjustments are identified and netted off the total funding required.

FINANCIAL SUMMARY

Direct Impacts

One-time or Short-term Impacts

Department	Impacts to Date	Future Cumulative Impact	Total Cumulative Impacts
NWT Housing Corporation	$ -	$ 41,000,000	$ 41,000,000
Health and Social Services	-	41,466.000	41,466,000
Resources, Wildlife and Economic Development	-	-	-
Justice	-	4,050,000	4,050,000
Municipal and Community Affairs	1,619,000	34,620,000	36,239,000
Education, Culture and Employment	-	68,050,000	68,050,000
Transportation	-	50,000,000	50,000,000
Total One-time/Short-term Impacts	**$ 1,619,000**	**$ 239,186,000**	**$ 240,805,000**

Ongoing Requirements

Department	Impacts to Date	Future Cumulative Impact	Total Cumulative Impacts
NWT Housing Corporation	$ -	$ 3,570,000	$ 3,570,000
Health and Social Services	-	23,651,000	23,651,000
Resources, Wildlife and Economic Development	555,000	73,350,000	73,905,000
Justice	-	97,060,000	97,060,000
Municipal and Community Affairs	-	281,226,000	281,226,000
Education, Culture and Employment	-	181,296,000	181,296,000
Transportation	502,000	8,534,000	9,036,000
Total Ongoing Requirements	**$ 1,057,000**	**$ 668,687,000**	**$ 669,744,000**
TOTAL DIRECT IMPACTS	**$ 2,676,000**	**$ 907,873,000**	**$ 910,549,000**
Less: Savings derived from Income Assistance	(4,000,000)	(24,000,000)	(28,000,000)
TOTAL NET DIRECT IMPACTS	**($ 1,324,000)**	**$ 883,873,000**	**$ 882,549,000**

Indirect Impacts

One-time or Short-term Impacts

Department	Impacts to Date	Future Cumulative Impact	Total Cumulative Impacts
NWT Housing Corporation	$ -	$ -	$ -
Health and Social Services	-	$ -	$ -
Resources, Wildlife and Economic Development	4,901,000	15,032,000	19,933,000
Justice	-	-	-
Municipal and Community Affairs	-	-	-
Education, Culture and Employment	-	-	-
Transportation	23,856,000	200,000,000	223,856,000
Total One-time/Short-term Impacts	**$ 28,757,000**	**$ 215,032,000**	**$ 243,789,000**

Ongoing Requirements

Department	Impacts to Date	Future Cumulative Impact	Total Cumulative Impacts
NWT Housing Corporation	$ -	$ -	$ -
Health and Social Services	-	$ -	$ -
Resources, Wildlife and Economic Development	17,706,000	230,967,000	248,673,000
Justice	-	$ -	$ -
Municipal and Community Affairs	-	-	$ -
Education, Culture and Employment	-	29,920,000	29,920,000
Transportation	-	-	-
Total Ongoing Requirements	**$ 17,706,000**	**$ 260,887,000**	**$ 278,593,000**
TOTAL INDIRECT IMPACTS	**$ 46,463,000**	**$ 475,919,000**	**$ 522,382,000**

Total Net Financial Impacts

Department	Impacts to Date	Future Cumulative Impact	Total Cumulative Impacts
TOTAL NET DIRECT IMPACTS	**($ 1,324,000)**	**$ 883,873,000**	**$ 882,549,000**
TOTAL INDIRECT IMPACTS	**46,463,000**	**475,919,000**	**522,382,000**
TOTAL IMPACT ON DEPARTMENTAL PROGRAMS	**45,139,000**	**1,359,792,000**	**1,404,931,000**
LESS: ESTIMATED REVENUE GAINS:			
Directly from Population Increases	(6,000,000)	(354,000,000)	(360,000,000)
Indirectly from Resource Revenues	(-)	(78,000,000)	(78,000,000)
TOTAL NET REQUIREMENTS	**$ 39,139,000**	**$ 927,792,000**	**$ 966,931,000**

Note: The indirect revenue gains includes expected increases to the GNWT's income tax revenues.

BACKGROUND

This report focuses on the following GNWT departments that are or will be experiencing impacts on their programs and operations due to non-renewable resource development.

- NWT Housing Corporation
- Department of Health and Social Services
- Department of Resources, Wildlife and Economic Development
- Department of Justice
- Department of Municipal and Community Affairs
- Department of Education, Culture and Employment
- Department of Transportation

This report identifies two types of financial impacts that departments will or have been experiencing due to non-renewable resource development: direct impacts and indirect impacts.

The first type of financial impact identified is "direct impacts". Direct impacts are expenditures that have been made for which the GNWT has had no direct control. An example of direct impact is the expenditures that have been incurred by the GNWT to rehabilitate the Tuktoyaktuk Road that was damaged due to the heavy industrial expansion associated with non-renewable resource development activities in the area.

The second type of impact identified is "indirect impacts". Indirect impacts are those expenditures for which it was at the GNWT's discretion whether or not the expenditure was incurred. An example of indirect impact is the expenditures that have been incurred by the GNWT to establish the Diamond Division in the Department of Resources, Wildlife and Economic Development.

The "Departmental Impacts – Details" section of this report provides the current impacts and potential impacts on departmental programs based on the noted assumptions on current and future non-renewable resource activity and related demographic changes and to quantify the required investment needed to mitigate these impacts.

Each department's impacts are delineated in section 8 of the report which is organized as follows:

- A **Background** of the department, providing an introduction to the department and the description of its major programs.
- The specific **Program Impacts** the department will be faced with due to non-renewable resource development activity and the estimated investments

needed to adequately address these impacts. This section will also point out investments in programs areas made by a department to mitigate the impacts of current resource development.

- A **Financial Summary** of the direct and indirect impacts on department programs. The financial impacts included in this section of the report have not been discounted for any formula impacts that are described in section 5 of this report. The net financial impacts are included in section 6 of this report.

DEPARTMENT DETAILS

NWT HOUSING CORPORATION

Background

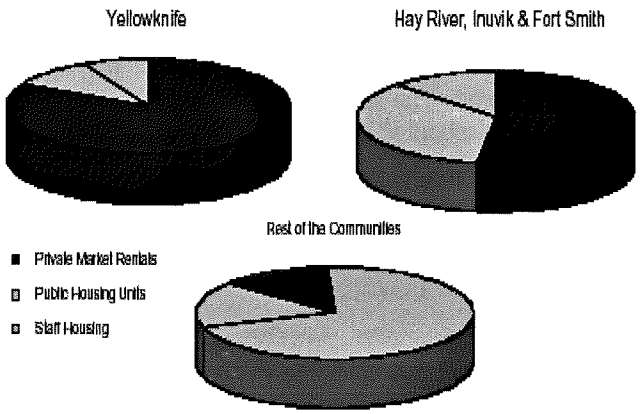
The mandate of the Northwest Territories Housing Corporation is to provide programs and advice to assist communities in providing housing to their residents in need of housing. This is achieved by providing leadership and support to communities in the areas of technical research and services, financial support, information sharing, training, as well as economic development initiatives.

Housing Needs

Based on the 2000 Needs Survey there were 13,405 occupied dwellings in the NWT in 2000. An estimated 4,037 (30%) of the households had some form of housing problem and 2,726 (20%) of the households were in core need. The difference between those with problems and those with core need is that those in core need have insufficient income to solve their problem without government assistance. The housing needs are defined in the context of adequacy, affordability and suitability of existing accommodation arrangements. The balance of 1,311 units that have housing problems but are not in core need will be competing for the scarce building trades needed to maintain a home in good repair. Some of these homeowners will do their own maintenance

The following figure illustrates the lack of private housing in the smaller communities. The staff housing reference in the illustration reflects employer provided housing units such as those provided to their employees by the federal government and the private sector. It also includes the residual inventory of housing units remaining with the GNWT.

Category of Rental Housing Units, by Type of Community
Northwest Territories



The communities of the NWT currently face considerable challenges to housing development. For smaller communities these challenges include:

- Community residents generally lack sufficient income to support private housing markets
- There is an absence of a functioning housing market.
- Suitability and adequacy are core need problems.
- Financial institutions are reluctant to lend in many of the small communities.
- The lack of a natural housing market has led to substantially higher rents making it difficult for communities to attract much needed professionals which deters community growth and capacity building.
- Communities lack the capacity that will be needed to meet the demand resulting from non-renewable resource development.

For larger communities these challenges include:

- Migration and urbanization trends in the NWT represent a significant emerging issue.

  Migration from smaller communities to regional centres and Yellowknife to take advantage of employment opportunities available as a result of improved economic conditions is substantial. From the NWT Statistics Bureau's profile of Yellowknife 2001, migration from the smaller communities has resulted in an aboriginal population growth in excess of 5% per year.

  Based on the potential population impacts resulting from the development and operation of the mining and pipeline sectors and the shortage of a northern skilled and semi-skilled labour force, it is anticipated that southern in-migration will play a significant role in helping to develop the new northern economy.

- As a result of positive economic growth, tax-based communities face the challenges associated with aggressive growth. The CMHC Rental Market Report shows an extremely tight rental market in Yellowknife with vacancy rates at or near zero levels.

- The primary core need issue facing the larger communities, in particular Yellowknife, is affordability. Affordability is defined as a household paying more than 30% of its gross income for shelter costs.

- The high cost of land and land development creates a supply issue.

- Industry players have given clear indication that housing for staff associated with their activities remains one of their primary concerns, especially in the communities of Inuvik and Yellowknife. .

- CMHC's commercial mortgage insurance regulations require developers to invest substantial portions of risk capital in projects in the north due to their calculation of market capitalization rates. Based on market capitalization rates, developers have to risk more of their capital when compared to southern projects. CMHC has better market capitalization rates in the south.

Program impacts

Market Housing Development

The overall shortage of housing in the NWT will be one of the factors that need to be addressed to ensure that the building blocks are in place to move the economy forward. There will be a need to provide affordable social rental housing and homeownership options as well as assistance with the development of private housing markets.

Due to the fact that market communities have a vibrant housing market, it is believed that the private sector can anticipate and address some of the need for new market rental and homeownership housing. However, there will be a need for some direct government intervention in order to ensure availability and address the issue of affordability.

Lot Development

Although not a program of the NWT Housing Corporation, there will be a need to facilitate access to reasonably priced and financed developed lots. Currently, municipalities have the responsibility to finance the development of lots for resale or lease. As municipalities have limited fiscal capacity, they must recover the full price of lot development and do so as quickly as possible. This makes the municipalities reluctant to develop lots on speculation or delay payment for the lot once a housing development commences. The result is a shortage of lots and a high front end-financing burden for developers.

Projections are that non-renewable resource development impacts will drive the need for 445 developed lots with 250 of these being required in market communities with the balance 195 being required in non-market communities. The current projected lot development costs are approximately $15 million for market communities and $5

million for non-market communities. It is anticipated that government intervention will be required to provide up-front financing for the lot development.

Assistance Programs

EDAP - Under the Expanded Downpayment Assistance Program clients who are currently residing in rented accommodations and who are first-time homebuyers may be eligible to receive downpayment assistance for the purchase or construction of a home. The current program is based on income and provides downpayment assistance based on the client entering into affordable housing. An expansion of this program to address non-renewable resource impacts could provide a stimulus to the housing market in market communities. The provision of approximately $15.0 million would provide for approximately 400 housing units - 284 housing units in tax-based municipalities with the balance in non-taxed based municipalities.

MDAP - The Minimum Downpayment Assistance Program looks to provide financial incentives to individuals regardless of income in order to allow them to become homeowners. This would help stimulate economic activity and support the thrust towards homeownership. The target audience includes present NWT residents who lack the savings required for a downpayment and employees who currently work rotational shifts in the north but reside in the south. This program would provide a downpayment grant towards the purchase of an existing home that is geared to provide the minimum downpayment required to meet Canada Mortgage and Housing Corporation's (CMHC) 95% Mortgage Insurance Program. The provision of this program would provide for 100 clients and require $1,000,000.

Financing Guarantees - The impediments to new market rental development in the smaller communities include the lack of underwriting support from Canada Mortgage and Housing Corporation (CMHC) and the high cost of construction. With high market capitalization rates, it is difficult to encourage developers to invest capital into these new housing markets. Instead, it will be necessary for the GNWT to provide some financial support in order to promote the construction of new market housing in the communities. Currently, the Housing Corporation provides guarantees on interim financing and speculative housing developments as market support initiatives. The loan guarantees assist private sector companies to build or upgrade single or multi-unit residential housing for rental accommodation and for the homeownership market. In order to accommodate a projected demand for up to 500 units in non-market communities, the Corporation would need to raise its allowable loan limit to approximately $50 million. With an 8% risk allowance, the Corporation would need an increase to its funding of approximately $4 million one-time to underwrite mortgages in non-market communities.

Affordability - In order to prevent a housing crisis, it may be necessary for the Government to help address the affordability problems caused by high construction costs. Of the expected need of 1,900 new market units, it is anticipated that about 1,000 units may require a rental top-up of $200 per month to make the units affordable. The $200 top-up is based on the following:

- A worker earning $55,000 could afford to pay $1,375 for shelter costs and not be considered in need as follows.
    - $55,000 / 12 months = $4,583 monthly income X 30% shelter costs = $1,375 monthly affordable rent.

- A $200 per month top up would relate to a shortfall in employee income to cover high construction and market demand costs of $8,000 in annual income calculated as follows:

    - 200 / .3 = 666 X 12 months = an $8,000 adjustment in income or looking at it from another perspective, the worker making $55,000 will now be able to afford $1,575 in affordable rent with this program.

It would be necessary for the clients to be income tested to determine if they qualify for the program. This initiative would cost a maximum of $2.4 million on an annual basis.

It will also be important for the private sector to ensure that their wage structure is reflective of the high cost of construction and its impact on the shelter costs. If employees are required to pay more than 30% of their income towards shelter, they may also need some financial support through the social housing side of the GNWT programs. There would be a need to address the residency provisions of the current housing policy so that direct housing assistance could also be provided to new residents of the NWT.

Financial Counseling – Financial counselling is required for individuals in smaller communities that have the income but are currently unable to help themselves because of the debt servicing. Financial counselling would assist individuals with budgeting, investment and overall financial planning to ensure that families that can afford to house themselves are able to do so. Cost of development is estimated at $60,000 plus on going related costs for program delivery of $150,000.

Other Considerations

One consideration would include providing some level of occupancy guarantees to developers in small communities. Providing these occupancy guarantees would give some stimulus to developers to invest in the development of small communities. With an available source of adequate and suitable housing, the existing trend of out-migration from smaller communities to the major centres could be diminished. The positive effects of this would be numerous and include:

- Private rental market development in smaller communities
- Economic opportunities through construction training and employment
- Opportunities for those working in the non-renewable resource sector to pursue traditional lifestyle activities in their home community during the time away from their workplace.

Increased delivery and service costs

Non-renewable resource development continues to cause a high demand for construction trades and services. As the existing labour pool re-profiles to address this new and expanding market, it reduces the workers available to service the social housing construction and maintenance functions. This impacts the Housing Corporation by driving up the costs due to the supply and demand dynamics and

results in higher construction, repair and maintenance costs. Overall, the Corporation estimates that the cost of building and maintenance has increased at an annual rate of 4.5% for the past 2 years net of inflation. Given an existing $25 million annual budget, the Corporation would need a further $1.1 million per year to maintain existing delivery and service levels to lower income social housing families across the NWT.

Financial Summary

Direct Impacts – Future Investments

$15,000,000	one-time	O&M	Expanded Downpayment Assistance Program
$ 1,000,000	one-time	O&M	Mortgage Downpayment Assistance Program
$ 2,400,000	on-going	O&M	Affordable Housing
$ 1,100,000	on-going	O&M	higher construction, repair & maintenance costs
$ 4,000,000	one-time	O&M	financing guarantee
$ 210,000	on-going	O&M	Financial Counselling

HEALTH AND SOCIAL SERVICES

Background

The mandate of the Department of Health and Social Services (HSS) is to promote, protect and provide for the health and well being of the people of the NWT. This mandate is met by the provision of the following core services:

- Health promotion and disease prevention - programs designed to promote healthy lifestyles and to reduce high-risk behaviours, and to prevent the occurrence and spread of disease and illness.

- Health protection - programs designed to protect people from illness, disease and injury, including the protection of children from abuse and neglect.

- Diagnostic and curative services - acute care services, including diagnostic imaging, laboratory and emergency services.

- Continuing care - specialized care for chronic conditions, including home care, palliative and long term residential care.

- Rehabilitation services - services to assist in recovery from acute disease and illness or to minimize the impact of chronic disease, including physiotherapy, occupational therapy and speech/language services.

- Mental health and addictions programs - services to assist in the assessment, treatment and recovery from mental health problems, including addictions, suicide and family violence.

These programs and services are delivered by six Regional Health and Social Service Authorities, with planning underway for the creation of a seventh Authority. In addition, Stanton Territorial Health Authority provides hospital services to residents throughout the NWT. Specialized services are available as required from programs and facilities located both in the NWT (e.g., Natsejeek'eh Treatment Center) and outside the NWT.

The GNWT spends over $200 million annually on health programs and social services, or about 24% of total government expenditures. This equals a per capita expenditure of approximately $5,000, which is the second highest in Canada after the Nunavut Territory. This figure reflects one of the greatest challenges for the health and social services system in the NWT – that of providing high quality, accessible care to a relatively small number of people, living in 33 communities, distributed over 1.3M square kilometers of land and water, most of which is accessible only by air.

Program impacts

Non-renewable resource development activities are recognized by industry as having both positive and negative benefits on people[1]. On the positive side, new training and employment opportunities lead directly to increased personal and family incomes, and indirectly to increased levels of education. Both income and education are positively correlated with population health. Increased income levels also carry with them the opportunities for improved housing conditions, more recreational activities, and a higher standard of living. These are also correlated with improved population health and social well being.

But not all the impacts of non-renewable resource development activities are positive. Not everyone benefits equally from new employment opportunities, and as a result income disparities within the community can widen. As this gap between the "haves" and "have-nots" increases within the community, social issues can intensify, crime rates may increase, and the health of the "have-nots" can decline.

Even for those who can take advantage of new employment opportunities, the outcome is not always positive. Increased income has been correlated with money management issues, including problem gambling and marital conflicts, and with increased alcohol and drug abuse. Rotational shift work may result in increased parenting problems, by creating virtual lone-parent families when one parent must work for extended periods at remote work sites.

The negative impacts of non-renewable resource development activities on the health and social services system will be experienced in the following program areas:

- Health centers – increased needs for emergency and acute care services and public health programs;
- Physician services – increased need for diagnostic and acute care services;
- Hospitals – increased inpatient, outpatient, emergency and diagnostic services;
- Medical travel – increased travel within and outside the NWT;
- Social programs:
  - Increased child protection services
  - Increased mental health and addiction services
  - Increased family counseling services
  - Increased community support services.

Current Trends in Health and Social Conditions

Overall, the health and well being of the people of the NWT has been improving over the past decade. Two of the most common measures of population health have been trending in the direction of improved health: life expectancy is increasing, and infant mortality is decreasing. Other reliable measures of population health, such as self-reported health status, suggest that people in the NWT are generally as healthy as their counterparts in the rest of the country.

However, there are several less positive trends that carry significant implications for the health and social services system, as discussed below.

Tobacco and alcohol...

- An estimated 46% of the population 12 years of age and older were current smokers in 2001, compared to 26% nationally.
- Nearly two-thirds (62%) of young adults between the ages of 20 and 29 were current smokers, compared to only 34% nationally.
- While national smoking rates appear to be declining, the smoking rate in the NWT has held steady since 1994.
- The proportion of heavy drinkers in the NWT is twice the national rate – 40% compared to 20%.

The health effects of smoking and excessive alcohol consumption are not yet fully evident in the relatively young NWT population. However, unless these trends are reversed, increasing demands on the health care system associated with smoking and alcohol-related illness will become quite apparent in the future.

Injury deaths...

- The overall mortality rate due to unintentional injuries in the NWT is more than twice the national average – 70 deaths/100,000 compared to 28 deaths/100,000.
- Injuries are the leading cause of death for those between the ages of 2 and 35 years of age, accounting for almost 80% of all deaths.
- While the overall number of injury deaths has been declining since the early 1990s, the intentional (suicide and homicide) injury death rate has increased during the latter half of the decade.

Injury deaths are preventable, and are a major public health issue for the NWT. The social and economic costs of injury deaths, which occur predominantly among young people, are significant. As a simple measure of these costs, injuries deaths accounted for 12,462 person-years of productive life lost in the NWT between 1990 and 1999.

Communicable disease...

The incidence of chlamydia, a common sexually transmitted disease, decreased between 1991 and 1997, but has recently increased, from an average of 968 cases/100,000 in 1995-97, to an average of 1,167 cases/100,000 in 1999-01. The incidence of chlamydia in the NWT was 8 times the national rate between 1999-01.

- A similar declining then recently increasing trend was noted for gonorrhea. The incidence of gonorrhea was 14 times the national rate between 1998-00 (247 cases/100,000 compared to 18 cases/100,000).
- The incidence of Hepatitis C has also been increasing, from an average of 24 cases/1000,000 between 1993-95 to an average of 59 cases/100,000 between 1999-01.
- The incidence of tuberculosis continues to be a concern in the NWT, with rates that are four times the national average – 26 cases/100,000 compared to 6 cases/100,000 between 1998-00.

Beyond adding to the burden of acute care services, communicable diseases such as those noted above place additional demands on public health services as result of the need to conduct contact tracing and other health promotion and disease prevention activities.

Family problems...

- The number of children at risk and receiving care under child welfare legislation has increased from 574 in 1996/97 to 965 in 2001/02. This represents an increase from 40 children/1000 to 68 children/1000.
- Admissions to family violence shelters in the NWT are the third highest in the country. In 1997/98, 20 women/1000 were admitted to shelters in the NWT, compared to 4/1000 nationally. In that same year, the child admission to shelters in the NWT was 26/1000, compared to 6/1000 nationally.

Children are particularly vulnerable to any increased marital stress and family issues that could arise as a result of parental employment requiring extended periods away from home. Prevention programs are of vital importance in this area.

These figures and trends highlight some of the most pressing challenges facing the health and social services system today, and they provide a backdrop against which to gauge some of the impacts of nonrenewable resource development activities. The health and social needs of workers and their families who migrate into the NWT will have an additive impact on an already challenged system of care, as will the changing needs of NWT residents whose newly found employment will bring a transition from traditional pursuits to wage employment.

Projected Impacts

While there is much anecdotal evidence to suggest that non-renewable resource development activities have impacted a number of communities, factual evidence of negative impacts that can be directly linked to development activities is not clearly evident.

Tuktoyaktuk and Fort Liard are frequently identified as communities that have been severely impacted by oil and gas exploration, and Rae/Edzo is identified as impacted by the development of the BHP Billiton and Diavik diamond mines. Some administrative data support these observations:

In Tuktoyaktuk…

- In the mid 1990s, there was an annual average of 20 children in need of child welfare services. By 2000/01, the annual average had increased to 38 – a 90% increase.
- In 1996, the incidence of sexually transmitted disease among 15 to 44 year olds was 27cases/1000 population. By 2001 the incidence had risen to 55 cases/1000 – an increase of 101%.

In Fort Liard…

- Between 1995 and 1998 the health center recorded an average of 1,729 hours of direct patient care. Between 2000 and 2002, the average had increased to 2,643 hours – an increase of 53%.

- Between 1995 and 1998 total medical travel costs were $253,000. Between 1999 and 2002 total medical travel costs were $372,000 – an increase of 47%.

In Rae/Edzo…

- In the mid 1990s, there were an annual average of 37 children in need of child welfare services. By 2000/01, the annual average had increased to 77 – a 105% increase.
- Between 1994 and 1996 there were no recorded cases of gonorrhea in the 14 to 44 year age cohort. By 1997 the incidence of gonorrhea in this cohort rose to 3.5cases/1000 population, and by 2001 the incidence was 17cases/1000 population.

While these examples of increased health and social issues in communities in close proximity to development activities are by no means conclusive, they are suggestive of possible impacts. It has also been found that other communities at a distance from development activities have also have experienced increased social caseloads and rising health care utilization. As the benefits and impacts of development are more broadly distributed it can be expected that this trend will continue.

The lack of solid impact data arises primarily because existing databases were designed for population health surveillance and social program management purposes, rather than impact monitoring purposes. This deficiency will continue until such time as purpose-built health and social impact monitoring systems are put in place.

The GNWT *Non-Renewable Resource Development Strategy* (November 2000), identified the establishment of a biophysical and socio-economic monitoring and mitigation regime, including the establishment of solid baseline data, as key components by which to measure impacts over time. It was suggested that $17 million over four years would be required to accomplish this. While the costs for health and social well being monitoring were not identified, these could be estimated based on the health and social service component of the overall GNWT expenditure.

Departmental Assumptions

In order to project incremental costs associated with non-renewable resource development activities, the HSS has taken a conservative approach, with the following assumptions:

- It was determined that, without compelling administrative data and in the absence of a dedicated monitoring program, impacts at the community level would be difficult to project accurately.
- Projected impacts were based on based on population growth estimates. Some costs associated with population growth will be offset by increases in the grant from Canada. The most significant impact will be during the construction phase where there will be non-recoverable, population-level costs associated with the temporary influx of workers and families between 2003 and 2008. During the operational phase, the NWT will experience a smaller increase to resident population but for a longer period, to 2019. This population will have less significant effect on the health system but an effect none the less.
- To calculate additional service utilization costs (items 2-7, below) it was estimated that between 25% and 50% of the construction population would become eligible for NWT health care coverage during the construction period. However, since this population was migrant, it would not be captured in population figures, and costs would not be recovered through formula financing.
- It was assumed that these temporary in-migrants would utilize health services at the same rates as the resident population. Since the majority of in-migrants will be working-age males, and since utilization rates vary by age and sex, projections are based on rates for 15-64 year old males.
- Calculations were based on the population projections provided by the NWT Bureau of Statistics.
- No projections have been made to capture increased costs associated with the transient workforces at the BHP Billiton and Diavik diamond mines, or the anticipated DeBeers mine.
- Projections for increased social services costs were based on a percentage of increased health care costs, comparable to the current distribution of expenditures between these program areas.
- While not fully quantified, there will be direct impacts on families, children and the social well being of communities. These will require a preventive approach.

Financial impacts

Construction Phase

Current Per Capita Costs

Per capita costs for 15-64 year old males were estimated based on the proportion of health service expenditures consumed by this cohort on average each year between 1994 and 1998, and this proportion was then applied to the average Main Estimate allocation for each health program for the 2000/01 and 2001/02 fiscal years. The Average Per Capita Costs, 15-64 Year-Old Males is as follows:

Hospitals		Physicians		Health Centers	Medical Travel
NWT	Southern	NWT	Southern		
$647	**$239**	**$307**	**$55**	**$270**	**$156**

Projected Impacts

Impacts Monitoring Program – develop and implement a program to monitor the health and social impacts of non-renewable resource development activities, including the capture of baseline data against which to measure cumulative and longitudinal impacts.

- Allocate 24% of $17M identified for Strategy #10 in the *Non-Renewable Resource Development Strategy* - **$4.8 million**.

Impact on NWT Hospitals – additional inpatient and outpatient costs associated with emergency and acute care services, diagnostic and laboratory services, and rehabilitation, based on population influx and per capita costs:

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$68,000 – $134,000	$170,000 – $340,000	$269,000 - $538,000	$1,400,000 - $2,800,000	$2,300,000 - $4,600,000	$1,500,000 - $3,000,000

- Total projected impact on NWT Hospitals for the period 2003 through 2008 is estimated to be between **$5.7 million to $11.4 million**.

Impact on Out-Of-Territory Hospitals – additional specialty emergency and acute care and diagnostic services not available in the NWT, based on population influx and per capita costs:

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$24,000 – $50,000	$63,000 – $126,000	$100,000 - $199,000	$526,000 - $1,000,000	$843,000 - $1,700,000	$556,000 - $1,100,000

- Total projected impact on Out-of-Territory Hospitals for the period 2003 through 2008 is estimated to be between **$2.1 million to $4.2 million**.

Impact on NWT Physicians – additional costs associated with physician diagnostic and treatment services in the NWT, based on population influx and per capita costs:

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$31,000 – $63,000	$81,000 – $161,000	$127,000 - $255,000	$672,000 - $1,300,000	$1,100,000 - $2,200,000	$712,000 - $1,400,000

- Total projected impact on NWT Physicians for the period 2003 through 2008 is estimated to be between **$2.7 million to $5.4 million**.

Impact on Out-Of-Territory Physicians – additional costs of specialist services not available in the NWT, based on population influx and per capita costs

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$5,000 – $11,000	$15,000 – $29,000	$23,000 - $46,000	$121,000 - $243,000	$195,000 - $390,000	$129,000 - $257,000

- Total projected impact on Out-of-Territory Physicians for the period 2003 through 2008 is estimated to be between **$0.5 million to $1.0 million**.

Impact on Health Centers/Public Health Units – additional costs associated with acute and chronic care services and public health programs., based on population influx and per capita costs

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$28,000 – $56,000	$71,000 – $142,000	$112,000 - $225,000	$592,000 - $1,200,000	$951,000 - $1,900,000	$627,000 - $1,300,000

- Total projected impact on Health Centers/Public Health Units for the period 2003 through 2008 is estimated to be between **$2.3 million to $4.8 million**.

Impact on Medical Travel – increased costs associated with transporting patients when medically-necessary services are not available at the local, regional or territorial level, based on population influx and per capita costs:

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Annual Cost	$16,000 – $32,000	$41,000 – $82,000	$65,000 - $130,000	$342,000 - $683,000	$549,000 - $1,100,000	$362,000 - $1,724,000

- Total projected impact on Medical Travel for the period 2003 through 2008 is estimated to be between **$1.4 million to $2.7 million**.

Impact on Social Programs – increased costs associated with child welfare, family counseling, mental health and addictions, and other social programs, based on 14% of health costs:

- Total projected impact on Social Programs for the period 2003 through 2008 is estimated to be between **$2.1 million to $4.1 million**.

Operational Phase

The operational phase will be from about 2009 to 2019. During this phase the NWT will experience an incremental increase to its population over and above "normal" growth estimates of 583 persons starting in 2009 and increasing to about 650 persons in 2019.

The average per capital cost for health services programs according to the 1998/1999 Geographic Tracking of Expenditure Report was about $3,500 a person. This amount does not include the corporate costs or other fixed costs of the department.

Assuming the impacts of inflation are minimal, the department will start incurring at least an additional $2 million for the provision of health care services in 2009. This amount will have increased to over $2.3 million by the end of the operation phase in 2019.

Impact on Health and Social Service Professionals – increased capacity to meet increased service needs, based on population influx.

While it was assumed that existing infrastructure (hospitals, health centers) would be sufficient to meet the increased utilization, additional health and social service professionals will be required to meet increased demands during the peak construction period between 2003 and 2008.

Population-to-provider ratios were calculated based on the 2000 NWT population estimates and the 2002/03 FTE allocations.

	Physician	Nurse	Social Worker	Mental Health/Alochol and Drug Worker
Ratio	1:684	1:164	1:536	1:2023

Physicians

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Physicians Required	0.6	1.5	2.4	12.8	20.6	13.6

Nurses

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Physicians Required	2.5	6.0	10.0	53.5	86.0	56.5

Social Workers

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Physicians Required	0.8	2.0	3.1	16.4	26.3	17.3

Mental Health and Addiction Workers

Year	2003	2004	2005	2006	2007	2008
Population Increase	414	1,051	1,665	8,766	14,086	9,290
Physicians Required	0.2	0.5	0.8	4.3	7.0	4.6

Current Investments

Form 2000/2001 to the end of the 2003/2004, the department will have invested in excess of **$ 26 million** in the health and social services system, in both acute care services and in health and wellness promotion programs. Some of the more significant issues include:

Recruitment and Retention

The ability to retain and recruit nurses, social workers and allied health care professionals in the NWT has been challenging. The Canadian and international nursing shortage that has been evolving over the last few years has added to these challenges and is expected to last for a number of years. These challenges will be compounded as future resource development places further pressures on existing staff. Major investments include $1.5 million in 2000/2001 and 2001/2002 for a Labour Market Supplement for recruitment and retention initiatives for nurses. Starting in 2002/2003, the department will be investing over $1.9 million annually for a new Health and Social Services System Wide Recruitment and Retention Initiative for nurses, social workers and other allied health care professionals (audiologist, speech pathologist, Occupational Therapist).

Service Delivery and Capacity

The department has recognized that addressing the current service delivery pressures being experienced in the NWT is a priority. Accordingly, in the last few years, the department has made some minor investments to help address some pressures, including, for example, $100,000 for an additional Social Worker in the community of Tuktoyuktuk to address the significant increases in case loads experienced in the community. As stated earlier, Tuktoyuktuk is a community that has already been impacted by current non-renewable resource activities. In addition, starting in 2003/2004, the department will be investing over $8.3 million to address two critical areas: (1) the increasing demand that is being placed on physicians, especially those providing services at Stanton Territorial Hospital and (2) the shortage of nurses requiring advanced skills in specific areas.

Other Critical Investments

Three special initiatives have been undertaken by the department to address both prevention and treatment in critical areas that will be severely impacted by further non-renewable resource development. These initial investments were made to respond to current needs, however, as resource development activities increase in the next few years, the level of these investments may have to be re-evaluated.

Child Welfare Action Plan - A three year investment of $3.2 million for additional human and fiscal resources to increase support in children and family services by improving the newtwork of programs and services available to children and youth, including:

- Enhance statutory and competency training for child protection workers and supervisors.
- Enhance and maintenance a Child and Family Information System. This system will be critical for the compilation of baseline data.
- Provision of prevention tools like demonstration projects on "Looking After Children" to improve risk assessment for children's needs.
- Implementation of new trauma and healing programs for women and children.
- The continued development and implementation of foster family and community based training.

Early Childhood Development Plan - In partnership with the Department of Education, Culture and Employment, a three investment of about $2.8 million for the planning, development and integration of prevention, promotion and intervention of programs and services. The departments portion of the investment is about $1.7 million. The Plan has four priorities: (1) Education and Awareness, (2) Speech/Language Development, (3) Screening and Intervention Tools and (4) Community Support Resources.

Mental Health and Addictions Initiative - Improved mental health has been identified as a priority for several years. The Legislative Assembly has recognized that to take advantage of resource development opportunities would require self-reliant individuals, families, and communities who can take an active part in improving social well being. This means a mentally healthy and well-balanced population. The department will be investing over $1.4 million annually to:

- Improve the effectiveness of community based mental health and addictions counseling.
- Integrate mental health, addictions and family violence programs with the health care system.
- Enhance Youth treatment services.
- Enhance regional support to persons with mental illness.

As mentioned above, these investments were required to meet existing demands on the health and social services system that have arisen in the past few years. The investments were not made in anticipation of incremental demands associated with further non-renewable resource development activities, nor will they be adequate to meet such demands, particularly those that would result from the construction of a Mackenzie Valley pipeline.

Financial summary

Direct Impacts – Future Investment

Operations Expenditures

Impact Monitoring Program	$4.8 million over four years

For the period 2003-2008:

NWT Hospitals	$5.7 million to $ 11.4 million
Out of the NWT Hospital Services	$2.1 million to $ 4.2 million
NWT Physicians	$2.7 million to $ 5.4 million
Out of the NWT Physician Services	$0.5 million to $ 1.0 million
Impact on Health Centers	$2.3 million to $ 4.8 million
Impact on Medical Travel	$1.4 million to $ 2.7 million
Impact on Social Programs	$2.1 million to $ 4.1 million

For the period 2009-2019:

Provision of Health Care Services	$2.0 million to $2.3 million
Total quantifiable impacts	$18.8 million to $40.7 million

Impacts not Quantified – Additional Health Care professionals

Year	2003	2004	2005	2006	2007	2008
Physicians	0.6	1.5	2.4	12.8	20.6	13.6
Nurses	2.5	6.0	10.0	53.5	86.0	56.5
Social Workers	0.8	2.0	3.1	16.4	26.3	17.3
Mental Health / Addiction Workers	0.2	0.5	0.8	4.3	7.0	4.6
	4.1	10.0	16.3	87.0	139.9	92.0
Rounded	4	10	16	87	140	92

RESOURCES, WILDLIFE AND ECONOMIC DEVELOPMENT

Background

RWED's vision for the growth of the economy is, "A prosperous and diverse economy built on the strengths of our people and the wise use and conscientious protection of our natural resources, one which attracts investment and provides communities and individuals with opportunities to be productive and self reliant. Our children will inherit a secure future which provides a healthy environment and which balances traditional lifestyles with a modern economy".

The department's programs include:

Investment and Economic Analysis - With general responsibilities for strategies, plans and programs to develop the NWT business community, Investment and Economic Analysis provides expert advice, coordination and support to business, arts and crafts, trade and investment, manufacturing and marketing, and acts as a link to national and international businesses and organizations.

NWT Business Credit Corporation - The NWT Business Credit Corporation was established to stimulate economic development and employment in the North by making loans to business enterprises, guaranteeing loans made by financial institutions to businesses, and providing bonds to resident business enterprises. It is responsible for making business development loans to higher risk entrepreneurial ventures where conventional lending institutions are not prepared to participate.

NWT Development Corporation - The NWT Development Corporation was established to: create employment and income for Northerners; stimulate growth of businesses in the North; and promote economic diversification and stability. The Corporation pursues these goals by investing in and establishing business enterprises, particularly in smaller communities, where the prospects for profit are weak but where employment dividends are high.

Wildlife and Fisheries - Wildlife and Fisheries is responsible for maintaining productive populations of all native wildlife in their natural habitats, encouraging the wise use of wildlife populations within the limits of sustainable yield and encouraging the active participation of northern residents in the management of wildlife resources. In addition to assistance programs that are designed to support the hunting and trapping economy, support is provided to resource user organizations to enable them to become more involved in wildlife management. Wildlife and Fisheries is also responsible for developing plans and programs for the sustainable development of the fisheries resource including the administration of the sport fishery.

Minerals, Oil and Gas - Minerals, Oil and Gas participates in developing and coordinating plans for the transfer of provincial-type responsibilities from DIAND to the GNWT with respect to oil, gas and mineral resources. It also participates in developing strategies to increase economic benefits from resource development to NWT residents and businesses and works with communities and other government departments and

agencies to identify and realize opportunities from resource extraction activities in the North.

Parks and Tourism - Parks and Tourism provides for the development, operation and maintenance of public tourism facilities such as parks, visitor centres, interpretive displays, and promotional signs. It also supports strategic tourism development by providing guidance and resources to the NWT Arctic Tourism Association.

Diamond Projects - Diamond Projects is responsible for addressing the need for developing diamond value added industries in the NWT including sorting, cutting, polishing, grading, jewelry manufacturing, and marketing. The Division coordinates development, review, evaluation and assessment of proposals, and develops programs to address: access to diamonds, development of a skilled work force, taxation issues, availability of financing, regulation of the new industry (trade), the need for an efficient polished distribution system and an effective marketing of polished diamonds and diamond products, and security.

Forest Management - Forest Management is concerned with the provision of services and support to forest management initiatives at the regional and territorial level. The initiatives include:

- Presuppression activities include the provision of contract aircraft (including air tankers), personnel and services in support of forest fire operations, and the training, outfitting and supplying of forest fire response teams to maintain a readiness for forest fire activity.

- Telecommunications services supplies communications and technological services in support of forest management operations at the Regional and Territorial level and includes operation and maintenance of a communications and lightning location network in the Western Arctic.

- Forest Science and planning provides weather analysis and forecasting services in support of forest fire response planning, and geographic analysis and information services in support of forest management decision-making across the Northwest Territories.

- Fire Suppression establishes and implements forest fire management plans according to the Forest Fire Management Policy. Fire Suppression is concerned with the protection of people, property and forest areas from wildfire and the use of prescribed burning for the attainment of forest management and other land use objectives. The programs are conducted in a manner that considers environmental, social and economic criteria affecting the residents of forest areas.

- Forest Development concerns the management and administration of the forest resources of the Northwest Territories. Timber Cutting Permits and Timber Cutting Licenses are issued to control and manage harvest operations. Forest inventories are prepared to identify the location and state of the forest resources. Silviculture programs include site preparation, planting and seeding to ensure the sustainability of the forests and consideration of methods and procedures for the management of forests for

future generations. Management plans are developed to provide long-term strategies for the sustainable development of the forest resource.

Environmental Protection - Environmental Protection provides information and programs in the areas of air quality, hazardous substances, waste management and impact analysis. Includes initiatives and programs designed to reduce the impact of man's activities on the North's natural environment. Program areas include air quality, hazardous substances and waste management, and environmental impact analysis including monitoring and regulating activities that may impact the environment as well as education.

Energy Management - Energy Management is responsible for the development of energy efficiency and conservation programs with a community focus and include promoting energy awareness, encouraging the use of energy efficient technologies, development of alternative local energy sources, and community energy planning.

Program impacts

Considerations

As the main driver of our economy, resource development provides significant opportunities for NWT residents in terms of employment and business opportunities. These opportunities also bring significant demands from residents and businesses that wish to participate but are not well positioned to do so. The Department of Resources, Wildlife and Economic Development's task has been to maximize potential benefits and reduce negative environmental impacts.

Most, if not all, departmental programs have been, and will continue to be affected by non-renewable resource development. Impacts include:

- Corporate Programs.
  - Ensuring compliance with departmental programs and training is up-to-date and relevant with standards
  - Facilitating the coordination with other departments on non-renewable resource development impacts, such as, socio-cultural impacts, population mobility, capacity building, and employment
  - Coordination of Mackenzie Valley Planning...ensuring maximum benefits are achieved
  - Maximizing Northern Employment initiatives
  - Establishment of the Energy Secretariat
  - Establishment of the Diamond Secretariat
  - Department capacity for policy and legislative development and strategic planning to ensure the department can effectively respond to the complex environmental, resource management, and economic issues related to NRRD

- Environmental Protection.
  - Baseline and cumulative effects monitoring
  - Capacity at regional centres (i.e. environmental protection officers)

- Continued investment in the Interim Resource Management Assistance Program to ensure communities have the capacity to participate in resource management issues affecting their areas.

- Parks and Tourism – projected impacts on territorial parks in terms of utilization and capacity.

- Projected uptake on NWT Development Corporation Programs, especially in smaller communities where employment opportunities are expected to grow.

- Capacity for the department to provide adequate investment and economic analysis advice to smaller communities, especially through its regional offices.

- Required strategies to effectively manage wildlife resources during the construction phase.

- Continued investment in the Mackenzie Valley Development project to support the GNWT's approach to resource development and ensuring benefits to northerners are maximized.

- Continued investment in Diamond Projects. .

- Department currently has strong regional presence. Maintaining capacity at regional offices is critical in ensuring adequate levels of program delivery support and services to community government and businesses are available.

Impacts

The following section lists and describes the initiatives undertaken by the Department of Resources, Wildlife and Economic Development in response to non-renewable resource development. The initiatives are grouped under general categories as follows:

- Diamonds
- Oil & Gas and Minerals
- Environmental Protection
- Socio Economic Issues
- Business Development
- Training
- Economic Diversification
- Economic Planning
- General - increases in demand resulting from regulatory, infrastructure, or increases in amount of activity and demands on staff stemming from resource development

Diamonds

The discovery of diamonds in the Northwest Territories was initially done under industry and federal government assumptions that mining activity would be the only benefit accruing to the Northwest Territories. The Government of the Northwest

Territories worked hard to ensure greater value added benefit remained in the North. These efforts have resulted in both diamond valuation and cutting and polishing plants being located in the NWT, along with the many jobs linked to those industries. This industry continues to expand, and GNWT actions continue to be required to ensure the best possible employment and business benefits result. This also entails marketing efforts to ensure NWT diamonds are clearly identified.

The nature and scope of the opportunities have lead to the creation of a Diamonds division, certification program, and a number of value added industries as mentioned. None of these benefits would have been realized without the GNWT taking the lead. The following outlines activities and costs linked to achieving these benefits.

1. **Diamond Projects – Workshops and Related Initiatives** The following was undertaken:
   - Strategy Workshop - The GNWT needed to review its approach and develop an updated 3-5 year strategy on the development of the diamond value added industries - $50,000
   - Provincial Workshop - The GNWT needed to take the lead with other jurisdictions and share our experiences and knowledge in order to gain support for discussions with Ottawa - $50,000
   - The addition of consultant expertise to the GNWT diamond "team" to provide advice with respect to De Beers and overall strategy - $100,000

   Indirect Impacts

$200,000	cumulative	O&M	Investments to Date (to March 2003)
$200,000	ongoing	O&M	Future Investment

2. **Diamond Projects – Establish Capacity** To take advantage of investment opportunities and recognizing the potential for the secondary diamond industry to become a major contributor to the Territorial economy and the commitment of this government to foster its development, it is desirable to invest public funds into industry monitoring, analysis of new opportunities and development of regulatory frameworks. To address the need the Diamond Projects Division was established to monitor the diamond industry, develop a regulatory framework and promote new opportunities.

   Indirect Impacts

$4,400,000	cumulative	O&M	Investments to Date (to March 2003)
$1,600,000	ongoing	O&M	Future Investment

3. **Polar Bear Symbol Litigation** Currently the GNWT is opposing trademark applications Sirius has made in the United States, in Europe and Japan. The foreign applications made by Sirius are dependent on the Canadian applications and are likely to fail if the Canadian situation is resolved in our favour. If not, the GNWT faces considerably more expensive legal costs in foreign countries to defend our polar bear trademarks. While waiting for this dispute to be resolved in Canada, the GNWT has requested extension on the proceedings in foreign jurisdictions. However, it is not possible for the GNWT to obtain any more extensions in its opposition of proceedings in the United States. Supplementary

funding to the amount of $150,000 for Canadian court costs and an additional $50,000 for proceedings in the United States is required.

Indirect Impacts

$500,000	cumulative	O&M	Investments to Date (to March 2003)
$0	ongoing	O&M	Future Investment

Oil & Gas and Mineral Development

The Northwest Territories has tremendous oil and gas potential. Natural gas markets are a North American market that has been growing at the same time that available reserves, and the size of discoveries in southern Canada, are decreasing. The Government of the Northwest Territories is actively involved in promoting development of this resource along with a pipeline to carry it south. That development involves significant economic opportunities and environmental challenges. Aboriginal support for development has developed and is linked to benefits. The following activities represent activities that address these opportunities. Environmental impacts are dealt with under a separate heading.

The Northwest Territories is also one of the world's most highly rated jurisdictions in terms of mineral potential. The GNWT plays a significant role in attracting exploration and promoting development of these resources.

4. **Mackenzie Valley Development Project** Establish planning and preparation capacity within the GNWT and the NWT for the Mackenzie Valley development project. This item includes:
   - Establishment of the planning and preparation capacity within the department for the 2001-02 fiscal year -$325,000
   - Funding to address the following initiatives: long term wealth creation, monitor biophysical and socio economic initiatives, oil and gas training program, entrepreneurial training program - $1,070,000
   - Funding for Aboriginal organizations to develop capacity to deal with increased activity levels related to oil and gas development. Regional leaders, community representatives and MLA's repeatedly requested capacity building support for Aboriginal governments and communities to maximize employment and business opportunities - $400,000
   - Given the proximity of recently discovered gas, natural gas conversions were instituted in response to community expectations to utilize some of that resource to help lower costs in communities. – $50,000.

Indirect Impacts

$3,565,000	cumulative	O&M	Investments to Date (to March 2003)
$1,395,000	ongoing	O&M	Future Investment

5. **Aboriginal Pipeline Group** The MacKenzie Delta Producers Group (Imperial, Coneco-Phillips, Shell and Exxon Mobil) offered Aboriginal Groups in the NWT the opportunity to own up to one-third of the MacKenzie Valley pipeline. The MacKenzie Valley Aboriginal Pipeline Corporation (MVAPC) was formed as a

result of this offer and is made up of the Sahtu, Gwich'in, Inuvialuit, and Acho DeneKoe Band. This item includes:

- Core funding for the Aboriginal Pipeline Group - $276,000
- A conceptual timeline for building the MacKenzie Valley Pipeline describes the project in four phases. The first phase is to develop the project definition. The GNWT provided a contribution of $500,000.00 to this project.
  The second phase is the regulatory and permitting phase followed by the third and final phase, construction. No government funding is expected for the completion of Phase Two and Phase Three.
- Funding to analyze opportunities and scenarios related to Aboriginal equity participation in the pipeline - $301,000. .

Indirect Impacts

$1,853,000	cumulative	O&M	Investments to Date (to March 2003)
$766,000	ongoing	O&M	Future Investment to 2005

6. **Business Skills** - The bulk of activity and control for development of a skilled workforce rests with the Department of Education, Culture and Employment. However, RWED maintains a special interest in the development of entrepreneurial skills to support small business start-ups and expansions. Community based delivery of the entrepreneurial training program was initiated.

Indirect Impacts

$200,000	cumulative	O&M	Investments to Date (to March 2003)
$200,000	ongoing	O&M	Future Investment

7. **Cameron Hills Program Review** The department commissioned a report to provide more detail and recommendations pursuant to activities in Cameron Hills.

In the winter of 2001-2002 Paramount Resources carried out seismic, drilling and facilities and pipeline construction operations in the Cameron Hills, immediately north of the Alberta/NWT border and approximately 60 kilometres south of the community of Kakisa. The purpose of the program was to develop oil and gas reserves, which had been discovered by Paramount in drilling programs from 1979-1 994, and which had been shut. The program lasted from December 2001 to April 2002, and cost $18.1 million. Of this $3.7 million (21 percent) was spent on northern goods and services. The program generated 2242 days of employment for northerners, (23 percent of total employment).

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$45,000	one-time	O&M	Future Investment

8. **Oil and Gas Specialists** To build capacity in the regional offices through the establishment of four regional oil and gas specialists.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$560,000	ongoing	O&M	Future Investment

9. **Mackenzie Valley Pipeline Lobbying** - Expenditures were incurred on Washington lobbying activities in support of a Mackenzie Valley Pipeline. The expenditures included travel costs for the NWT delegation and consulting services in Washington.

Indirect Impacts

$65,000	one-time	O&M	Investments to Date
$0		O&M	Future Investment

10. **Regulatory Hearing Preparation** – The department worked with Aboriginal organizations to ensure that the GNWT regulatory strategy reflected their needs. The consultation strategy developed enabled communities and regional groups to clearly identify their funding needs for regulatory participation.

Indirect Impacts

$100,000	cumulative	O&M	Investments to Date (to March 2003)
$430,000	ongoing	O&M	Future Investment to 2005

11. **CS Lord Center and Geology Warehouse** - The Department of Indian Affairs and Northern Development (DIAND) Northern Region and the geological Survey of Canada are partners in the CS. Lord Northern Geosciences Centre. The Centre is a collaborative effort among the three to provide a full range of mining and petroleum geology, geoscience and prospector Training and Assistance programs in the NWT.

DIAND Northern Regions obtained financing in the amount of $2.55 Million to construct a permanent facility. The building was constructed in 2002-03. As a partner in the Centre, the department provided $240,000 to furnish and provide computer equipment required for the new building.

MOG operates programs including prospector grubstake, Resource Assessments under the Protected Areas Strategy, Land Use Planning, and Outreach (a school program). Bedrock mapping is done out of the Centre by DIAND. MOG does petroleum geoscience work because DIAND does not have the expertise in place to carry out this work.

Indirect Impacts

$934,000	cumulative	O&M	Investments to Date (to March 2003)
$347,000	ongoing	O&M	Future Investment

Environment

Increased resource development activity has also led to increasing concerns over the impacts of these developments. The following activities address the need for clear and up-to-date information on resources and the environment, and measures to protect them, developed in response to resource development activities and proposals.

12. **Environmental Monitoring (Protection Officers)** - Regional capacity to deal with the increasing complexity and workload associated with the management of hazardous materials, hazardous waste and land, water and air issues will be enhanced. Increased opportunity to provide advice, assistance and public education will also enhance community capacity.

    Regional environmental protection programming continues to be raised on a frequent basis. Regional expertise in environmental protection will enable RWED to be more proactive by working more closely with other governments, communities, industry and the public. Future environmental liabilities can be avoided. The GNWT is legally liable for ensuring the effective administration of its legislation. Funding has been provided for:
    - Officer in Deh Cho
    - Additional Environmental Protection Officers in other regions

    Direct Impacts

$475,000	cumulative	O&M	Investments to Date (to March 2003)
$475,000	ongoing	O&M	Future Investment

13. **Baseline and Cumulative Impacts Monitoring for Air Quality** Air quality baseline and cumulative effects monitoring is required as large-scale development of natural gas proceeds. The Department of Resources, Wildlife and Economic Development has established a monitoring station for sulphur dioxide and hydrogen sulphide in Fort Liard. The Liard station needs to be upgraded to include monitoring for volatile organic compounds (VOCs) and oxides of nitrogen. Similar datasets need to be established in the Sahtu and Inuvik regions as further natural gas exploration and development occurs. This data will enable the Government to assess what impact, if any, natural gas development is having on western Arctic air quality.

    Indirect Impacts

$100,000	cumulative	O&M	Investments to Date (to March 2003)
$100,000	ongoing	O&M	Future Investment

14. **Forest Fire Protection During Construction and Operations** It will be necessary to maintain added forest fire suppression services during pipeline construction and during operations. It may no longer be possible to ignore forest fires within any proximity to the pipeline.

    Direct Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)

$2,000,000	ongoing	O&M	Future Investment

15. **Environmental Assessment and Legislation Resources** Resource development activity has more than doubled over the past few years, raising concerns that more effort and resources need to be dedicated to ensuring the proper benefits accrue to the communities. Lack of resources is hindering the department from doing that task effectively.

    New resources are required for in order for the department to meet its legislative commitments related to non-renewable resource development

    Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$305,000	ongoing	O&M	Future Investment

16. **Remote Sensing - Defining Key areas for protection** - With reference to the pipeline a large-scale environmental atlas should be developed prior to construction. This should highlight sensitive historical, environmental and land use priority areas. There is significant work required to develop a unified approach within the government. This information could save significant planning time – most exists in some form but needs to be coordinated and unified into a single reference system.

    Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$500,000	ongoing	O&M	Future Investment

17. **Baseline Data Collection and Cumulative Effects Monitoring** The Non-renewable resource Development Strategy identifies the need to invest $12.8 million over four years for baseline data compilation and cumulative effects monitoring. This estimate is based on experiences with the West Kitikmeot Slave Study (WKSS) and an assessment of baseline information available within the North Slave, Deh Cho, Sahtu and Inuvik regions.

    The annual cost to Government (GNWT and Federal) for partnership approach to baseline data collection taken by the West Kitikmeot Slave Study Society was between $1.2 and $1.5 million dollars per year for five years. Industry, aboriginal groups and environmental organizations contributed an additional $600 to $750 thousand per year. This amount funded a study office, a management board and research projects. WKSS provided support for 24 research projects of which 10 were traditional knowledge/community health studies conducted by communities.

    The WKSS mandate was for the collection of baseline data, however it has become clear from the WKSS process that baseline data collection needs to be linked to cumulative impact monitoring and management of cumulative effects early on in the research programs. We have therefore combined funding for Baseline Data and Cumulative Effects Monitoring with the anticipation that there will be a greater emphasis on baseline data in first two years and the emphasis changing to monitoring in the last two years.

The estimated costs are broken down into two sections; 1) the costs within the GNWT to support and conduct baseline research and monitoring programs and to help implement and support the environmental management processes and; 2) the costs of establishing a partnership to direct research and monitoring and to fund the priority research and monitoring program.

Indirect Impacts

$873,000	cumulative	O&M	Investments to Date (to March 2003)
$3,349,000	ongoing	O&M	Future Investment to 2004

18. **Bathurst Caribou Monitoring Program** There is a requirement for a biophysical study to develop baseline data on the Bathurst caribou herd.

Direct Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$300,000	ongoing	O&M	Future Investment

19. **Mackenzie Valley Development Project - biophysical study** The Department has invested in the Western NWT Biophysical Study primarily to:
    - Help provide certainty in the environmental review processes to those willing to invest in the NWT
    - Reduce the chance of significant environmental impacts from development
    - Reduce the chance of environmentally sustainable developments being delayed or not approved because of uncertainty regarding potential impacts
    - Enhance Government's ability to adequately predict and assess environmental impacts and to monitor for cumulative effects

Indirect Impacts

$450,000	cumulative	O&M	Investments to Date (to March 2003)
$1,000,000	ongoing	O&M	Future Investment

20. **Wildlife Guardian Program** To provide additional on-the-land resources for monitoring development impacts on wildlife.

Direct Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$145,000	ongoing	O&M	Future Investment

21. **Protected Areas Strategy Management and Development** The need for a Protected Areas Strategy has become more evident as exploration and development increases. Developers want to see a strategy to ensure they do not spend time and resources exploring in areas where no development would be allowed. Environmental interests want such a strategy to ensure representative ecosystems and related features are protected.

Indirect Impacts

$690,000	cumulative	O&M	Investments to Date (to March 2003)
$345,000	ongoing	O&M	Future Investment

22. **Integrated Resource Management Agreement** Funding to allow communities to respond to resource development proposals.

Indirect Impacts

$1,125,000	cumulative	O&M	Investments to Date (to March 2003)
$375,000	ongoing	O&M	Future Investment

23. **Environmental Monitoring and Assessment Board** This monitoring agency was established to monitor environmental effects of the Diavik mine. Diavik contributes an equal share to the Board's operations.

Indirect Impacts

$100,000	cumulative	O&M	Investments to Date (to March 2003)
$0	ongoing	O&M	Future Investment

24. **Deh Cho Regional Biologist** Due to growing regional development pressures, and demands from communities for environmental monitoring and assessment, RWED agreed to fund a regional biologist position for the Deh Cho from internal resources.

Direct Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$200,000	ongoing	O&M	Future Investment

Socio-Economic Issues

Maximizing business and employment opportunities in the NWT requires research and negotiations with development companies to ensure these companies are aware of and take utilize available Northern labour and businesses in their operations. The following activities support this function.

25. **Increased costs to address social and economic considerations of resource development** To meet increased demand for information regarding effects of development, and research into effective mitigative measures.

Direct Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$230,000	ongoing	O&M	Future Investment

26. **Advisory Board under the Diavik Socioeconomic Monitoring Agreement** If one or more resource development projects start operations in the

same region, it is expected cost efficiencies can be realized. Total board expenses are expected to be in the neighbourhood of $500,000 per year. Additionally, Resources, Wildlife & Economic Development (RWED) will incur some Operations & Maintenance expenses in its efforts to ensure successful implementation of the Agreement.

It currently appears that negotiations for the Mackenzie Valley Pipeline Project and the De Beers Diamond Project will run in parallel. Each of these two negotiations can be expected to absorb roughly a person year of senior resources. The need for a support position has been identified. This will allow an efficient use of staff to develop the technical and negotiating arguments needed for progress on this file.

Indirect Impacts

$600,000	cumulative	O&M	Investments to Date (to March 2003)
$300,000	ongoing	O&M	Future Investment

27. **Advisory Board under DeBeers Socio-economic Agreement** Negotiations for a DeBeers Socio-economic Agreement started with an agreed upon conclusion date of June 2003, with the Advisory Board to begin work immediately. Total board expenses are estimated at $545,000 per year, with 250,000 paid by DeBeers. Additionally, RWED will cover meeting and travel costs to various communities, estimated at $50,000 annually.

Indirect Impacts

$45,000	cumulative	O&M	Investments to Date (to March 2003)
$345,000	ongoing	O&M	Future Investment

28. **New Development Pressures Socio Economic Benefits** The Mackenzie Valley pipeline project will put oil and gas infrastructure in place that will trigger unprecedented exploration throughout the Mackenzie Delta and Valley.

The Producers Group has indicated that pipeline construction will last 120 days spread over two winter seasons, with marshalling of supplies occurring in the preceding year. Although the construction of a Mackenzie Valley pipeline will be short-lived and long-term opportunities limited primarily to business opportunities, the pipeline will provide the infrastructure needed to trigger future oil and gas exploration and development. The scale of this future development — in terms of both impacts and the management of development — has the potential to overburden GNWT resources.

Through negotiation of one or more socioeconomic agreements, however, the GNWT would attempt to put in place on-going processes to mitigate negative effects and to encourage positive effects where possible. In fact, the GNWT and the Mackenzie Valley Producers Group have begun early discussions regarding a SEA for the Mackenzie Valley Gas project. It is clear that these discussions are evolving into a Negotiation Protocol or Memorandum of Understanding that will guide the negotiations of all arrangements between the GNWT and the Producers Group. This will in turn guide negotiation of a SEA and other GNWT arrangements

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$650,000	ongoing	O&M	Future Investment

29. **Mitigate Social Impacts of Development** RWED has a responsibility to gain an understanding of development scenarios, analyze and project implications and communicate the likely impacts to affected GNWT departments. Investment in consulting fees and staff time to accomplish this is requested.

Direct Impacts

$80,000	cumulative	O&M	Investments to Date (to March 2003)
$80,000	ongoing	O&M	Future Investment

30. **Monitor Biophysical and Socio-Economic Environments** The need for baseline data to deal with development issues has been identified in Common Ground, Towards a Better Tomorrow and in recent recommendations to government from the Mackenzie Valley Environmental Impact Review Board. This initiative is seeking funding for three aspects of the work. First to enable the department to pursue/establish partnerships to address data gaps; to provide seed funding to secure partnerships with industry and aboriginal groups to initiate critical studies and to address data management issues and ensure that baseline data is available for decision makers.

    It is expected that the GNWT, the Government of Canada, industry proponents and Aboriginal Groups will all be signatories to a range of environmental and socio-economic agreements. During 2001 /2002 a multi-party proposal will be developed, similar to West Kitikmeot Slave Study, to prepare for the monitoring of biophysical and socio-economic impacts of development in the Mackenzie Valley. The GNWT will be expected to be one of several contributors to the research projects and monitoring activities of this body. Also, the GNWT will be expected to carry its portion of the administration costs.

    Establishment of this initiative will require an investment of $600,00O/year from the GNWT for a period of five years, beginning in 2002-03.

Indirect Impacts

$600,000	cumulative	O&M	Investments to Date (to March 2003)
$600,000	ongoing	O&M	Future Investment

Business Development

The NWT business community has benefited from development and their capacity to take on work is growing. However, significant challenges remain such as access to capital, business advice and assistance, and access to additional resource development opportunities. The following initiatives are targeted to addressing these needs to ensure NWT businesses develop the capacity, and have the means, to participate in development.

31. **Financial Assistance to Aboriginal Corporations** A critical gap in the NWT is support for aboriginal business development. Most aboriginal development corporations have limited expertise and equity. There is a need for special contribution funding to build capacity within these organizations – this has to be complete prior to the development of NWT oil/gas resources. Anticipated actions include:

    1. Provide financial support in the early stages for accessing technical, legal and business advice;
    2. Undertake training for staff and directors; and
    3. Undertake basic planning and investment research.

    Specific needs that have been identified are:

    - Deh Cho Economic Corporation $107,000

      The Deh Cho Economic Corporation requires funding to assist with the corporation's strategic planning process and to meet the short-term operating expenses of this newly created regional development corporation of the Deh Cho First nations.

    - Denedeh Investments Incorporated $137,000

      The Denedeh Development Corporation has created a new investment corporation, Denedeh Investments Incorporated. The requested funding will provide the new corporation with the necessary startup or "seed" funding for the first year implementation of Denedeh Investments Incorporated five-year corporate plan.

    - Denedeh Development Corporation – supp. Funding of $90,000

    - Developing Business Planning Capacity in selected communities - $150,000

    Indirect Impacts

$90,000	cumulative	O&M	Investments to Date (to March 2003)
$484,000	ongoing	O&M	Future Investment

32. **Financial Assistance to Business** Additional funding to supplement existing financial assistance programs to accommodate the increased demand resulting from increased economic activity from resource development. Funding would be distributed to:

    - Community Futures Organizations $750,000

    - Resource Management and Economic Development - O&M $750,000
      This funding will be allocated in equal amounts of $150,000 each to each of the five Regions to address increases in activity levels.

    - Program Evaluation and Assessment $75,000

An integral part of any program is that of evaluation and assessment through conducting client surveys and other assessments of the economic impacts and to determine whether the programs are achieving their intended goals and objectives.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$1,575,000	ongoing	O&M	Future Investment

33. **Increased Funding for Training Schedule of the BDF** Additional assistance will be required to assist with the management of northern firms. This could involve courses, on the job training in southern Canada, or management assistance. The best way of implementing this would be through increasing the training schedule of the current BDF program.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$300,000	ongoing	O&M	Future Investment

34. **Investment Promotion** A large portion of the NWT benefit from development will be through business contracts. To maximize the value added of projects in the NWT it will be necessary to promote investment in the NWT by individuals, existing businesses and people from other regions. The initiative will also promote joint ventures between Southern and Northern firms involved in resource development activities. One person year, plus O&M, are included in the above budget.

    Two specific projects are also included in this initiative. A diamonds and furs promotion campaign was linked to Team Canada events in Houston (01/02) and Munich (02/03), each at a cost of approximately $300,000.

Indirect Impacts

$1,100,000	cumulative	O&M	Investments to Date (to March 2003)
$250,000	ongoing	O&M	Future Investment to 2005

35. **Promotion of Regional Chambers of Commerce** The government will need to continue its efforts, especially in relation to pipeline development, towards assembling regional companies, including aboriginal companies, into regional trade organizations. This will facilitate the distribution of contract information and provide a forum for common discussions.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$200,000	one-time	O&M	Future Investment

36. **Community Futures - Added Operational Support** The Community Futures program, originally an initiative of the federal government, has been

supported and expanded by the GNWT from two to six regional organizations. The regional and community focus is seen as the strength of this program. The Business Development Fund encompasses a wide range of initiatives. Aside from assisting potential and existing businesses with pilot projects and business start-up and expansions, there is a component for community-initiated infrastructure projects that can facilitate economic development.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$300,000	ongoing	O&M	Future Investment

37. **Business Capital Funding** Community Futures organizations provide debt financing to regional and community businesses. Most of their clientele are small aboriginal business. With potential oil and gas development creating significant new opportunities, it is anticipated that $5 million will be required to enhance the capacity of community futures organizations within each of the 5 RWED regions. This funding would be used to enhance loan capital pools, making money available for development initiatives, likely to result from increased resource development activity.

    A one-time increase in capital funding of $1 million to the departmental loan program is anticipated, to account for added risk of development in the valley and provide extra capitalization to meet expected demand.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$6,000,000	one-time	O&M	Future Investment

Training

One of the main impediments to NWT residents obtaining jobs or taking advantage of opportunities in the non-renewable resource sector is lack of job-specific skills. The following initiatives are targeted towards developing skills to take advantage of opportunities.

38. **Maximizing Northern Employment** The Maximizing Northern Employment (MNE) initiative provides funding for the following:
    - Private Sector Partnership Fund
    - Aboriginal Human Resource Development Fund
    - Entrepreneurial Training and Tutoring Initiative
    - Worker Mobility Fund

    This funding is expected to directly contribute to the following results:
    - 20 full time training equivalent seats in the private sector in key occupations. This will result in 15 people successfully completing and being hired into a skilled occupation. This fund will target key occupations in the resource and transportation sectors;

- Additional private sector training initiatives of shorter duration will be supported. These initiatives will result in a further 15 full time equivalent training seats;
- The previously developed Entrepreneurial Training and Tutoring workshop series (Athabasca/Aurora College/RWED partnership) will be revitalized. Funding for 10 workshops for various impacted communities will be funded;
- Partnerships with Aboriginal Governments to support establishment of a joint human resource office in highly impacted areas. This will ensure preparation efforts are taken to anticipate development opportunities and to plan initiatives to maximize employment. Also, these offices will co-ordinate and facilitate the Northern hiring efforts in areas where resource development is most active.
- A call for proposals for the Private Sector Partnership Fund was initiated in July 2001. Through the work of the regional offices of RWED and Education, Culture and Employment (ECE) we received 38 proposals for training projects in the private sector. Many of these projects offered excellent opportunities for the GNWT to partner with the private sector to develop skills of northern workers. The 38 proposals were reviewed against a set of criteria to determine the order and magnitude of priority for the project. The review committee approved in principle 30 of the proposals that were submitted. Some of these proposals are approved for the full amount requested and others are partially funded. The approved projects are from all regions of the NWT. Over 200 candidates will receive some level of training through this project.

Indirect Impacts

$2,284,000	cumulative	O&M	Investments to Date (to March 2003)
$979,000	ongoing	O&M	Future Investment

Diversification

The NWT's reliance on the non-renewable sector makes residents vulnerable to downturns in this sector. The following initiatives are targeted to developing a more balanced approach to economic development to deal with potential downturns in the minerals sector but to also recognize that a healthy economy is a diverse economy that builds on the skills and resources available here, and decreases reliance on a single industry.

39. **Value Added Processing/Manufacturing - Strategy Implementation**
The Government of the Northwest Territories (GNWT) recognizes the inherent difficulties of manufacturing and value added processing in the north. Current and anticipated resource development activity provides an excellent opportunity develop sectors beyond basic resource extraction. Niche markets will open up for products and supplies that meet the needs of resource development. Incentives and start-up funding beyond normal business development programming will likely be required to take advantage of these opportunities.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$1,000,000	ongoing	O&M	Future Investment to 2005

40. **Promoting the Traditional Economy** Proposed new initiatives will seek to attract partnerships from the private sector, other government departments and aboriginal organizations. Evidence of partnership potential already exists in all regions mainly through the Department of Education. Private sector in most regions has also indicated interest in participating. This initiative recognizes the increasing pressure on the traditional economy in the face of resource development. Continued promotion of the traditional economy will ensure that non-economic activities and in-kind value of resource harvests are not lost.

    The amount includes education programs that target youth. The programs will provide information and training in traditional economy life skills including but not limited to hunting, trapping, fishing and resource management and conservation.

Indirect Impacts

$390,000	cumulative	O&M	Investments to Date (to March 2003)
$390,000	ongoing	O&M	Future Investment

Economic Planning

New opportunities from resource development require new approaches to working together, new strategies to take advantage of these opportunities, as well as strategies to address new challenges created by this development. The following initiatives were undertaken in response to these opportunities and challenges.

41. **Common Ground** Common ground was a broad-based strategy development process with the objective of developing an economic strategy for the Northwest Territories, not just for the Department of RWED or government, but one that other stakeholders would support and participate in. The process involved 17 panel members holding nine meetings in regional centres.

Indirect Impacts

$150,000	cumulative	O&M	Investments to Date (to March 2003)
$0	ongoing	O&M	Future Investment

42. **Economic Planning** The massive economic impacts anticipated will require economic model updates, and development of input/output models at regional and possibly community levels in order to estimate the full extent of direct, indirect and induced impacts. Current macro economic forecasting models will have to be updated and relationships between exogenous and endogenous variables re-defined for the models. The current NWT I/O model estimates economic impacts at the NWT wide level; the localized nature of pipeline and mineral development demand more disaggregated impact models.

Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$600,000	one-time	O&M	Future Investment

43. **NWT Business Survey** Both the NWT Chamber of Commerce and the NWT Construction Association have identified a new Business Survey and NWT Business Directory as a top priority. The survey will involve assessing business issues and development of an NWT Business Directory. Diavik has agreed to participate in the development of a new directory.

    RWED is also proposing to use the survey in assessing the impact of fuel prices on business operations in the NWT. This responsibility was outlined in the Cabinet Record of Decision on the Fuel Rebate Program. Investment and Economic Analysis is proposing to work with Arctic Energy Alliance and industry associations to monitor fuel price impacts on NWT businesses.

    Indirect Impacts

$0	cumulative	O&M	Investments to Date (to March 2003)
$70,000	one-time	O&M	Future Investment

44. **NWT Labour Force Survey** The most recent data on NWT employment and traditional activity is from 1999. The data does not reflect the more recent impact of diamond mine operations and development, or oil and gas exploration. Both have contributed to rapid growth of the NWT economy since 1999. Funding will be used to contract the NWT Bureau of Statistics to update NWT employment and traditional activity data to reflect these recent developments.

    Indirect Impacts

$120,000	cumulative	O&M	Investments to Date (to March 2003)
$0	one-time	O&M	Future Investment

General

The following initiatives are to address general increases in demand in the areas of regulatory review, infrastructure issues, and general increase for GNWT staff services brought on by higher levels of activity in the non-renewable resource sector.

45. **Increase Regional Capacity** The Department has had to respond to a number of issues dealing with regional capacity to address general increases in demand in the areas of regulatory review, infrastructure issues, and general increase for GNWT staff services brought on by higher levels of activity in the non-renewable resources sector.

    Specific initiatives include:

    - Deh Cho – positions for building partnerships with industry and first nations

- Regional compilation of information to determine training needs and business opportunities, pre-employment readiness, screening and counselling programs
- Requirements and demands to meet increased demands for assessments resulting from oil and gas, and other resource development activities.
- Inuvik, North Slave, Sahtu, South Slave - Increased activity and demand for increased level of services for resource and business development is off-road communities has resulted in more frequent community visitations and escalating program delivery costs.

Indirect Impacts

$1,120,000	cumulative	O&M	Investments to Date (to March 2003)
$1,120,000	ongoing	O&M	Future Investment

46. **Mitigate Community Services and Infrastructure Pressures** Primary responsibility for preparing for development pressures at the community level rests with the Department of Municipal and Community Affairs. However, RWED will require on-going investment in staff resources and travel budgets for the Regional Petroleum Advisor position to assist with community information workshops and document publication. Required investment is $40,000.

Indirect Impacts

$40,000	cumulative	O&M	Investments to Date (to March 2003)
$40,000	ongoing	O&M	Future Investment

Financial Summary

Direct Impacts

$555,000	cumulative	O&M	Investments to Date (to March 2003)
$4,115,000	ongoing	O&M	Future Investment

Indirect Impacts

$21,649,000	cumulative	O&M	Investments to Date (to March 2003)
$26,045,000	ongoing	O&M	Future Investment

JUSTICE

Background

It is the mission of the Department of Justice to serve the residents of the NWT by: working with community members so that communities are safe and secure; ensuring that all residents have access to the courts, alternatives to the courts and other justice related services; providing quality legal services to the GNWT and its agencies; protecting the rights and freedoms of individuals and groups; and promoting respect for the law and the Constitution of Canada.

The department's programs include:

- Services to the public – Services such as legal registries, legal aid, labour standards enforcement, maintenance orders enforcement, fair practice investigations, public trustee services, residential tenancies dispute resolution and coroners services
- Courts - Providing courts and court services that are impartial, timely and accessible
- Corrections - Providing institutional facilities, community-based supervision of offenders and offender treatment programs
- Police Services - Preserving public order and safety
- Community Justice - Supporting community and restorative approaches to justice in all communities
- Victims Services - Supporting victims of crime
- Legal Services to Government – Services include providing legal opinions, control of litigation for the GNWT, drafting of all public bills, and advice on self-government negotiations

Program impacts

Programs impacted

Department programs impacted by resource development:

- Police Services
- Access to legal services – community court worker programs etc
- Programs offered by Court Services.
- Custodial Placements – Wilderness camps, especially as it relates to maintenance of cultural heritage.
- Community Justice programs

Historical Impact of Resource Development on Crime

Recent experiences in Rae-Edzo and Fort Liard, and experiences in Kugluktuk (Coppermine) during the 1970s demonstrate that non-renewable resource development will likely cause an increase in both incidents of crime and the crime rate.

Kugluktuk experienced a period of non-renewable resource exploration work in the 1970s. Data showed that during the first year of exploration employment, there was a 29 per cent increase in liquor consumption and a parallel increase in liquor related violent woundings. The rate of consumption and violent woundings decreased in the following years. At the termination of employment in 1978, both rates increased once again. The u-shaped curve suggests that the onset and termination of employment may have induced increased liquor consumption and the accompanying violence.

Fort Liard experienced a similar situation in the late 1990s, and early 2000 of increased employment due to resource development. A study completed by Price Waterhouse Coopers in the community of Fort Liard showed a marked increase in alcohol consumption and alcohol related crime. Incidents of alcohol related crime almost tripled in one year. This was part of an overall 40 per cent increase in criminal code offences in Fort Liard from 1999-2000. In 2001, the number of criminal code offences dropped to 291, closer to traditional levels.

A five-year review of criminal code offences in Rae-Edzo show a similar pattern. In 1997, there were 890 criminal code offences. In 1998, the Ekati diamond mine opened. The number of criminal code offences increased by 36 per cent to 1,207. The following two years, 1999 and 2000, the criminal code offences leveled at 1,063 and 1,057 respectively. Construction at Diavik, the second diamond mine began in the last quarter of 2000. In 2001, criminal code offences increased a further 37 per cent to a total of 1,449.

It appears that as more employment becomes available, there is increased alcohol consumption. RCMP statistics show that 80 per cent of crimes are alcohol or drug related. Also, crimes that involve alcohol tend to be more violent. RCMP statistics show that 77 per cent of violent acts against its Members are alcohol related.

Limits of Assumptions

The rate of crime in the Northwest Territories is four times the national average. The rate of violent crime is five times the national average. The Department of Justice expects these crime rates to remain high for the next 10 to 15 years based on the current demographics of the NWT. The impact of non-renewable resources on crime will be in addition to these existing factors.

Assumptions

The assumptions are for the periods - through 2006, 2006-2009 and post-2009. They consider the impact of three diamond mines in the Yellowknife/North Slave region and the Mackenzie Valley Pipeline.

- Rae-Edzo.
  - Through 2006.
    - Expect crime to return to 1999-2000 levels (20% above 1997) until 2004
    - In 2004/05 we expect the crime rate to jump to 2001 levels (62% above 1997) as DeBeers' Snap Lake project moves into construction
  - 2006 - 2009.
    - Expect crime to gradually return to 1999-2000 levels (20% above 1997) by the end of this period as Snap Lake project moves into operations
  - Post-2009.
    - Expect crime to gradually return to 1997 levels in the years following 2009 as operations continue and the impact of resource development has been adjusted to.
  - Notes on Assumption.
    - Historical review of crime in Rae-Edzo shows sharp increases in crime when large changes in employment happen
    - Additional resources are required to address impacts that have not been adequately responded to due to lack of funding. Expect this impacts to departmental programs to be level off in the future because of the majority of the community already working/impacted by existing diamond mines
- Yellowknife.
  - Through 2006.
    - Expect crime to increase by 19% over current 2001 levels by 2006
    - Increase based on 10 per cent increase seen between 1997 – 2001 that is expected to repeat during 2001-2006 as all the same factors are in place
    - It is also based on a population increase of 2600 through migration for jobs. This population increase will bring additional criminal code offences at half the current rate per population
  - 2006 - 2009.
    - Expect crime to level out at 2006 levels as all diamond mines move into operations
    - Not expecting a decline over this period, as any decline will be off-set by any spill over of pipeline benefits into Yellowknife
  - Post-2009.
    - Expect the crime rate to gradually begin to lower over several years as the impact of resource development has been adjusted to.

- Notes on Assumption.
  - Historical review of crime in Yellowknife shows a 10% increase in crime during the development period of the mines between 1997 and 2001
  - It is assumed that the "fly-in fly-out" impacts that were felt in Yellowknife with the diamond mines will not be as significant for the oil and gas development as Yellowknife will not be the staging area for this travel as it was for the diamond industry.

- Fort Simpson.
  - Through 2006.
    - Expect crime to remain at current levels through to 2005 when a small increase should develop as indirect employment increases in anticipation of pipeline construction
  - 2006 - 2009.
    - Expect crime to increase by 35% during this period
    - Translates into an additional 201 criminal code offences during this period
  - Post-2009.
    - Expect the crime rate to remain at peak (35% above normal) for first several years of this period as community adjusts to the absence of employment
    - Expect this to be followed by a gradual decline to traditional levels
  - Notes on Assumption.
    - Historical review of Rae, Fort Liard and Kugluktuk
    - Key pipeline construction area

- Norman Wells.
  - Through 2006.
    - Expect crime to remain at current levels through to 2005 when a small increase should develop as indirect employment increases in anticipation of pipeline construction
  - 2006 - 2009.
    - Expect crime to increase by 35% during this period
    - This translates into an additional 63 criminal code offences during this period
  - Post-2009.
    - Expect the crime rate to remain at peak (35% above normal) for first several years of this period as community adjusts to the absence of employment
    - Expect this to be followed by a gradual decline to traditional levels
  - Notes on Assumption.
    - Historical review of Rae, Fort Liard and Kugluktuk
    - Key pipeline construction area

- Inuvik.
  - Through 2006.

- Expect crime to remain around 2001 levels which is a 21% increase over 1999
- We expect a further small increase as indirect employment increases in anticipation of pipeline construction

- 2006 - 2009. .
  - Expect crime to increase by 35% during this period
  - This translates into an additional 610 criminal code offences during this period

- Post-2009.
  - Expect the crime rate to remain at peak (35% above normal) for first several years of this period as community adjusts to the absence of construction employment
  - Expect crime rate to begin to drop after the first several years but think that it will remain above pre-2006 levels for many years due to continued employment in operations and the regional centre nature of Inuvik

- Notes on Assumption.
  - Historical review of Rae, Fort Liard and Kugluktuk
  - Key pipeline construction area

Resulting Impact of Assumptions on Justice System

Policing

Policing will be one of the hardest hit areas due to resource development. The RCMP has not had increases to respond to the existing impacts of oil/gas exploration and diamond development. The impacts of more diamonds and the pipeline will further stretch the RCMP without additional resources.

To calculate the number of additional RCMP officers required, we have adopted the mean of all NWT RCMP member/per criminal code offences ratios. The mean for 2001 was one RCMP officer per 106 criminal code offences. The dollar amounts that are expressed represent the GNWT's share of the total costs – under agreement, the GNWT share is 70%. It is assumed that the federal government's share of policing costs will be available so that the NWT can meet its full policing needs resulting from the non-renewable resource development impacts.

Community	Resources Required	Cost
Rae-Edzo	An additional 4 RCMP officers are currently required	$ 518,000 annually
	Increase in officers will require a new detachment	$ 33,000 annually
Inuvik	An additional 2 RCMP officers are currently required	$ 259,000 annually
	An additional 6 officers will be required by 2009	$ 777,000 annually
	A larger detachment is planned for Inuvik but accommodation costs will increase	$ 120,000 annually

	A plane will be required to be based in Inuvik	see note below
Yellowknife	An additional 12 officers will be required by 2006.	$1,544,000 annually

Other areas that affect policing such as diamonds bringing in international organized crime and more business activity driving increases in commercial crime have been reviewed. The existing organizational structure accurately reflects the resource requirements in these policing areas. However, because of overall under resourcing issues and the need to allocate existing resources to priorities areas, reallocations of personnel from to these areas have occurred. With adequate resources for policing in place, the temporary reallocations will ot be necessary allowing areas such as commercial crime to be a fully staffed and effective unit.

The most significant increases in criminal offences will be in Inuvik and the Beaufort-Delta region. There are no adult correctional facilities in that region, so we expect a considerable increase in prisoner transfers from that region to Yellowknife and Hay River. Basing the plane in Inuvik would meet the demands for transfers. Having a plane based in Inuvik would also allow for more efficient movement of officers, equipment and supplies through the entire region. The cost of this is as follows:

Item	**Total Cost**	**GNWT Share**
Pilatus Plane	$4.5 million	$3,150,000
Crew two pilots and one engineer	$552,528	$356,769 annually
Annual operations/maintenance	$250,000	$175,000 annually

Corrections

Based on the assumptions made above, we are expecting a 9 per cent increase in admissions to our adult corrections system as a whole. We are expecting a similar 9 per cent increase in our community corrections program.

The 9 per cent increase in admissions translates into 72 additional admissions into custody. This includes 38 additional admissions from Yellowknife, 27 from Inuvik, 5 from Fort Simpson and 1 from Norman Wells.

This increase in admissions will require an expansion of the wilderness camps. The wilderness camp program is currently at capacity. We will require additional spaces to move low-risk offenders out of facilities to make room for more serious offenders that arise from increases in alcohol related violent crime in our assumptions.

Nine per cent increase in wilderness camp spaces	$65,000 annually

The nine per cent increase to the community corrections program will require additional resources to manage. To determine the impact of resources we reviewed the existing ratios of probation officers to criminal code offences in each affected community.

Community	Resources Required	Cost
Inuvik	- one additional probation officer will be required by 2006 - with the additional offences and one new officer, the ratio will be 1 per 787, reduced from current ratio of 1 per 867	$99,000 annually
Yellowknife	- three additional probation officers are required by 2006 - with the additional offences and three new officers, the ratio will be 1 per 875, reduced from current ration of 1 per 1840	$268,000 annually

The Division has lost fifteen full-time, and fifteen casual correctional officers to direct and indirect employment with the mines or oil and gas industry. The full-time losses account for eight per cent of the total workforce. We expect these losses to continue annually until the end of pipeline construction. For every position lost, it will cost the department approximately $4,500 to train a replacement.

Training 15 New Correctional Officers a year	$70,000 annually

Courts

The court system is already running over capacity. At times court cases are held in rented rooms and on occasion judges have been brought up from the south. The impact of resource development will result in a 31 per cent increase in Inuvik, a 24 per cent increase in Yellowknife and a six per cent increase in Hay River. These increases are based on an assumption of 1.5 offences per case.

To accommodate these increases the court system will require an additional judge. An additional judge will also require a Sheriff, Court Clerk and Administrative position. These will be based out of Yellowknife. The court registries in Inuvik and in Hay River will both require an additional administrative position.

Based on our assumptions we expect more violent crime due to increased alcohol consumption, and as a result more serious offenders. Cases are becoming more complex and lasting longer. More serious offences will likely result in longer trials. There is not currently enough capacity in the Yellowknife Courthouse, and there is not room to expand, there will a requirement to acquire on an as needed basis, space to address the increased court activity due to resource development. Assuming a space

requirement of 600 m2 which would include a courtroom, offices, holding cells etc, the following costs have been determined:.

- One time fit up costs = $900,000
- On gong lease cost 600m2 x $430 m2 = $258,000 /yr

Space for Increased Court Activity	
One-time fit up costs	$ 900,000
Lease Costs	$ 258,000 annually
Judge	$ 361,600 annually
Sheriff	$ 70,000 annually
Court Clerk	$ 91,000 annually
3 Administrative Positions	$ 186,000 annually

Maintenance Enforcement Program

The Maintenance Enforcement Program (MEP) is impacted by resource development in two ways. In the two-year period of 2000 to 2002, there was a 56 per cent increase in the number of maintenance orders from other jurisdictions being enforced in the NWT. MEP employees attribute this increase to the current economic 'boom' in the NWT. They are finding the people named in the orders have moved to the NWT to work in the diamond or construction industries.

A significant influx of workers from other jurisdictions during the pipeline construction period of 2006 –2008 should result in a similar increase in MEP files.

Since 2000, there has been a 72 per cent increase in the number of MEP files opened. MEP employees also attribute this increase to the current economic 'boom' in the NWT. As more people get jobs, more people are seeking to have orders enforced because there is now money available to pay the order. Previously, orders were not acted on because there was no money to pay the order. This is likely a long-term increase that will continue through the construction period and the operational period.

Two additional positions were created in the MEP to offset these existing increases in files. We expect 3 additional positions will be needed to respond to further increases due to non-renewable resource development.

3 maintenance enforcement positions	$270,000 annually

Legal Services Board

With the increased offences and caseload, we are predicting a corresponding increase in demand for legal aid. Based on the affected communities, we are predicting an overall 15 per cent impact on the legal aid system.

A new court worker will be required in Inuvik, Fort Simpson, Norman Wells and Yellowknife. An additional staff lawyer for increased family law workload will be

required. Similar to increases seen in the MEP, we are predicting an increase in demand for family law services. These positions will be based in Yellowknife.

Four Court workers	$363,000 annually
One staff lawyer	$120,000 annually
Additional resources for certificates	$262,000 annually

Financial Summary

Details

Direct Impacts - Investments to Date (to March 2003)

$0 cumulative

Direct Impacts - Future Investments

$3,251,000	ongoing	O&M	24 additional RCMP Officers
3,150,000	one-time	Capital	RCMP Aircraft
532,000	ongoing	O&M	RCMP Aircraft Crew and O&M
65,000	ongoing	O&M	Wilderness Camps
367,000	ongoing	O&M	4 Probation Officers
70,000	ongoing	O&M	Corrections Officer Training
967,000	ongoing	O&M	Additional Judge and support staff
900,000	one-time	Capital	Fit up costs for additional court space
270,000	ongoing	O&M	Maintenance enforcement program
745,000	ongoing	O&M	Legal Services Board

Indirect Impacts - Investments to Date (to March 2003)

$0 cumulative

Direct Impacts - Future Investments

$0 cumulative

Summary

Direct Impacts - Future Investments

$6,267,000	ongoing	O&M
$4,050,000	one-time	Capital

MUNICIPAL AND COMMUNITY AFFAIRS

Background

It is the mission of the Department of Municipal and Community Affairs, together with community government and other partners, to be responsible for supporting community residents to organize and manage democratic responsible and accountable community government. The department also safeguards the health and well being of NWT residents by: promoting sport and recreation; promoting the development of youth; ensuring compliance with safety standards; coordinating emergency services; and protecting consumer rights.

Program impacts

There is an impending wave of large-scale projects in the Mackenzie Valley and the impact these projects will have on NWT communities will be significant. All communities of the NWT will be affected by these projects. The recently released *Developmental Impacts; GNWT Programs and Services* states, ..."over 90% of the population will be directly or indirectly affected by non-renewable resource development". Larger communities, particularly Yellowknife, feel the stresses of increased activity and insufficient housing capacity. Smaller NWT communities face the prospect of losing their traditional economy and their energetic youth to the wage economy. Throughout the NWT, municipal infrastructure that is already under increasing stress will be severely tested.

These large-scale projects will bring negative impacts upon municipal infrastructure. Existing community infrastructure in the NWT faces immense pressure from development. Concern regarding the capacity of communities in the face of development has tended to focus on three key issues:

1) The inability of community infrastructure to handle increased usage and demand resulting from activities associated with exploration and development.

   Roads may deteriorate faster than they can be fixed, given limited budgets.

   Water and sewage systems become over taxed as they are forced to meet the demands of a community whose population has increased much faster than projected and/or from additional use by camps and other external users.

   As with water and sewage systems, solid waste disposal systems become over taxed as use increases faster than projected, due to accelerated population growth and/or from additional use by camps and other external users.

   Dealing with the increased stress on the three areas listed above requires increased use of mobile and other repair, operation and maintenance equipment, accelerating wear and tear and shortening its useful life.

   There is an increased demand for land development to satisfy the need for residential, commercial and industrial municipally serviced lots.

2) The cumulative impacts on the quality of life in NWT communities that results from resource development.

   In larger centres, like Yellowknife and Inuvik, shortage of housing has become a serious problem following the increase in non-renewable resource development activity. Pressure for land development is the key area around housing where community governments feel the pressure.

   Residential overcrowding also has a direct correlation to an increase in crime, substance abuse, domestic violence and negative lifestyle choices.

   Increased demand for usage of recreational facilities (e.g., gymnasiums, which can be used by rotational employees spending time off in their home communities) creates scheduling stresses, programming demands and maintenance issue which can only be alleviated by additional resources and even the construction of additional facilities.

   Reduced access or availability of recreation facilities has been shown to have a direct correlation to increased crime, substance abuse, domestic violence and negative lifestyle choices.

   The quality or community government services and programming overall may be adversely affected as qualified staff leave to seek job opportunities with resource development companies.

3) A further negative impact on communities comes from lack of human resources. Salaries and benefits provided to staff of small municipal governments cannot compete with those provided by large resource extraction companies resulting in the best and brightest members of the community taking jobs outside the community. This results in a reduction of human resource capacity available to meet the local government program and service needs.

The resources available to the GNWT and community governments for capital projects and for the related O&M costs have declined since the 1990s. At the present time, the Government of the Northwest Territories struggles to maintain existing municipal infrastructure at a level that protects the government's investment and that meets lifespan expectations. Increased demand will only exacerbate this problem. If this trend continues, community infrastructure will soon be in a critical state, beyond repair and governments will have insufficient resources to replace.

When considering impacts on community infrastructure from resource development, it is important to recognize that these impacts are both on going and cumulative. For example, there may be an on-going impact on a community's arena where increased usage results in increased maintenance requirements, which cannot be carried out due to budget restrictions. If this situation continues long enough the lack of proper maintenance has a cumulative impact resulting in a shortened life span of the facility.

Development impacts on community infrastructure:

Water Supply

Any new demand for water services will create an impact. This demand may come from increased community population growth, or industrial users' requirements for camp installations and other industrial uses.

The capacity to meet theses demands stretches the limitations of a community's current water system, and in some instances, may not even exist.

Resultant impacts could include: inadequate supply; capacity to pump; capacity to treat; capacity to distribute.

Required actions to address these scenarios could include: new water source; increase pumping capacity; increased treatment capacity; addition truck.

Sewage Lagoons

Similar to the demands for water, development creates the potential for increased demands on the sewage system. The approach taken to respond to these impacts will depend on the existing capacity of the sewage system.

Resultant impacts could include: Inadequate capacity to haul; capacity to dispose; capacity to treat.

Required actions to address these scenarios could include increasing capacity in each of the areas

Solid Waste Sites

Increased population and/or industrial activity results in a greater production of solid waste that occupies the available space in the solid waste sites and necessitate the need to advance capital project planning (garbage trucks and solid waste sites). In addition, the type of solid waste for most communities in the NWT has been a municipal type solid waste. Industrial activities result in industrial type solid wastes, which can be of a toxic nature.

Resultant impacts could include: inadequate capacity to haul; inadequate industrial waste capacity

Required actions to address these scenarios could include: development of new sites, hazmat training and equipment

Land Development

Increased population creates a proportional demand for housing and the associated need for lots to place housing. In addition, secondary/support industry needs result in additional requirements for commercial lands and industrial lands, including storage yards, warehouses, and production shops.

Resultant impacts would be that there would not be lots available to meet demand

Required actions to address these scenarios would be to develop lots (planning, road development, and power.

Lot Development Investment Pressure

Lot Development investment pressure results from the need for tax based municipalities and the GNWT to provide the front-end investment for land development.

In order to be effective, and in particular in northern communities where development seasons are short and logistical challenges to have equipment and materials available (granular primarily) are significant, investment funding has to occur significantly in advance of demand (sale). Because of the logistical challenges and significant costs associated with development activities the scope of development often requires the development of an inventory of lots that will meet the five-year demand forecast in order to attempt to maintain effective economies and ultimately, affordability.

The challenges of providing investment income and carrying that debt over long periods are a significant burden on both the tax base communities and the GNWT.

While it is intended that costs be recovered through subsequent disposal of lots there may be a requirement for the GNWT to provide a subsidy to offset the high cost of lot development that is non recoverable.

Roads

Wage economies result in more vehicles per capita in a community. In addition, industrial activities result in heavier type vehicles on the community road systems. More and heavier vehicles will accelerate the wear and tear to the community roads, thus requiring increased maintenance

Resultant impacts would be additional wear and tear on roads

Required actions to address these scenarios could include: increased maintenance (granular material and equipment); rebuild roads.

Granular Material Inventory

The base material for infrastructure development and maintenance in a community is gravel. Good granular sources close to communities are scarce in the NWT and gravel stockpiling is an ongoing challenge. Increased demand results in an increased requirement for large scale operations in order to be economically viable.

Resultant impacts would be insufficient granular materials for roads and lot development

Required actions to address these scenarios would be to provide a granular stockpile.

Development impacts on community administration:

Emergency Services

Community Emergency Response Plans do not currently address the potential scenarios that involve nearby industrial developments. The type and nature of potential emergencies that a community must be prepared to respond to changes as a result of adjacent resource development.

Required action would be to update plans to incorporate emergency response.

Hazardous Materials Response

The introduction and use of industrial hazardous materials in and around communities raises additional issues for emergency preparedness and response. Understanding the responsibility and training for response to these types of potential hazardous incidents is required.

The required action would be to develop a capacity to respond to hazardous material industrials incident by providing handling training and response materials.

Community Service Personnel

Municipal staff are often attracted to the high paying opportunities in the private sector development companies. This creates a "brain-drain" of community governments' best, brightest and most reliable employees. Staff are required in these positions for a municipal organization to operate effectively

Resultant impacts would be the loss to development companies of administrative, technical, skilled labour loss to development companies.

The required action would be to recruit, train and develop replacements

Community Staffing

Additional and expanded responsibilities will need to be undertaken by municipal staff in order to respond to demands resulting from development and to monitor the development within a community's boundaries (e.g., bylaw enforcement, regulations, etc.)

Resultant impacts would be increased administrative demands due to development with a requirement for increased administrative and enforcement resources.

Secondary Industry Demand

The natural expansion and creation of secondary industry and support services will increase the demand on municipal services (including licensing, water, electricity, etc.)

Resultant impacts would be an increased demand on land, electrical, fuel and community services.

Population Growth/Negative Social Behaviour

A wage economy creates new and different demands for a community's social and recreational services. There will be an increased expectation for programs and services, such as community hall programs and arena programs

Resultant impacts would be the increasing demand for social outlets (restaurants) and increasing demand on community infrastructure (recreational facilities).

Local Inflation

As communities move toward a wage economy, pressures of 'supply and demand' will become more prevalent. There will be a natural push to higher prices for both labour and materials as a result of demand for skilled labour and goods.

The resultant impact would be that the cost of goods and services increase from high demand for skilled labour and materials, as well as change to high employment and wage economy

Governance

The skills needed and compensation for governance will naturally increase, as community leaders and administrators work to address issues raised as a result of development within/adjacent to their communities.

The resultant impact would increase demand on public governance to deal with impacts of development including increase wages and honoraria.

Municipal Facilities

Increased usage and more intensive demands will result in greater wear and tear on the existing (and future) facilities within a community's responsibility.

The resultant impact would be increased wear and tear on building assets and higher maintenance costs

Development impacts on the department:

Community Impact	Issue for Department	Department Impact
Water Supply	Increased requirement for planning and monitoring of impacts on communities Increased contact with communities, Increased monitoring of infrastructure, Increased support for water licensing and environmental monitoring	Municipal works function, Capital planning function, training - School of Community Government (SCG), Regions, Corporate Affairs
Sewage	Increased requirement for planning and monitoring of impacts on communities Increased contact with communities, Increased monitoring of infrastructure	Municipal works function, Capital planning function, Regions, training (SCG)
Solid Waste Sites	Increased requirement for planning and monitoring of impacts on communities Increased contact with communities Increased monitoring of infrastructure	Municipal works function, Capital planning function, Regions, training (SCG)
Land Development	Increased requirement for planning, assessment and land administration issues (leases, land titles, etc)	Lands Administration, Capital planning function, Regions
Roads	Increased requirement for planning, capital resources	Land Administration, Capital planning function, Regions
Granular materials	Increased requirement for planning, capital resources (especially if additional gravel sources have to be identified for communities)	Land Administration, capital planning function, Regions
Fire Response	Increased requirement for the Office of the Fire Marshall to ensure that communities have adequate resources and support to purchase and maintain equipment, especially to undertake training in order to be able to respond to industrial fires. Additional development results in potential increase in need for Plan Reviews of buildings	Regions (Assistant Fire Marshalls – AFMs - and Superintendents), Emergency Services Division (ESD), SCG
Emergency Response	Increased requirement for ESD to support community governments in ensuring that Emergency Response Plans address potential industrial emergencies, both within and outside of a community fallout from development	ESD, Regions, Training (SCG)
Hazardous materials Response	ESD to explore options for this and support community governments in preparing to respond	ESD, training (SCG)
Community Service Personnel	High turnover of community government staff and challenges in recruiting & retaining staff at the local level	Regions, SCG, CFS, Lands, ESD, SR&Y, Comm Governance
Community Staffing	Increased demands for community staff to respond to the requests of industry – as a	Regions, SCG, CFS, Lands, ESD, Comm

	result, staff require more sophisticated skill sets	Governance
Secondary Industry Demand	Increased demand to assist communities in dealing with pressures for land development, municipal services, and permitting, licensing and regulating	Lands, Regions
Population Growth/Social impacts	Increasing pressure for MACA to provide recreational facilities, programming for youth/ wellness projects	Regions, SR&Y, SCG, capital planning function
Local inflation	High demand for limited services in a community can impact access when required by MACA staff	Regions
Governance	Increased requirement for community leaders/ councils to have the skills to deal with more sophisticated issues	SCG, Regions, Comm Governance,
Municipal facilities	Increased focus required on maintenance – training, assistance with maintenance management systems	SCG, Regions, capital planning function
Municipal contracting	Increased requirement for community administration to develop OR purchase the skills to negotiate increasingly complex contracts. Also greater requirement from communities for legal advice/services	Regional offices, SCG,
Mobile equipment	Increased demand for equipment as additional use will mean equipment is not meeting its lifecycle. This means more demand on the limited capital resources.	Regions, capital planning function, Corporate Affairs ($)

Exploration Impacts On Community Infrastructure

The impact exploration activities will have on municipal infrastructure is difficult to determine. By their nature exploration activities are short-term, however they can have direct and cumulative impacts on government programs and services. Generally these activities create three impacts:

- Unanticipated increased use of sewage and solid waste disposal systems;
- Shortages of equipment and personnel; and
- Increased wear and tear on transportation infrastructure.

Sewage and Solid Waste Disposal

There is no standard process for the disposal of sewage or solid waste from exploration camps. Depending upon policy decisions made by the company doing the exploration sewage may be dealt with on site, however more commonly exploration camps transport their sewage off site for disposal in municipal sewage systems (either using honey bags or tanked systems).

Solid waste is commonly handled by burning that material which can be incinerated and shipping out that which cannot. Unless this non-burnable solid waste requires special handling for toxic substances it generally ends up in municipal solid waste disposal systems.

Equipment and Personnel Shortages

Depending upon the amount of activity, exploration can create localized and territory-wide shortages. For example during the diamond staking rush of the early 1990's there was a shortage of helicopters in the NWT which resulted in increased costs to programs dealing with the suppression of forest fires as additional helicopters had to be imported into the territory.

Exploration may also create short-term shortages of personnel, such as heavy equipment operators. These shortages could be manifest either as municipal employees moving to higher paying exploration companies or local contractors ignoring government capital projects due commitments to industry.

Increased Wear and Tear on Transportation Infrastructure

Fort Liard has provided the best example of impacts on transportation infrastructure caused by exploration. These impacts include: increased need for repairs and upgrading of roads inside and outside the community, a dramatic increase in the volume and size of aircraft using the community airport and increased use of the barge landing site. While this increased usage is short-term there will be a need to increase capital expenditures to ensure these infrastructures do not degrade significantly.

Hinterland Assessment:

It is anticipated that the property assessment base for Hinterland properties has the potential for significant increase as resource development activities move from exploration permits, land use permits, etc. A rough estimate of the potential tax revenue from these activities is $2 million per year.

The GNWT's experience to date in respect of oil and gas developments in the Fort Liard hinterland area has been less than satisfactory in respect of tax revenue from production facilities.

Under the Property Assessment and Taxation Act (PATA), and through agreement with the Federal Government (DIAND), the Federal Government through Land Use Permits and Exploration Licenses authorizes activities related to exploration.

Normal practice by the Federal Government is to issue Production Leases once production facilities (improvements) are established. These leased properties then become subject to property assessment and taxation under the PATA.

The Federal Government has allowed production facilities such as wellheads and pumping stations (improvements) to be established under the permits or license arrangements, providing an exemption to property assessment and taxation to the owners.

Even if these facilities were subject to assessment and taxation, those revenues may be offset by a corresponding reduction in transfer payments from Canada, providing a significant reduction in the net benefit of the tax revenue. It is unlikely that the net

revenue will provide anything greater then a nominal offset to the impacts resulting from Resource Development.

It should also be noted that property assessment is not applicable to exploration activity resulting from permits issued by the Federal Government. There has been significant impact to communities resulting from exploration activity, with no recourse to offset impacts through property assessment and taxation.

Details

The details of projected impacts related to nonrenewable resource development are included in Appendix 3.

GTA and Tax Based Communities:

Property Taxation Offset to increased costs resulting from resource development:

It is anticipated that the property assessment base for communities affected by resource development initiatives will increase as a result of new residential, commercial and industrial activity.

While this higher property assessment base will provide an opportunity for increased tax revenue it is anticipated that the increased revenue will offset the increased cost of providing existing municipal services and will not be sufficient to fund financial impacts resulting from resource developments.

Summary by Community of Costs

The following are the financial impacts of nonrenewable resource development:

Exploration Impacts on Communities			
Community	Total Infrastructure Impacts	Total Administrative Impacts	Total Community Impacts
Tuktoyaktuk	$3,245,000	$660,000	$3,905,000
Inuvik	$3,095,000	$1,245,000	$4,340,000
Ft. Good Hope	$360,000	$285,000	$645,000
Colville Lake	$130,000	$35,000	$165,000
Nahanni Butte	$240,000	$140,000	$380,000
Ft. Liard	$610,000	$415,000	$1,025,000
Enterprise	$270,000	$50,000	$320,000
Totals	$7,950,000	$2,830,000	$10,780,000

Pipeline Impacts on Communities

Community	Total Infrastructure Impacts	Total Administrative Impacts	Total Community Impacts
Tuktoyaktuk	605,000	325,000	930,000
Aklavik	850,000	430,000	1,280,000
Inuvik	3,710,000	470,000	4,180,000
Ft. McPherson	900,000	760,000	1,660,000
Tsiigehtchic	425,000	310,000	735,000
Ft. Good Hope	1,000,000	420,000	1,420,000
Norman Wells	1,155,000	270,000	1,425,000
Tulita	100,000	420,000	520,000
Colville Lake	310,000	225,000	535,000
Deline	290,000	370,000	660,000
Wrigley	700,000	450,000	1,150,000
Ft. Simpson	1,625,000	400,000	2,025,000
Nahanni Butte	425,000	330,000	755,000
Ft. Liard	785,000	420,000	1,205,000
Jean Marie Rive	300,000	215,000	515,000
Trout Lake	290,000	215,000	505,000
Kakisa	200,000	185,000	385,000
Ft. Providence	220,000	300,000	520,000
Hay River	835,000	395,000	1,230,000
Enterprise	220,000	160,000	380,000
Totals	14,945,000	7,070,000	22,015,000

Mining Impacts on Communities

Community	Total Infrastructure Impacts	Total Administrative Impacts	Total Community Impacts
Gameti	390,000	315,000	705,000
Wekweti	350,000	315,000	665,000
Wha Ti	440,000	315,000	755,000
Rae-Edzo	625,000	335,000	960,000
Lutselk'e	460,000	315,000	775,000
Hay River	1,075,000	335,000	1,410,000
Yellowknife	8,385,000	1,920,000	10,305,000
Totals	11,725,000	3,850,000	15,575,000

Resource Development - Corporate Impacts			
Community Impact	Person Year Requirement	Fully Burdened Labour	Other O&M
Water Supply; Sewage; Solid Waste	4.25	510,000	39,000
Land Development; Roads; Granular Supplies	2.00	240,000	25,000
Fire Response	3.00	360,000	40,000
Emergency Response	2.00	240,000	30,000
Hazardous Materials Response	0.50	60,000	5,000
Community Service Personnel	0.50	60,000	5,000
Community Staffing	0.25	30,000	2,000
Secondary Industry Demand	1.00	120,000	5,000
Population Growth/Social Impacts	2.50	300,000	30,000
Local Inflation	-	-	-
Governance	-	-	-
Municipal Facilities	1.00	120,000	20,000
Municipal Contracting	0.75	90,000	5,000
Mobile Equipment	0.50	1,920,000	-
Totals	18.25	4,050,000	206,000

Financial Impacts

The following summarizes the financial impact of nonrenewable resource development on the department's programs.

One-time Investments for Community Infrastructure

Resource Activity	Total Requirement
Exploration	$ 7,950,000
Pipeline	14,945,000
Mining	11,725,000
Corporate	-
	$ 34,620,000

Total Infrastructure Impact Costs by Category

Infrastructure	Mining Impact Costs	Exploration Impact Costs	Pipeline Impact Costs	Total Resource Impact Costs
Water Supply	$260,000	$1,320,000	$340,000	$1,920,000
Sewage Disposal	$30,000	$920,000	$120,000	$1,070,000
Solid Waste Sites	$580,000	$630,000	$1,970,000	$3,180,000
Land Development	$9,525,000	$2,400,000	$7,525,000	$19,450,000
Roads	$330,000	$1,680,000	$1,860,000	$3,870,000
Granular Material	$900,000	$850,000	$3,640,000	$5,390,000
Fire Safety	$100,000	$150,000	$400,000	$650,000

The estimates for the impact costs are based on several sources, such as the experience of staff currently working on these types of projects, engineering planning studies and similar estimates for projects in the capital plan. In addition, some estimates are from staff in the regional offices that assist community staff in their maintenance operation programs.

The cost estimates are in the category of a rough Class 'D' estimate. The costs are estimates and will vary from actual costs. Factors such as the economic climate in the construction industry, project scheduling and the very site-specific nature of a particular project can cause actual costs to vary greatly.

In addition, assumptions were made with respect to which communities would be affected by industrial development activities. For the oil and gas development much of this information comes from the reports that are themselves based on the information from the oil and gas companies. This information identifies potential locations of exploration areas, pipeline routes, marshalling areas and construction camps.

Ongoing Investments for Community and Corporate Programs

Resource Activity	Total Requirement
Exploration	$ 2,830,000
Pipeline	7,070,000
Mining	3,850,000
Corporate (includes an addition 18.25 person years)	4,256,000
	$ 18,006,000

Corporate Investment

Currently the Department of Municipal & Community Affairs has already directly invested resources to address the impacts of industrial developments in the NWT. An approximate equivalent of one PY ($) has been dedicated to background research and preliminary community consultation. And an approximate equivalent of half a PY ($) has been dedicated to departmental input, corporate research and interdepartmental consultations.

Capital and O&M Investment

A specific example of capital investment due to oil and gas development would be the Ft. Liard solid waste site. It was constructed with a life expectancy to last until 2006, however the oil and gas development in that area created a demand on municipal services. The additional water and sewage service required mainly additional pumping and treatment. However, the disposal of solid wastes filled up the existing capacity of the solid waste site. To maintain proper sanitation management this site had to be expanded several years before it normally would have required expansion. An expanded site was constructed in September 2001 at a cost of over $300,000. This was an unplanned capital expenditure.

Perhaps the most visible impact within the communities due to the oil and gas industry is the condition of the road system. Unlike the solid and liquid waste facility, industrial users do not pay to access the road system. As an example in Tuktoyaktuk, one of the most expensive and well-used pieces of Hamlet infrastructure is covered completely by the Hamlet O and M budget. However, like the other forms of infrastructure, the Hamlet road system was not designed to be an industrial thoroughfare, nor was the Hamlet set up to maintain such a system. The road is being impacted by heavy trucks using tire chains, which when not removed, act as roto-tillers chewing into the road and destroying the gravel top leading to erosion and a "wash board" surface. To compound this issue, a Hamlet gravel source within Tuktoyaktuk does not exist, making repair and resurfacing a major project requiring advanced planning and considerable resources. A recent cost estimate placed the cost to resurface 6 kilometers of roadway in Tuktoyaktuk at $1,3,00,000. Although this cost includes the 'normal' wear and tear, a large portion of this cost is due to industrial usage. The ability to absorb such costs without any method of recovering this investment is clearly above and beyond the fiscal parameters of such a tiny Hamlet, and again represents an impact that is not manageable under the current budgetary structure.

The community of Enterprise has been experiencing development concerns with respect to the mining industry. Poor communication (between contractors and the Settlement) and the handling and storage of large volumes of ammonium nitrate triggered meetings and the concept of developing a Waste Management Industrial Subdivision. The community has hired a consultant to assist them with the issue. The community has prepared and is implementing a Strategic Plan to protect the community's interests and to position them to take advantage of economic opportunities. MACA has invested a considerable amount of staff time supporting the community in these efforts.

Financial Summary

Direct Impacts

$1,600,000	cumulative	Capital	Investments to Date (to March 2003)
34,600,000	one-time	Capital	Future Investment
18,006,000	ongoing	O&M	Future Investment

Indirect Impacts

0	cumulative	O&M	Investments to Date (to March 2003)
0	ongoing	O&M	Future Investment

EDUCATION, CULTURE AND EMPLOYMENT

Background

The Department of Education, Culture and Employment manages a comprehensive system of programs and services to assist Northerners in the areas of:

- Culture, Heritage and Languages
- Early Childhood
- Schools
- Adult Education and Literacy
- Post-Secondary Education
- Employment
- Income Support

Non-renewable resource development will boost the economy and population of the NWT. Employment and training opportunities will increase, and there will be a higher demand for public services and infrastructure to meet the needs of employers, workers, and their families.

Departmental Assumptions

The department's projected financial and program impacts from resource development projects are based on three assumptions:

- The pipeline and other major development will occur,
- The majority of labour for these projects will come from outside the NWT (both for the construction and operational phases), and
- School enrolment will grow in proportion to the overall growth in resident population.

Program impacts

Current Trends and Expenditures:

School Age Population:

Based on historical information over a five year period from 1997 - 2001, the school age population made up between 22.8% and 23.3% of the overall GNWT population.

Year	School Enrolment	Population	% of Population
2001	9,680	42,520	22.8%
2000	9,790	42,083	23.2%
1999	9,570	41,113	23.2%
1998	9,560	41,114	23.3%
1997	9,580	41,788	22.9%

Income Assistance

As a result of job creation, automation, enhanced verification activities and a major reform in the program's focus, Income Assistance expenditures have declined from $12.8 million in 1999-2000 to $8.8 million in 2001-02. The Department has reinvested surplus program funds into higher basic food, shelter and clothing benefit levels, and is reallocating $1.6 million into the school system to increase that support that it provides students and teachers in the classroom.

Year	Average Cases/Month	Expenditures
1999-00	1666	$12,763,000
2000-01	1502	$10,657,000
2001-02	1202	$ 8,834,000

Oil and Gas Initiatives

The Department continues to invest in Human Resource Development related to the oil and gas industry. Expenditures in this area have increased over the past three fiscal years because of increased oil and gas activity throughout the Northwest Territories. The following chart outlines expenditures for human resource development related to oil and gas during this period.

Year	Expenditures
2000/2001	$500,000
2001/2002	$1,100,000
2002/2003	$1,100,000

2002/03 Oil and Gas	Expenditures
Aurora College	$ 200,000
MNE	600,000
Human Resource Supports	100,000
Career Development	200,000
Total	$1,100,000

Mining Initiatives

The Department committed $1.325 million in 2002-03 for the training of individuals for employment in the mining industry:

2002/03 Mining	Expenditures
Mining Training	$ 130,000
Apprenticeship, Skills Training	800,000
Aurora College – Secondary Diamond Training	265,000
Occupational Training on the Job	130,000
Total	$1,325,000

In partnership with industry and Aurora College, the funding is used to support training initiatives, human resource planning in the regions, and workforce mobility.

Apprenticeships and Training

There are 292 students currently enrolled in apprentice programs. The total cost of wage subsidies for these apprentices exceeds $1 million. This is up 22% over the same period 2 years ago. The majority of the increase has taken place in the North Slave region where there is significant diamond mining activity.

Aurora College has added an oil and gas coordinator to its Aurora Campus staff complement and has entered into partnerships with Diavik on a number of community training projects. Student Success Centres have also been established at each campus to help students plan their careers ($180,000/yr.).

Occupational Standards and Diamond Training

The following occupational standards have been developed: Diamond Polisher (Brillianteer, Crossworker, Bruter, Sawyer, and Fancy Cuts), Mineral Processing Operator, and Security Officer. The development of standards and certification, the training on-the-job wage subsidies, the Aurora College Diamond Cutting and Polishing program, the monitoring of trainees, and staff time amount to the total cost of $3.5 million over the past four years.

Socio-Economic Agreements

Because of its interest in employment and training related activities at the BHP, Diavik and DeBeers projects, the Department spends considerable time in ongoing negotiations, monitoring and evaluating socio-economic agreements. Considerable administrative time is dedicated to developing strategies for the federal government in support of an oil and gas position, and in participating on the following committees: Pipeline Operations Training Committee, Oil and Gas Territorial Committee and MacKenzie Valley Development Project Steering Committee.

Current Investments	2001-2002	2002-2003	2003-2004
Oil & Gas initiatives	$500,000	$1,100,000	$1,100,000
Literacy Strategy	2,400,000	2,400,000	2,400,000
Early Childhood Initiatives	2,638,000	3,249,000	4,493,000
Socio-Economic Agreements	-	-	115,000
MNE	-	2,119,000	1,769,000
TOTAL	$5,538,000	$8,868,000	$9,877,000

Future Impacts:

Population:

NWT Bureau of Statistics expects the construction phase will have a large short-term impact on the overall NWT population. The operational phase will have a smaller but more sustained impact on the NWT population. The construction phase (2003-2008) is projected to add up to 3,500 people to the resident NWT population, and the operational phase is projected to add up to 2,800 people (2009-2019).

Aboriginal Language and Culture

A significant portion of the projected population growth from workers and families will come from outside the NWT. The population dynamic of the NWT will change from its current composition of 50% aboriginal and 50% non-aboriginal toward an increased percentage of non-aboriginal people. This will place increased strain on the fragile status of the NWT's aboriginal languages.

There is also the strong potential that young aboriginal northerners may leave the small remote communities to take employment, education, and training opportunities in the larger centres. The health of aboriginal languages is strongest in the small communities. Losing young people from the small communities will increase the loss of aboriginal languages unless effective interventions take place to sustain, revive and enhance aboriginal language and culture. The health of aboriginal languages will be even more perilous particularly as the pace of development in the north increases.

The GNWT currently invests $8.1 million (federal government invests $1.9 million) annually in support for aboriginal languages and culture. The Department projects that it would need an additional $1,200,000 to continue to provide support in sustaining, reviving and enhancing aboriginal languages as a result of the potential dilution of Aboriginal language use with the in migration of southerners ($200,000 X 6 Aboriginal Language Community).

Childcare

As more employment opportunities emerge for northerners, and more workers and their families move into the NWT, the Department projects that there will be significant pressures put on what is already an overburdened childcare system. The Department currently has a budget of $1.559 million to provide support to establish licensed childhood programs, and operation contributions to licensed, non-profit programs to assist them with their ongoing costs. The Department also provides over $800,000 directly to lower-income working families in the form of subsidies to help them with their childcare expenses.

The NWT population as of July 2002 was 41,403. The population of the NWT is expected to be 47,535 by 2008 (end of construction phase) with 3,500 of the 6,132 people population increase due to resource development. To provide funding to start up and support new day cares, the Department projects a need to increase this budget area by $170,000. Although it is difficult to predict, the Department anticipates that it will need an additional $200,000 to support families with their childcare expenses under its childcare subsidy program, as these families require time to establish themselves in the job market and the NWT.

School Operating and Infrastructure Costs:

Resource development will start adding an additional 80 students to our school system in 2003. By 2019 this number will have increased to an additional and 650 students (23.3% of total population). The cost per student is $11,500; therefore, we expect our school funding levels to be between $1 million to $7.5 million higher than they normally would have been without any resource development activity.

At the end of the construction phase the government would also incur the added costs associated with the reduction of the workforce, and the ongoing cost of operating larger school buildings. It is estimated that the there would be a onetime cost of $400,000 in personnel costs (cost of severance, removal and personnel support).

We will also need to build new space to accommodate higher enrolments. The first significant increase in student population occurs in 2008, where an additional 576 students are expected to be added to the school system. Based on the current cost of school construction this will cost roughly $17.3 million ($30,000 a student). It is estimated it will cost an additional 5% or $864,000 annually to maintain the additional space once constructed. By 2019, the department will have to plan for an additional 650 students, which will require additional school infrastructure construction of about $2.2 million (650-576 * $30,000). This new infrastructure will increase operating costs by about $111,000.

School Curriculum

As new resource sector opportunities emerge in the NWT, industry will place demands on high schools to offer programming to educate students interested in the many careers this sector will have to offer. To meet this demand the NWT needs additional curriculum, particularly for new occupations in trades and technology.

The Department estimates it will cost $300,000 each year over the next three years to develop new curriculum, primarily in the areas of math, science and communications English. The existing curriculum in these core subject areas is designed primarily for students entering university and college.

Counseling Support

In order to help students become aware of job opportunities in the resource sector and make plans early in their school careers, the Department sees a need for additional counseling support. With counseling resources in very short supply, the Department will need to staff counseling positions at its seven school boards now offering senior secondary programming. The projected costs would be 7 X $80,000 = $560,000.

College Trades Programs

As a result of resource development during the construction and operational phases, the Department is projecting that there will be extraordinary population increases in larger regional centres like Yellowknife, Inuvik, Hay River, Fort Smith, and Norman Wells. The Department is also projecting growth in smaller communities such as Fort Simpson and Fort Liard that are closer to resource development areas.

As employment opportunities become available in the construction and resource industries, college facilities in these communities will be stretched to accommodate growth in student numbers and the introduction of resource-related programs. In order to complement the trades-related programs being introduced at the high school level, new space and renovations to existing College facilities will be needed at the three main college campus locations – Yellowknife, Fort Smith and, Inuvik.

These three main campuses are located near oil and gas and diamond mining activity, making them ideal locations to train a natural resource workforce. It is estimated that it will cost roughly $20 million to build and approximately $5 million to staff and operate these facilities.

Oil and Gas Training

The Territorial Oil and Gas Training Committee has developed a comprehensive *Oil and Gas Industrial Skills Strategy* that was submitted to the Minister of Human Resources Development Canada for funding consideration. This five-year, $32.5 million strategy proposes to fund a number of initiatives that span basic skills and pre-employment, industrial skill development and employment mobility and support. Under the strategy we are asking the Federal government for $2,005,000 per year.

Mining Training

The NWT Mining Training Committee has developed a comprehensive Mining Skills Strategy designed to build capacity and ensure that Aboriginal and other Northerners have the skills required by the mining industry. Under the strategy we are asking the Federal government for $4.7 million per year. The total incremental funding requirement would be $23.5 million.

Financial Summary

Direct Impacts – Future Investments

Operations Expenditures

School Operating Contributions:	$1.0 million to $7.5 million
School Infrastructure – additional operating costs	
2008-2013	$864,000 annually
2013-2019	$975,000 annually
School Curriculum Resources (three years)	$300,000
Childcare:	
Start-up costs for new childcare centers (2003-2008)	$170,000
Increase to Childcare Subsidy Program (2003 and ongoing)	$200,000
Aurora College Campuses – additional operating costs	$5.0 million
Oil and gas Training (2003-2008)	$2.0 million
Mine Training (2003-2008)	$4.7 million

Capital Investment Expenditures

School Infrastructure:	
By 2008	$17.3 million
By 2019	$ 2.2 million
Aurora College – Campus Improvements	$20 million

Indirect Impacts – Future Investments

Operations Expenditures

Aboriginal Languages and Culture	$1.2 million
Counseling Support at the Secondary Schools	$0.6 million

Income Assistance Savings

The short-term impacts during the construction phase will partially be offset by the $ 4 million in savings derived from the reduction in Income Assistance expenditures. As stated earlier, these have been utilized by the department to enhance benefit entitlements to clients and enhancements to the school system by providing more support to students and teachers in their classrooms. These savings will however be short-term as a decrease in the employment levels will likely be experienced after the construction phase.

TRANSPORTATION

Background

The Department of Transportation envisions an integrated transportation system in the Northwest Territories that meets the needs and aspirations of northern residents by providing:

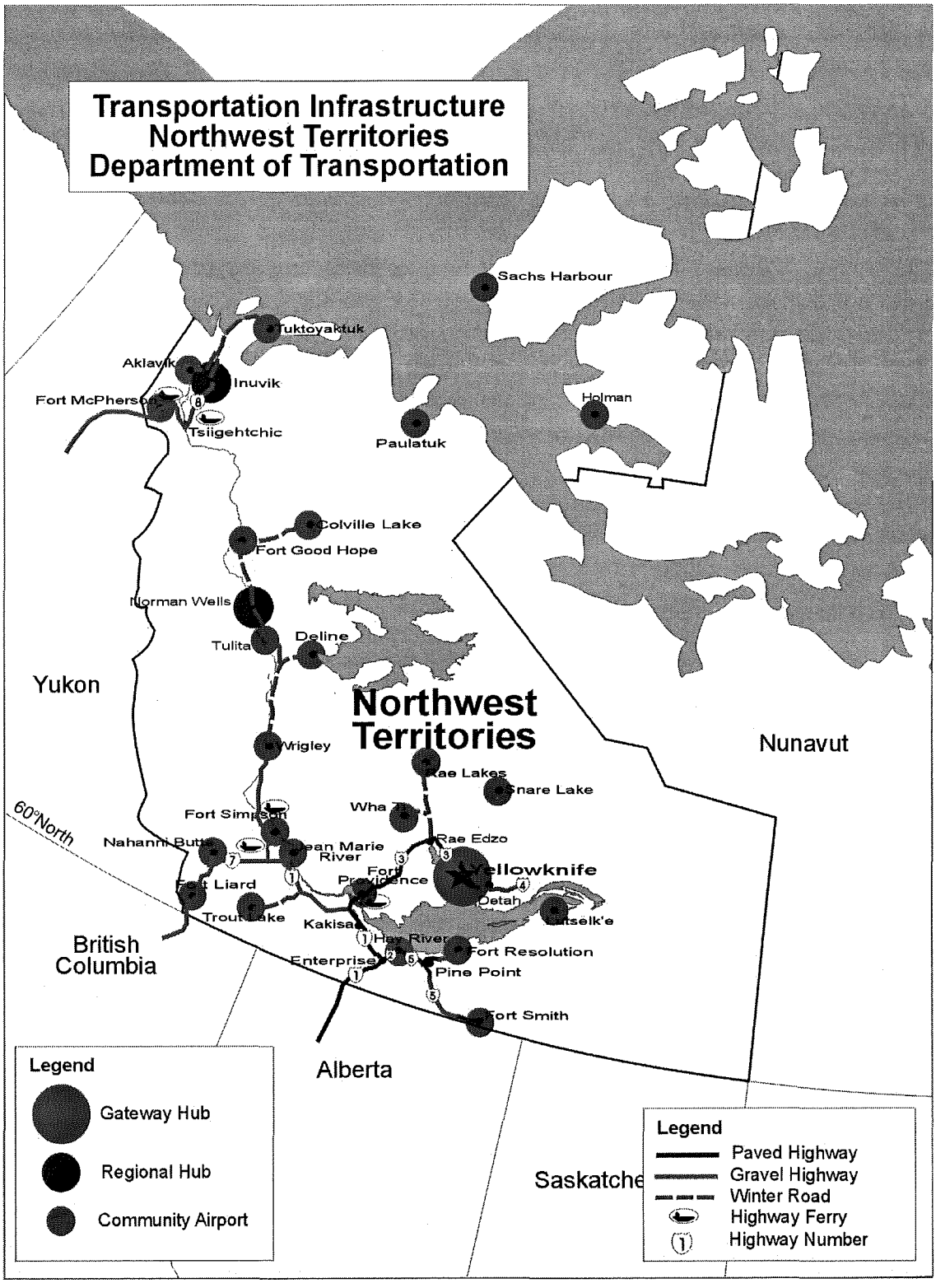
- Safe, secure, affordable, reliable and accessible personal mobility;

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

- Sustained economic growth and prosperity by developing better access to the territory's renewable and non-renewable natural resources.

A major factor that could impede the development of the enormous potential for non-renewable resources in the Northwest Territories is the lack and inadequacy of transportation infrastructure. Figure 1 identifies the transportation infrastructure of the Northwest Territories.

Figure 1 – NWT Transportation Infrastructure



Program impacts

Highways

The NWT existing highway system consists of over 2,200 kilometres of all-weather roads and over 1,400 kilometres of publicly constructed winter roads. In addition, feeding off the public system, are numerous privately constructed winter roads for oil and gas development and mine resupply.

As can be seen from the figure 2, the NWT highway system is a vital link in the supply chain for non-renewable resource exploration, development and resupply. The system is however, already under extreme pressure from recent industrial expansion. For instance, the following table shows, commercial traffic on the Lupin Winter Road (a privately constructed road), which supports the mining industry, has increased by over 340% since 1999.

	2002		2001		2000		1999	
	Total Tonnage	Total Number of Trucks	Total Tonnage	Total Number of Trucks	Total Tonnage	Total Number of Trucks	Total Tonnage	Total Number of Trucks
Lupin Mine	27,315	698	26,239	688	21,672	557	3,356	85
Other Users:						3,402		1,759
BHP Diamonds Ekati Mine	132,077	3,913	99,297	2,912	66,609		41,453	
Diavik Diamond Mines	93,009	3,339	111,506	4,127	25,068			
Mineral Exploration Traffic	3,083	218	8,545	363	12,031		12,399	
	255,484	8,168	245,587	8,090	125,380	3,959	57,208	1,844

To access the Lupin Winter Road, commercial traffic must first travel on the public highway system. Significant increases has been experienced on the Dempster Highway (#8), which services the Mackenzie Valley Corridor, where traffic has more than doubled in 2001, due to oil and gas activity.

In addition to the volume increases, there has also been a shift to larger, heavier vehicles. For instance, since 1999, the percentage of total Super B trains, which is the heaviest truck configuration currently utilizing the NWT highway system, has risen by over ten percent.

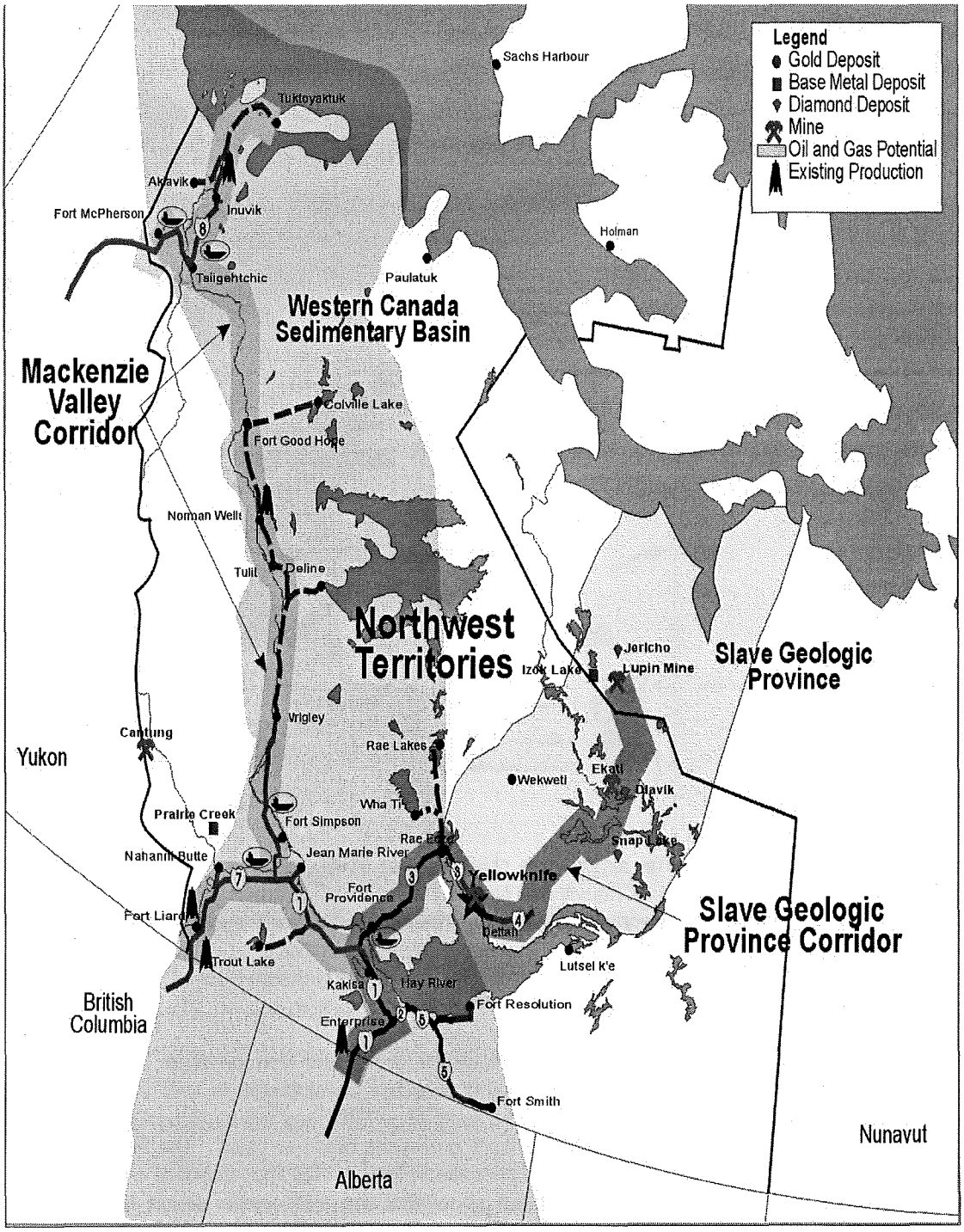
Potential Effects

There are already many geometric and surface deficiencies on the existing highway system. Increased commercial traffic and weight only aggravates these problems and also results in:

- accelerated deterioration of the infrastructure and thus accelerating the need for reconstruction;
- increased pressure from industry for a higher level of service and longer window of operation on the Mackenzie Valley winter roads;
- increased wear and tear on gravel surfaces;

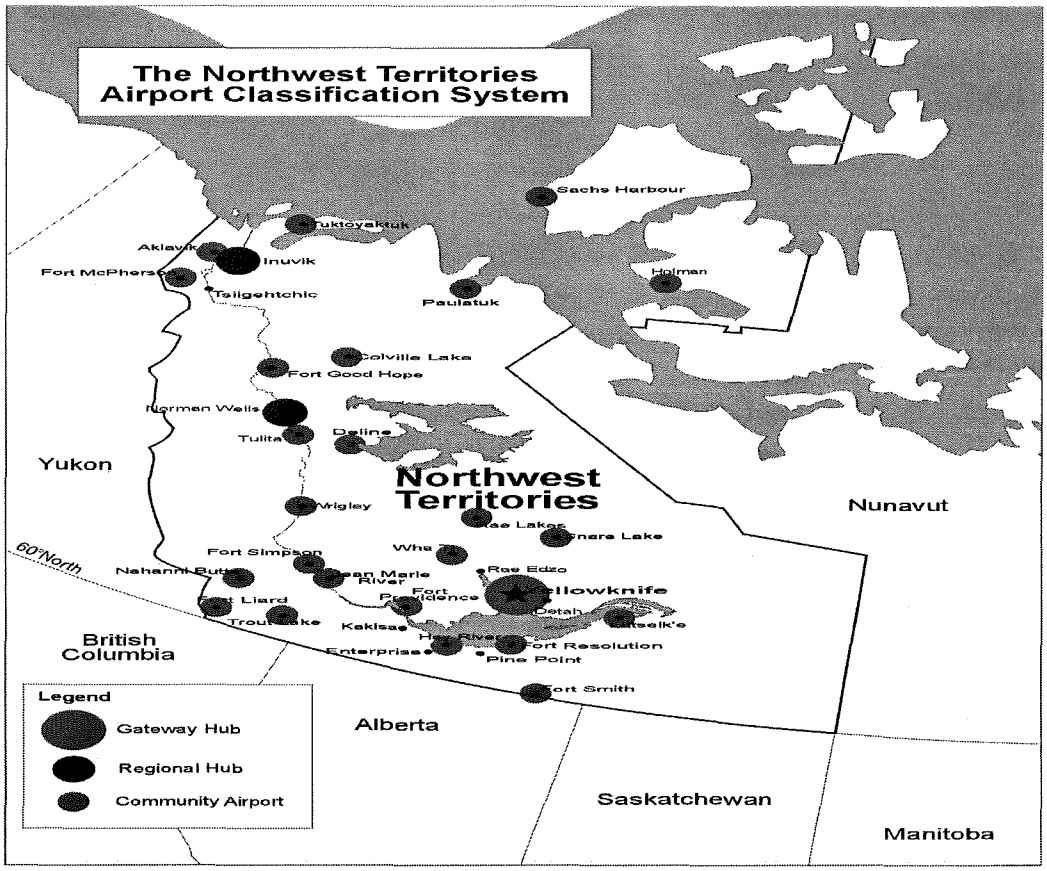
- increased effort to carry out routine maintenance such as winter sanding and snow plowing;
- increased safety related concerns for both the private and commercial traffic;
- decreased pavement lifecycles, increasing the frequency of surface overlays;
- inefficiencies for existing developments;
- increased uncertainty and costs in the exploration of new developments; and
- increased pressure from industry to mitigate the effects of climate, such as a shortened and more variable operating window, on the winter road network by replacing ice crossings with permanent bridge structures.

Figure 2 – NWT Highway System



Airports

As seen in the following figure, the department operates a total of 27 airports in the NWT.



The airports are classified into three categories: gateway hub (Yellowknife), regional hubs (Inuvik and Norman Wells), and community airports. In addition, privately owned airports/airstrips serve resource operations such as the Ekati and Diavik diamond mines. There are also 4 aerodromes that are not certified by Transport Canada at the present time in the NWT system at Nahanni Butte, Trout Lake, Jean Marie River and Colville Lake.

The airports in Yellowknife, Inuvik and Norman Wells have already felt the impact of recent non-renewable resource development in their areas. Aircraft movements in these airports have risen since 1999 and will continue to rise as diamond and oil and gas activities intensify during the next few years. The Inuvik airport, for instance, has experienced an increase in total aircraft movement of over 29% from 1997 to 2002. Although statistics show that the Yellowknife airport experienced only a modest increase of about 5.5% in total aircraft movements for the same time period, there was a significant increase in the number of larger and heavier aircraft landing at the airport versus a decrease in the number of smaller aircraft. Moreover, as aircraft traffic starts to increase more significantly, as anticipated, the Yellowknife airport, as the gateway, will experience the greatest impact as there will be extreme pressure placed on both groundside and airside facilities at the airport.

As new land is opened to oil and gas development, smaller airports may experience an increase in air traffic. This was the case with Fort Liard when lands were opened in 1994 and 1996 and there was a significant increase in traffic, especially helicopters. The Fort Liard airport, as a certified aerodrome, had the capacity to handle the increase and deal with issues such as noise, routing of aircraft and mixing of fixed-wing and rotary-wing traffic. The uncertified aerodromes, however, do not currently have the capacity to handle issues related to increased traffic flow and will thus require extensive upgrading.

Potential Effects

- accelerated deterioration of the infrastructure and thus accelerating the need for reconstruction (i.e. runways and taxi aprons);
- increased utilization of airport facilities thus higher operating and maintenance costs;
- inadequate airport terminal capacity as aircraft and passenger traffic increases (i.e. current terminal size at Yellowknife, Inuvik and Norman Wells may have to be increased); and
- increased safety and security related concerns for both the private and commercial traffic.

Road Safety Programs

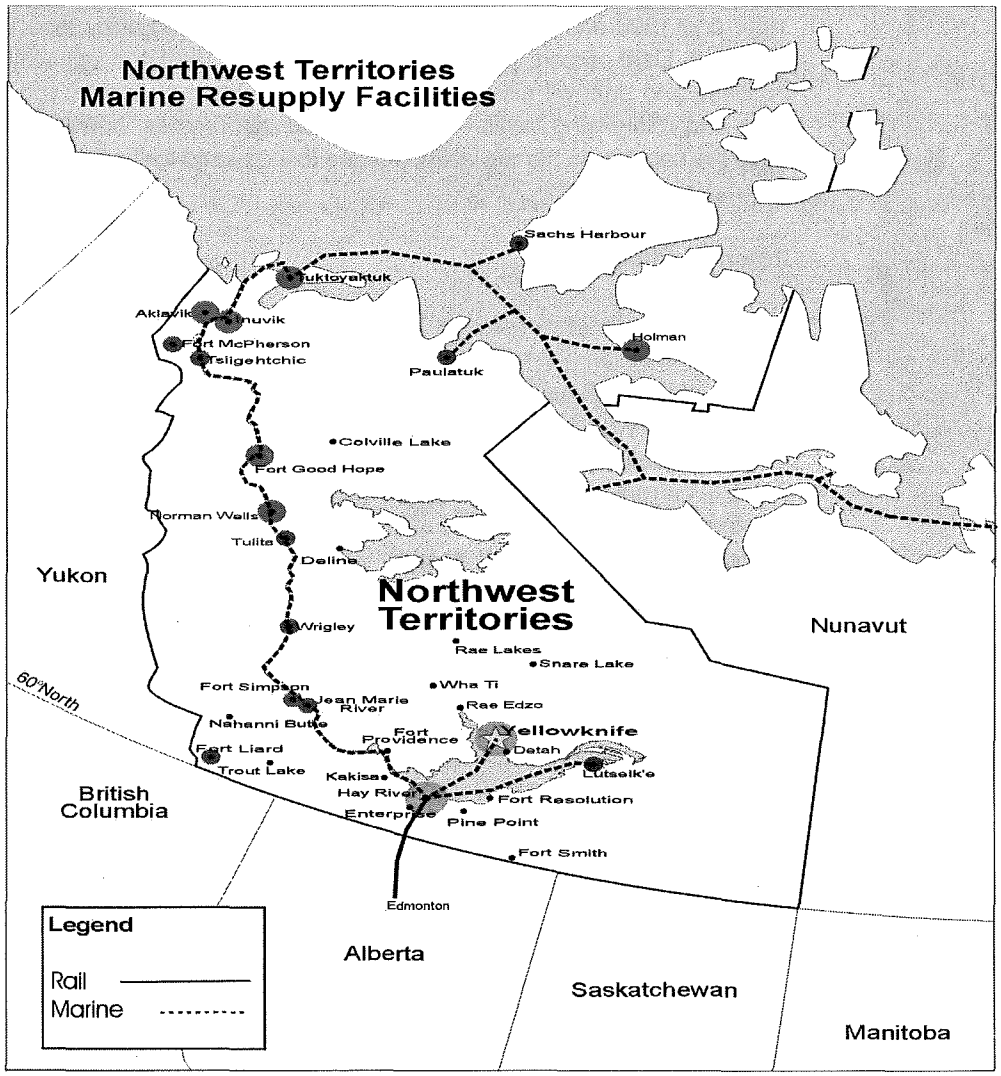
The department currently operates three Vehicle Inspection Stations. These stations are located at Enterprise, Inuvik and Ft. Liard. The department also operates one mobile station used for spot inspections. The Vehicle Inspection Stations are utilized to ensure commercial vehicle compliance of dangerous goods regulations and large vehicle regulations. They also serve to ensure that each commercial vehicle is operating with the appropriate permits and licenses.

An increase in commercial vehicle traffic on the highway system has resulted in a corresponding increased in compliance activities. These activities are centered in the Vehicle Inspection Stations. The existing stations need capital investment to upgrade facilities.

Potential Effects

- increased safety related concerns for both the private and commercial traffic:
- increased utilization of existing facilities that do not currently have the capacity to meet expected demand; and
- increased inefficiencies in compliance activities (i.e. extended delays at inspection stations).

Marine and Rail



The marine and rail systems are linked in Hay River, which serves as the main marine/rail transportation hub.

The rail infrastructure is privately owned by Rail America. NTCL is the largest barge shipping company, based out of Hay River. A second company, Cooper Barging, operates out of Fort Simpson and primarily serves the oil and gas industry.

The resource sector relies heavily on the rail and marine transportation system for transportation of goods. The system serves the oil and gas industry and will be an integral supply route for the proposed pipeline construction.

Although currently sufficient, it is expected that infrastructure improvements may be necessary to respond to increasing volumes and carrying capacity. These improvements, however, would be the responsibility of the private companies and will be funded through free market mechanisms.

The department has not experienced any significant impact from recent non-renewable resource development and projects potential impacts from future development will be minimal. However, the department is however interested in ensuring that the rail line and marine system aintain operational viability.

Financial Impacts

Investments made by the Department

The department has already made significant investments to address the demands placed on its programs by non-renewable resource development, as follows:

- A total of $10,356,000 for Mackenzie Valley Winter Road Bridges ($2,884,000 in 2000/2001, $6,072,000 in 2001/2002 and $1,400,000 for 2002/2003).

- $13,500,000 for one-time investments in 2002/2003 for improvements to the existing highway system, as follows:
  - $1,500,000 for highway #1 (km410 to km456)
  - $3,800,000 for highway #3 (km244 to km335)
  - $1,200,000 for highway #4 (km0.8 to km69)
  - $2,000,000 for highway #5 (km80 to km232)
  - $1,000,000 for highway #6 (km23 to km90)
  - $2,000,000 for highway #7 (km0 to km254)
  - $2,000,000 for highway #8 (km0 to km259)

  These investments are in addition to the department's ongoing capital investment to maintain and reconstruct existing highways to provide safe and reliable access for people and resource development.

- $502,000 to increase capacity and service levels for departmental programs to meet requested demands by the private sector, as follows:
  - $240,000 to extend winter road service in the Shatu ($190,000) and extend service at the Tssiigehtchic ice crossing ($50,000)
  - $180,000 for increased services at the Inuvik and Norman Wells airports ($72,000), at the Yellowknife airport ($30,000) and a Regional Airport Manager at the Inuvik airport ($80,000)
  - $40,000 for a part-time Highway Transportation Officer in Inuvik
  - $42,000 for increased ferry service in the Inuvik Region

Future Investments

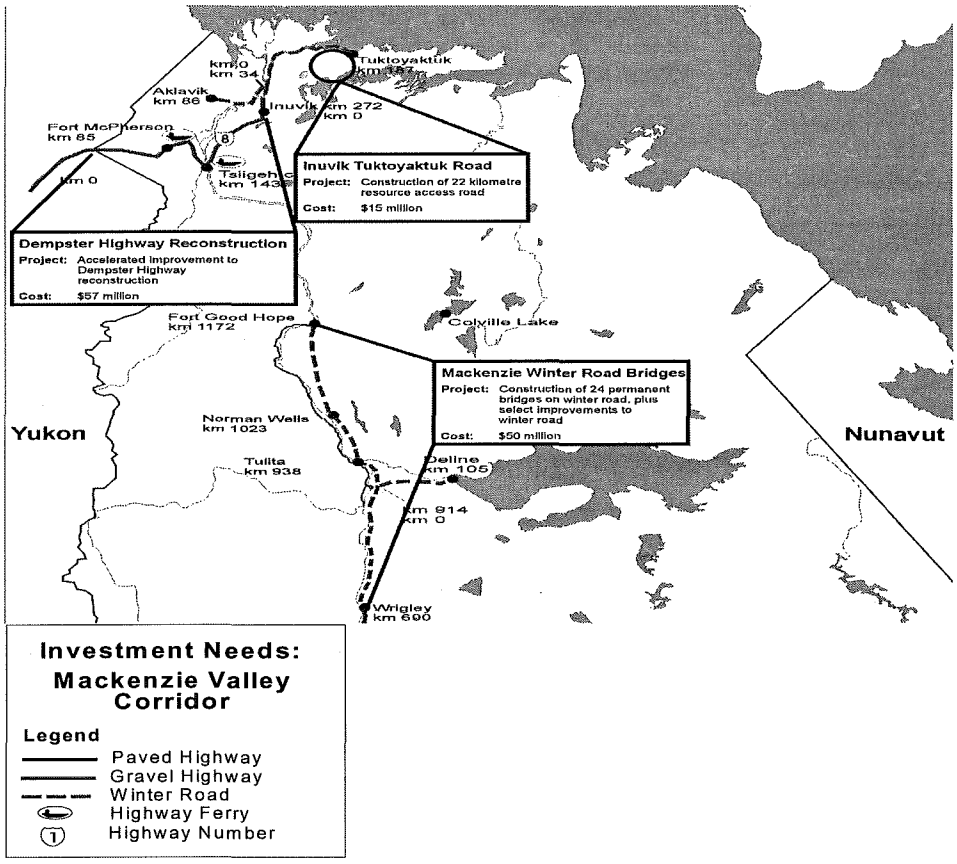
A considerable amount of investment is required to ensure the existing transportation infrastructure is capable of adequately meeting the needs of future non-renewable resource development activities.

Highways

It is widely recognized that the lack of transportation access to the resource wealth of the NWT imposes a serious limitation on the growth of the territorial economy and restricts the personal mobility of NWT residents. To address this serious issue requires large-scale investments, investments that are far beyond the means of the GNWT.

In the short-term, the department has indicated that a total investment of $200 million, over the next four years, will be required to improve all-weather and winter roads that serve existing and future oil and gas and mineral development. These investments will occur in the Mackenzie Valley Corridor and the Slave Geologic Province Corridor. The required investments are as follows:

Mackenzie Valley Corridor



1. Mackenzie Valley Winter Road Bridges

2003/2004	2004/2005	2005/2006	2006/2007	Total
$12,500,000	$12,500,000	$12,500,000	$12,500,000	$50,000,000

As stated above, the department has already made significant capital investment to complete the construction of seven permanent bridges on the winter road. These bridges will expand the operation of the winter road, facilitating oil and gas exploration activities and community resupply and travel.

The proposed investment is required to:

- construct permanent structures at an additional 22 stream/river crossings;
- construct permanent bridges at two major river crossings at the Bear and Blackwater Rivers; and
- realign the winter road between Norman Wells and Fort Good Hope to the proposed all-weather road alignment.

Benefits

- creation of significant local employment and business opportunities for aboriginal persons and businesses;
- enhance travel between communities and increase access to services;
- all crossings will be located on the all-weather road alignment; and
- an expanded winter road season.

2. #8 – Dempster Highway Reconstruction

2003/2004	2004/2005	2005/2006	2006/2007	Total
$12,500,000	$12,500,000	$16,000,000	$16,000,000	$57,000,000

Investment required for reconstruction that would include straightening and widening the road to improve road geometrics and correction of drainage and permafrost problems.

Benefits

- improved road conditions;
- increased effectiveness through an improvement in the level of certainty of the road conditions, improving service levels;
- increased efficiencies because of reduced operating costs for all users through improved surface conditions and improved geometrics; and
- improved road safety

3. First Phase of the Inuvik Tuktoyuktuk Road

2003/2004	2004/2005	2005/2006	2006/2007	Total
$4,500,000	$4,500,000	-	-	$9,000,000

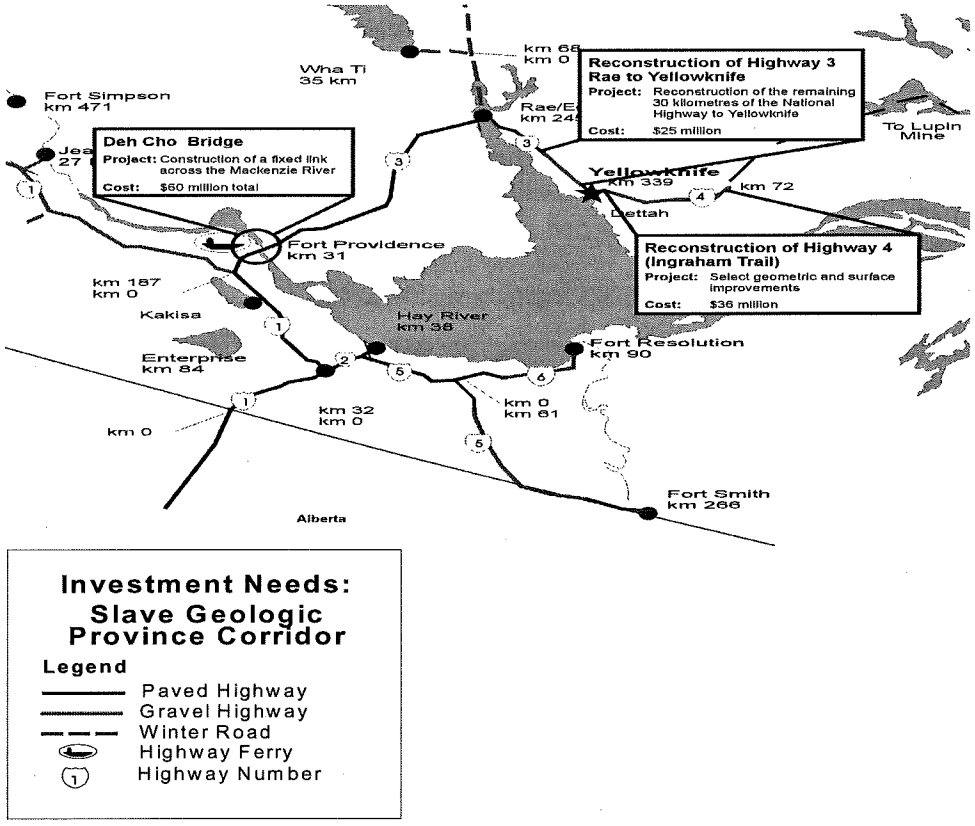
An all-weather road from Inuvik to Tuktoyuktuk is a long-term objective of the department and is a GNWT priority as it relates non-renewable resource development.

The first step towards the all-weather road, is the construction of a 22-kilmeter access road from Tuktoyuktuk to area gas deposits and gravel sources.

Benefits

- creation of significant local employment and business opportunities for aboriginal persons and businesses;
- the road would facilitate current and future exploration and development of oil and gas reserves in the region; and
- the road would provide year-round access to gravel sources for the community of Tuktoyuktuk.

Slave Geological Province Corridor



1. Deh Cho Bridge

2003/2004	2004/2005	2005/2006	2006/2007	Total
$11,500,000	$11,500,000	-	-	$23,000,000

The construction of a permanent bridge across the Mackenzie River near Fort Providence that is currently serviced by ferry in the summer and an ice bridge in the winter. These services are however subject to seasonal disruptions of up to 4 weeks during spring break-up, and several days during freeze-up.

Under the current proposal, the bridge would be constructed and operated under a public private partnership. An initial investment by the GNWT would still be required.

Benefits

- direct cost savings derived from the cessation of the ferry and ice bridge operations;
- elimination of the seasonal disruptions and associated uncertainty of access;
- improved level of service; and
- creation of significant local employment and business opportunities for aboriginal persons and businesses.

2. #3 – Yellowknife Highway Reconstruction

2003/2004	2004/2005	2005/2006	2006/2007	Total
$12,500,000	$12,500,000	-	-	$25,000,000

Investment required for reconstruction and paving of 30 kilometers of the highway between Rae and Yellowknife that would include straightening and widening the road, correction of drainage, construction of a new road base and applying an asphalt surface.

Benefits

- improved road conditions;
- increased effectiveness through an improvement in the level of certainty of the road conditions, improving service levels;
- increased efficiencies because of reduced operating costs for all users through improved surface conditions and improved geometrics; and
- improved road safety

3. #4 – Ingraham Trail Reconstruction

2003/2004	2004/2005	2005/2006	2006/2007	Total
$9,000,000	$9,000,000	$9,000,000	$9,000,000	$36,000,000

Investment required for reconstruction, paving and geometric improvements. Commercial trucking activities on the road have increased significantly over the past several years due to the recent development of diamond mines in the Slave Geologic Province. These volumes are expected to remain high.

Benefits

- improved road conditions;
- increased effectiveness through an improvement in the level of certainty of the road conditions, improving service levels;
- increased efficiencies because of reduced operating costs for all users through improved surface conditions and improved geometrics; and
- improved road safety

The short-term investment identified above represents only a fraction of the investment required in the existing highway system. The department's Highway Investment Strategy has identified that over $600 million is needed over the next 20 years to improve existing highways, build new bridges and upgrade winter roads in order to accommodate industrial activity.

A second component of the Highway Investment Strategy is the long-term requirements for new roads to improve access to natural resources and communities. As noted above, initial investments are required to get started but an estimated investment of more than $700 million will be needed to support exploration, development, production and export of oil and gas reserves in the Mackenzie Valley Corridor and open the Slave Geological Province Corridor to further mining development.

Airports

The current growth in domestic demands (largely from industry) at the Yellowknife Airport is expected to continue and will require an investment of $30,000,000 for infrastructure improvements needed to respond to increasing air traffic and potential economic opportunities. This includes:

- upgrades to the existing air terminal building, including potential expansion, to accommodate increased passenger movement associated with increased tourism and resource development; and
- extension of the main runway to 10,000 feet. This will accommodate larger aircraft and expand the opportunities for polar route flights and increase market potential.

In addition, $20,000,000 in airside and groundside infrastructure investment will be required to reconstruct and upgrade the deficiencies at community airports at Nahanni Bute, Colville Lake, Jean Marie River and Trout Lake; as required in response to anticipated increased traffic associated with oil and gas development ($5,000,000 each).

Road and Safety Programs

A total of $6 million is required to accommodate the increase in commercial vehicles and improve compliance of road safety regulations, as follows:

- $2,500,000 to replace the facility located in Inuvik; including weigh scale pads and approaches, the weigh scale building and upgrades to the site.
- $2,500,000 for the construction a new scale facility at Fort McPherson
- $1,000,000 to upgrade the site at the weigh scale facility located at Enterprise

GOVERNMENT WIDE IMPACTS

Background

The preceding sections dealt with discussions regarding specific departments impacts resulting from non-renewable resource development. However, all GNWT departmental operations have been impacted by recent development to some degree. As non-renewable resource development activities intensify in the upcoming years, income driven impacts derived from these activities will continue to adversely effect government operations. Two specific areas of concern are (1) the recruitment and retention of employees and (2) inflation.

Recruitment and Retention

Recent non-renewable resource development has significantly contributed to the NWT's booming economy, which has created new jobs at a rate that has lowered the NWT's unemployment rate to levels not seen in many years. The NWT's unemployment rate is currently the 4th lowest in Canada. Labour shortages in many skilled occupational groups have created fierce competition among employers.

To achieve its objectives the GNWT needs a competent and productive public service. However, the GNWT's high vacancy rate, which has increased significantly over the last year, combined with a limited northern labour market creates difficulties in the recruitment and retention of public service employees. These difficulties are expected to continue as development activities increase.

For instance, the *Mackenzie Gas Project* is projecting the creation of many direct employment opportunities during the next several years. The MGP is expecting to generate over 2,500 jobs during the peak construction period and about 50 longer-term jobs during pipeline and facility operations. Also, during the pre-construction/planning phase, over 810 short-term jobs are expected. The jobs created will range from entry-level positions (labourers, kitchen staff), skilled positions (heavy equipment operators, electricians) to professional positions (engineers, environmental specialist). There will also be substantial indirect employment created through increased business opportunities the project will generate.

The result is upward pressure on compensation settlements, and recruitment and retention issues in a number of key occupational groups where the GNWT is still heavily dependent on imported labour. Addressing these market shortages is difficult, as pay and benefit structures must conform to the Equal Pay provisions in the NWT Human Rights Act.

Inflation

The NWT economy is booming. In 2001for instance the NWT economy experienced a real increase in Gross Domestic Product (GDP) of about 21%. In comparison the overall growth rate in Canada was only 1%.

A significant portion of the GDP growth was attributed to the non-renewable resource sector, which saw a growth of over 28% due to increased oil and gas exploration and increased diamond production.

Supporting industries also experienced substantial growth. The construction industry grew by over 80% (because of the construction of the Diavik diamond mine) and an over 50% increase in retail/wholesale trade activity. This level of growth is expected to continue.

Associated with economic growth is an upward pressure on price levels as the demand for goods and services increases. Although, the overall inflation rate in the NWT is comparable to the rest of Canada, significant price increases have been experienced in impacted industries. For example, overall prices in the construction industry have increased by about 7% and for consumer goods and services by over 6%, since 1999. Also, as discussed above, compensation and benefit levels have increased as employers compete for labour.

Departmental Comments

NWT Housing Corporation

Non-renewable resource development continues to cause a high demand for construction trades and services. As the existing labour pool re-profiles to address this new and expanding market, it reduces the workers available to service the social housing construction and maintenance functions. This impacts the Housing Corporation by driving up the costs due to the supply and demand dynamics and results in higher construction, repair and maintenance costs. Overall, the corporation estimates that the cost of building and maintenance has increased at an annual rate of 4.5% for the past 2 years net of inflation. Given an existing $25 million annual budget, the Corporation would need a further $1.1 million per year to maintain existing delivery and service levels to lower incomes social housing families across the NWT.

Health and Social Services

Depletion of skilled labour pool – Wages paid by resource companies tend to be higher than those earned at public or service sector jobs. For government this means shortages in key positions and subsequent higher turnover rates.

Recruitment and Retention – With the expected employment increases during the construction of the pipeline there will be an increased demand to recruit and retain more front-line workers in order to cover the health and social services needs of the migrant population.

Support Staff – An increased demand to recruit and retain more front-line workers anticipates an increase in workload and therefore a necessity to hire support staff. Even if no new front-line workers are hired, the current staff will need an increase in support staff to help manage with the expected workload increase.

Housing – It is anticipated that the recruitment and retention of front-line workers and support staff will have to increase as a result of the competition with resource companies and subsequent turnover rates. With the recruitment and retention of more staff, it is anticipated that the NWT will experience housing shortages, which subsequently impacts the ability to recruit and retain more staff.

Office Accommodation – NWT communities are now seeing a shortage and high turnover of service level employees and residential construction and maintenance occupations. This negatively impacts local businesses and has resulted in business closures which would normally assist in the shortages of office accommodation and storage capacity that exist due to anticipated increase of staff and provisional services.

Education, Culture and Employment

The Department will incur an additional 15 to 20% of added costs to administer the expansion of programs associated with resource development (i.e. management, financial, policy, systems). The Government is also likely to see significant escalation of all costs during the boom period. If costs increase by an average of 5% the department would need an additional $10 million.

Transportation

Transportation sector employment includes such professions as engineers, pilots, mechanics, truck drivers, equipment operators, compliance officers, barge and ferry captains, railway engineers, and planners. Due to our large geographic area and distance to markets, a major component of projects is dedicated to transportation.

A greater demand will be placed on the NWT's limited human resources with heightened activity in the resource sector.

It is therefore imperative that efforts are made to develop skilled transportation professionals through training and education programs. In addition, it is important the wages are competitively set to ensure skilled professionals are attracted and retained within the NWT Transportation workforce.