

**FINAL REPORT**  
**HIGHWAY FINANCING STUDY**

Submitted to

**Government of the Northwest Territories**  
**Department of Transportation**

by

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## EXECUTIVE SUMMARY

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This study of highway financing in the Northwest Territories (NWT) is part of the 1998/1999 Highway Strategy Initiative of the Department of Transportation of the Government of the Northwest Territories (GNWT). The results of this study and others undertaken as part of the initiative will be used to develop project concepts, information data bases, and to further the plan for advancing new road projects.

The study approaches financing of the Inuvik to Tuktoyaktuk Road and the Mackenzie Valley Highway Extension in two ways. First, it provides an overview of financing and revenue-generating options used in Canada and the U.S. and discusses their applicability to the situation in the NWT. Second, it gives an overview of currently available programs that could be used to reduce the total highway construction costs and reports on the discussion with regional claims organizations regarding their potential involvement in the projects.

### **Traditional Highway Financing**

Most highway construction in Canada is done using public tenders, financed out of provincial government budgets. This approach to highway construction would imply an annual construction budget of between \$10 million and \$80 million for five to 10 years to build the \$100 million Inuvik to Tuktoyaktuk Road or the \$220 million to \$400 million Mackenzie Valley Highway Extension. The cost of the latter project depends on its final configuration. Such commitments are well beyond the capacity to the Department of Transportation, which has a total annual budget of \$66 million, \$17 million of which is allocated to the highway construction, mostly rehabilitation of existing roadways.

There is limited capability in the NWT to finance the projects by issuing debt. The size of the NWT economy limits the ability of the GNWT to repay debt. In addition, the GNWT does not have a history of debt issuance and repayment, reducing the likelihood of success of any forays into the capital or debt markets.

### Financing Alternatives

Other jurisdictions in Canada and the US have tried new ways of infrastructure financing and have explored new or enhanced revenues associated with highway projects. They are summarized in the following table, which also discusses their applicability to the NWT.

<b>Summary of Financing and Revenue Generating Alternatives</b>	
<b>Source of Capital/Revenue</b>	<b>Applicability to NWT</b>
<b>Private Equity/Debt</b>	Limited. Projects have a very limited ability to provide the desired rate of return on the private investment.
<b>Grant Anticipation Revenue Vehicle</b>	Very limited. DOT funds for highway construction are committed in the near and intermediate terms.
<b>Gaming Revenue</b>	Very limited. Only \$100,000 in licensing fee income flows into general revenue.
<b>User Tolls</b>	Very limited. Low utilization of roads.
<b>Shadow Tolls</b>	Limited. GNWT budget insufficient to provide payments to compensate private sector developers.
<b>Registration Fees</b>	Very limited. Low number of vehicles in the NWT. Used mostly in urban or densely populated areas.
<b>Parking Charges</b>	Very limited. With a few exceptions, no parking charges are levied in the NWT. Used mostly in large urban areas.
<b>Area Licensing/Permit</b>	Very limited. Designed to reduce congestion, which is not an issue in the NWT.
<b>Fuel Tax</b>	Limited. A 10% increase in all fuel taxes would raise not more than \$0.7 million per year.
<b>Sales Tax</b>	Limited. Potential to generate revenue is offset by the low level of public acceptance.
<b>Motor Vehicle Property Tax</b>	Very Limited. Low revenue potential due to the limited number of cars.
<b>Special Assessment District/ Tax Increment Funding/ Offsite Levy</b>	Very Limited. Low traffic volumes will limit the likely development along the highways.
<b>Development Agreement</b>	Limited. The oil and gas industry, which is likely the most active industry in the area in the near and medium term, is not dependent on a road.

The information in the table supports the conclusion that the projects will not be built using a public tender approach without considerable infusion of public money. In this regard, there are a number of reasons for federal involvement, including the federal mandate for economic and resource development and the federal responsibility for new highway construction in the NWT.

### Community Construction Approach

The Community Construction Approach phases the construction over 30 years or more, reducing the annual construction costs to \$2 million to \$4 million. It is a way in which some new Department of Transportation money can jumpstart the projects. The projects can then be used to present training and business development opportunities for local area people and businesses.

The Community Construction Approach provides possibilities for using existing training and business development programs to augment the annual Department of Transportation contribution. Programs that may be used as part of the Community Construction Approach include:

<b>Summary of Programs</b>	
<b>Program</b>	<b>Selected Services</b>
<b>Business Credit Corporation (RWED)</b>	<ul style="list-style-type: none"> <li>Loans to business enterprises.</li> <li>Loan guarantees and business bonds.</li> </ul>
<b>Business Development Fund - (RWED)</b>	<ul style="list-style-type: none"> <li>One-time assistance with business planning/development costs.</li> <li>Assistance with the acquisition or development of capital goods.</li> <li>Venture capital assistance.</li> <li>Assistance to upgrade business skills.</li> </ul>
<b>Training-on-the-Job (ECE)</b>	<ul style="list-style-type: none"> <li>80% of trainee's gross salary to a maximum.</li> <li>Tuition reimbursements to a maximum.</li> </ul>
<b>Working Together (ECE)</b>	<ul style="list-style-type: none"> <li>Up to \$5/hr (or 90% of minimum wage) for a student or youth worker. Maximum contract: one year.</li> </ul>
<b>Building and Learning Strategy (ECE)</b>	<ul style="list-style-type: none"> <li>Training costs for trainees.</li> <li>Wage subsidy to the contractor.</li> </ul>
<b>Skills for Work (ECE)</b>	<ul style="list-style-type: none"> <li>Training costs for trainees.</li> <li>Wage subsidy to the contractor.</li> </ul>
<b>Apprenticeship Training Program (ECE)</b>	<ul style="list-style-type: none"> <li>Wage subsidy for apprentices over a three-year period. The maximum subsidy is reduced as the apprentice gains experience and becomes more productive.</li> </ul>
<b>Employment Insurance Training (ECE/HRDC)</b>	<ul style="list-style-type: none"> <li>Training allowance of \$675/week.</li> <li>Additional support is available for tuition, transportation to the place of instruction and childcare.</li> </ul>
<b>Indian Management Assistance Program (DIAND)</b>	<ul style="list-style-type: none"> <li>Wage subsidy for a university student who works for an aboriginal groups in a managerial role during the summer months.</li> </ul>
<b>Business Opportunity Fund (DIAND)</b>	<ul style="list-style-type: none"> <li>One-time funding to the aboriginal group desiring to undertake an appropriate business venture.</li> </ul>
<b>Aboriginal Human Resources Strategy (HRDC)</b>	<ul style="list-style-type: none"> <li>Employment programs that reflect and serve Aboriginal needs at the local labour market level.</li> <li>Local board accepts and evaluates proposals for training and labour market development programs.</li> </ul>

There may be options for future private sector involvement in training and labour force development through benefit agreements. This option is very dependent on further resource development in the region.

There are several limitations to this approach, including:

- training programs tend to subsidize only part of the wage costs incurred and wage costs account for only about one-third of construction costs;
- training budgets are constrained and often include a geographic distribution of program expenditures;
- the eligibility of the project work forces for training assistance will reduce over time as their training levels increase; and
- only one program that assists with the purchase of equipment was identified and none that help with equipment operating costs.

These observations notwithstanding, the Community Construction Approach offers opportunities for regional economic development.

### **Claimant Groups**

The affected claimant groups will need to be involved in the projects. The proposed highways cross Inuvialuit, Gwich'in and Sahtu lands and the claims organizations represent the people who will most benefit from the highway projects. They are also the major source of investment capital in the region.

Discussions conducted as part of this study indicate an interest by the claims organizations to be part of the projects. The exact nature of their involvement will need further discussions, but possibilities include resource royalty waivers and equity participation.

### **Conclusion**

Building the Inuvik to Tuktoyaktuk Road and the Mackenzie Valley Highway Extension using a traditional Public Tender Approach will require substantial new public money. This suggests that the GNWT

should continue to work with its provincial counterparts to ensure that the federal government meets its mandate for economic and resource development and responsibility for new highway construction in the NWT.

Short of that, The Community Construction Approach is an alternative in which the Department of Transportation can jumpstart the projects, using some additional highway construction funds. The projects can then provide a vehicle for local access to existing government training and business development programs, creating regional economic development with a highway construction focus.

The department will need to continue to work with the claimant groups to explore their role in more detail. Showing a government commitment to a sustained economic development process using highway construction as a focus may be an inducement for claims groups to enter into the discussion. Any equity participation by these groups may augment and enhance the government-sponsored construction activity. It could also replace it, with the public funds then allocated to shadow tolls to compensate investors.

The Community Construction is not incompatible with the Public Tender approaches. With a modest budget reallocation, the Community Construction Approach can be initiated in the near term. It can be scaled up if claims groups become actively involved. Then, if changes in the fiscal situation of Canada and the NWT will allow new public investment in infrastructure, the Community Construction Approach can be superseded by the Public Tender Approach.

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# 1. INTRODUCTION

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## 1.1 BACKGROUND TO THE STUDY

During the fiscal year of 1998/1999, the Department of Transportation of the Government of the Northwest Territories (GNWT) undertook a "Highway Strategy Initiative". It consisted of studies addressing need/feasibility, engineering, environment, economic impact/benefit-cost analysis, financing and business case/marketing issues. The studies focused on four road projects:

- the Inuvik to Tuktoyaktuk Road;
- the Mackenzie Valley Highway Extension;
- the Slave Geologic Province Transportation Corridor;  
and
- Highway 3 Reconstruction - Rae to Yellowknife.

The results of these studies will be used to develop project concepts, information databases, and to further the plan for advancing new road projects.

The Highway Strategy Initiative furthers the Department of Transportation's strategic objective of creating new transportation infrastructure to promote economic development. This objective is clearly enunciated in both the 1990 Transportation Strategy and the 1994 Transportation Strategy Update.

This study addresses highway financing issues, recognizing that the cost of constructing and operating new highways is a significant barrier to their realization. Specifically, the study's purpose is to determine and evaluate all potential financing alternatives for the construction of the Inuvik to Tuktoyaktuk Road and the Mackenzie Valley Highway Extension. It is a further extension of the benefit-cost and regional economic impact analysis work done for the Mackenzie Valley Highway Extension and the Inuvik to Tuktoyaktuk Road projects and focuses on these two projects. Much of the discussion applies to other highway construction projects as well.

## **1.2 REPORT OUTLINE**

The study commences with a short outline of issues in Section 2, followed in Section 3 by an overview of possible approaches to highway construction and operation financing. Section 3 contains as well discussion of the applicability of these financing options to the Northwest Territories (NWT).

The discussion presented in Section 4 explores the possibilities for tapping into existing funding programs to offset some costs and provides a preliminary discussion of potential northern partners for the projects. The study concludes with a summary section.

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## 2. THE ISSUE

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In addition to environmental, land use and other considerations, finding the resources to implement new highway construction is an important issue facing the proposed projects. The estimated capital cost of the Inuvik to Tuktoyaktuk Road is \$100 million. The capital cost of the Mackenzie Valley Highway Extension is estimated at \$220 million for the section between Wrigley and Fort Good Hope. Including a spur to Deline and extending the road to the Dempster Highway will increase the estimated capital cost to \$400 million. The Department of Transportation's planning includes two construction scenarios: the Public Tender Approach which connotes a focused building program over a relatively short period and the Community Construction Approach that would see small-scale community-based construction activities over a 30-year period or longer.

Discussions in the region suggest that available local construction companies could build the Inuvik to Tuktoyaktuk Road in five to six years and the Mackenzie Valley Highway Extension in eight to ten years. These timeframes assume the Public Tender Approach, which is a common highway construction method. The benefit-cost and regional economic impact analyses of both projects assumed a construction period of seven years for the Inuvik to Tuktoyaktuk Road and ten years for the Mackenzie Valley Highway Extension. These analyses discuss as well the impacts of highway construction using the Community Construction Approach.

Table 1 provides simplified estimates of annual construction costs assuming different construction periods. It shows that the annual capital expenditure on either project is not less than \$10 million under the Public Tender Approach. Using the more phased Community Construction Approach, the annual capital outlay is estimated at between \$2.5 million and \$13.3 million.

<b>TABLE 1</b>			
<b>Estimated Annual Construction Costs</b>			
<b>Construction Period</b>	<b>Mackenzie Valley Highway Extension to Fort Good Hope (Total \$220 million)</b>	<b>Mackenzie Valley Highway Extension to Dempster (Total \$400 million)</b>	<b>Inuvik to Tuktoyaktuk Road (Total \$100 million)</b>
----- In \$ million -----			
Public Tender: 5 years	44.0	80.0	20.0
Public Tender: 10 years	22.0	40.0	10.0
Community Construction: 30 years	7.3	13.3	3.3
Community Construction: 40 years	5.5	10.0	2.5

A simple juxtaposition of these estimated annual construction costs and the current and anticipated budgets of the Department of Transportation frames the resource availability issues clearly. The main estimates for the 1999/2000 budget year indicate a total Departmental budget of approximately \$66 million, \$17 million of which is allocated to highway capital infrastructure. In addition, the Department anticipates spending \$0.5 million on the Community Access Roads Program, \$0.2 million of which accrues to the Inuvik region.

Most of the highway capital infrastructure is spent in the Fort Smith region, where most highways are located. The estimated expenditure on highway capital expenditure in the Inuvik region, where both the Inuvik to Tuktoyaktuk Road and the Mackenzie Valley Highway Extension projects are located is \$3.2 million, \$2.5 million of which is dedicated to reconstructing the Dempster Highway, the only all weather road in the area. This latter project has an anticipated future cost of \$10 million.

These figures show that the current and anticipated highway capital infrastructure budgets of the Department of Transportation are insufficient to finance either the Inuvik to Tuktoyaktuk Road or the Mackenzie Valley Highway Extension. The following section explores alternative approaches to highway financing and discusses their applicability to the situation in the NWT.

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### **3. APPROACHES TO HIGHWAY FINANCING**

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The issue of road infrastructure financing requirements outstripping the anticipated departmental budgets is not new nor unique to the NWT. Approaches that have been tried elsewhere include finding new ways of financing, including the introduction of private sector capital, and finding new or enhanced revenues associated with highway projects.

This section presents separately the possible highway financing and revenue generating options. An analysis of the applicability to the NWT is interlaced with the general discussion of financing and revenue generating options and the section concludes with a summary table of financing and revenue options. Appendix A provides a listing of publications consulted as part of this study.

#### **3.1 FINANCING OPTIONS**

##### **3.1.1 Existing Government Budgets**

Most highway infrastructure is financed out of government budgets allocated for this purpose. It is common practice for the federal, provincial, and territorial governments to allocate a portion of the overall government expenditures to infrastructure construction and maintenance, including highways. Funds for these expenditures come from general revenue. The Canadian practice is to not tie any particular revenue source, such as a fuel tax, to the highway construction budgets.

###### **3.1.1.1 NWT Situation Analysis**

###### **Government of the Northwest Territories**

The total budget of the GNWT is approximately \$700 million, \$570 million of which comes from the Government of Canada in the form of grants and transfer payments. The balance of \$130 million is generated in the NWT by means of taxation, recoveries, and the sale of assets. Contrasting these global budget numbers with the estimated annual project construction costs (see Table 1) underlines the size of the projects relative to the total GNWT budget. Constructing the Inuvik to Tuktoyaktuk Road, using a Public Tender Approach, will require between 1.4% and 2.8% of the total annual budget of the GNWT. In contrast, construction of the North-South Trade Corridor accounts for only 0.2% of the total revenue of the province of Alberta.

### **GNWT Department of Transportation**

As mentioned above, the Department of Transportation has an annual budget allowance for highway capital infrastructure of \$17 million. The level of this budget is determined as part of the government budgeting process. Highway construction competes for available funds with other transportation projects and with other government initiatives and obligations. Both the Mackenzie Valley Highway Extension and the Inuvik to Tuktoyaktuk Road by themselves can absorb most or all of the total annual highway construction budget of the Department of Transportation. In contrast the on-going construction of the North-South Trade Corridor accounts for about 4.5% of the total expenditures of Alberta Transportation and Utilities (now combined with the former Department of Public Works and Supply Services in the Department of Infrastructure).

### **Other GNWT Departments**

If structured appropriately, highway projects will be able to offset some of the cost of construction. As discussed in more detail in Section 4, the **Department of Education, Culture and Employment (ECE)** has a number of training programs that include work placements. Similarly, the **Department of Resources, Wildlife and Economic Development (RWED)** has the Business Development Fund and the Business Credit Corporation which can offer assistance. Neither is focused on highway construction, but both assist companies that may become involved with the projects.

### **3.1.1.2 Government of Canada Situation Analysis**

#### **Indian and Northern Affairs Canada**

Most of the highway system in the NWT was funded by Indian and Northern Affairs Canada (in the north most frequently referred to as the Department of Indian Affairs and Northern Development or DIAND) and constructed by Public Works Canada.

Over the past two decades, the responsibility for highways was gradually devolved to the GNWT. Responsibility for highway and ferry operations was transferred to the GNWT in 1981, followed by the responsibility for capital rehabilitation of about half the existing highway system in 1984. A 1990 agreement transferred responsibility for capital rehabilitation of all remaining highways, maintenance and marine infrastructure and community access roads. Under this agreement, the GNWT also undertook to complete the Mackenzie Highway to Wrigley.

Responsibility for new highway construction remains with the Federal Government, but DIAND does not have any budget for highway construction in the NWT at this time.

### **Other Federal Departments**

Labour market programs that may be used to offset some of the construction costs are discussed in detail in Section 4. Most of these programs are under the purview of ECE since **Human Resources Development Canada** has devolved labour market programming in the NWT to the territorial government by means of a Labour Market Development Agreement. In addition, the responsibility for Employment Insurance Fund-sponsored training is devolved to the GNWT.

**Transport Canada** has the role to develop and administer policies, regulations and services for the transportation system and is the lead agency regarding any discussions about a National Highway Strategy. Generally, responsibility for highway construction falls to the provincial and territorial departments of transportation, while both levels of government receive taxation income from the ground transportation users. In view of this situation, the provincial and territorial governments have approached the federal government for assistance with preserving and improving the existing highway system. The federal government has not yet determined its response or commitment to this request. The prospect of a national highway program continues to be raised at various meetings of ministers, premiers and first ministers.

Other federal departments that may be affected by highway construction in the NWT include Canada Ports Corporation (better access to coastal ports), Canada Post Corporation (lower mail delivery costs and reduced need for its food mail program), the Canadian Coast Guard (changes in river travel patterns), and the Department of Defense (military presence on our northern border). A case might be made that monies these organizations save if additional roads are constructed in the NWT should be allocated to road construction.

### **3.1.2 Public Sector Debt**

Governments do undertake infrastructure and other initiatives if total public expenditures exceed government revenues. The shortfall is financed by issuing debt.

### **3.1.2.1 NWT Situation Analysis**

The Borrowing Authorization Act permits government borrowing by loan, debenture loan, overdraft or any other arrangement. It also empowers the GNWT to enter into borrowing agreements with lending institutions, investment dealers and other persons. The GNWT has not issued long-term debt in the recent past, except to purchase the assets of the Power Corporation. This debt issue was offset by interest and principal payments by the Power Corporation. Short-term debt has been used for cash-flow management and to cover small deficits in recent fiscal years.

The GNWT is committed to a balanced budget and would have trouble arranging a large bond issue in view of the fact that:

- it does not have a large economy or tax base; and
- it is not rated by any ratings agency.

There is no precedent for issuance of debt to finance road construction.

### **3.1.2.2 Government of Canada Situation Analysis**

The federal government issues debt on a regular basis, both to finance new initiatives and to roll over maturing debt. It has ample capability to raise the quantity of funds needed for highway infrastructure development in the NWT. The federal government, however, is committed to fiscal restraint, a balanced budget and debt repayment.

### **3.1.2.3 Other**

Muni bonds are a common vehicle for infrastructure financing in the United States. They are debt vehicles that carry the provision that investors do not pay federal and state taxes on interest paid. This means that these bonds can find a market at interest rates lower than the prevailing rates for issues with similar maturity, creating an interest cost saving for the issuer.

There is currently no framework in Canada or the NWT to issue tax-free bonds.

### **3.1.3 Private Debt/Equity**

Because public sector budgets are often insufficient to meet the demand for infrastructure construction, it is becoming more common to turn to the private sector for funds. The main vehicles are public-private partnerships (P3).

There are a number of P3 variants, all of which have in common that project funding comes from the private sector and is repaid either by the public sector partner or users over time. The variety of P3 initiatives can be summarized as follows:

Buy Build Operate:

- land and any existing portions of the road are transferred to a private partner.
- the partner develops the highway as specified by the Department. The private partner operates the highway indefinitely.
- the partner will require some method of cost recovery over the life of the highway.
- the Department maintains control over quality, safety, and access through provisions in the initial contract.

Build Transfer Operate:

- a private partner finances and constructs the facility, then transfers it to the Department.
- the private partner then enters into a long-term lease with the Department for the operation of the highway.
- the private partner recovers its costs by means of a transfer price, payments for operating services, and user fees.

Build Operate Transfer:

- a private partner finances and constructs the highway and maintains ownership and operating responsibilities for a time before transferring to the Department.
- the private partner recovers costs through user fees during the operation period.

#### Build Own Operate:

- a private partner finances, builds, and operates the highway indefinitely.
- the Department sets specifications for quality, safety and access.
- The private partner recovers costs through user fees.

There are numerous examples of infrastructure P3 projects in the U.S. and some in Canada, including Highway 407 in Ontario and the Confederation Bridge in Prince Edward Island.

#### **3.1.3.1 NWT Situation Analysis**

The NWT has placed an emphasis on P3 projects since about 1997 and the first P3 projects and negotiations are currently underway. The financing of the Legislative Assembly building was essentially a P3 project before the term gained popularity. The building was constructed privately and financed by a building-specific bond issue. The GNWT leases and uses the building.

Highway construction has been considered as a potential P3 project in the NWT, but the applicability is deemed to be limited. For example, a 1997 study states that "(t)he Territory is so vast and construction there so expensive, in relative terms, that private sector investment in highway infrastructure is unlikely to attract a suitable return on capital employed. Without adequate returns, the private sector will have little interest."<sup>1</sup>

Recent benefit-cost and regional economic impact analyses of the Inuvik to Tuktoyaktuk Road and Mackenzie Valley Highway Extension suggest that the projects are not economically viable, but that they have potential as regional economic development vehicles.<sup>2</sup> These findings underline that the likelihood for a commercial return and thus private sector interest may well be limited.

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<sup>1</sup> Coles Associates Ltd. Management Consulting Division. *The Potential for Greater Self Reliance Through Partnering*, 1997. (page 42)

<sup>2</sup> Nichols Applied Management. *Benefit-Cost and Regional Economic Development Analysis: Inuvik to Tuktoyaktuk Road*. Edmonton, March 1999  
 Nichols Applied Management. *Benefit-Cost and Regional Economic Development Analysis: Mackenzie Valley Highway Extension*. Edmonton, April 1999.

## **3.2 REVENUE OPTIONS**

Many financing options include the need to repay the initial investment over time. The exception is the use of existing government budgets, which are treated on a cash basis and do not require repayment.

Estimating new or existing revenue associated with highways and highway travel can provide an indication of the likelihood of private sector interest in highway investment. It may also provide an argument for public sector debt issuance by formally or informally tying the revenue to debt repayment.

### **3.2.1 Grant Anticipation Revenue Vehicle**

The U.S. National Highway Designation Act (1995) allows a range of highway infrastructure costs financed by bond issues to be repaid out of future federal highway aid. In effect, if Grant Anticipation Revenue Vehicle (GARVEE) financing is in place, future federal monies are earmarked for debt repayment.

#### **3.2.1.1 NWT Situation Analysis**

Translated into the northern situation, this would mean that future Department of Transportation funding be committed to finance highway infrastructure development, possibly as a vehicle to repay private sector investment (either directly or via a shadow toll system, discussed below). This would provide a hybrid of government non-debt financing and private sector investment.

### **3.2.2 Gaming Revenues**

Gaming revenues have become an important revenue source for provincial governments. In Alberta, a large share of net gaming revenues flow to the General Revenue Fund and are used to offset general government expenditures. Arizona and Pennsylvania allocate part of the net gaming revenues to highways and mass transit.

#### **3.2.2.1 NWT Situation Analysis**

Currently, the GNWT does not obtain any gaming revenues, with the exception of about \$100,000 annually in license fees for bingos, raffles, and charity casinos. Currently no plans exist to expand the government's role or revenues from gaming. There may be an expansion of the number of charity casinos which would likely increase the license fee income.

### **3.2.3 User Fees**

#### **3.2.3.1 Tolls**

Tolls are becoming an increasingly common way to make users pay for all or part of the infrastructure construction and maintenance costs. They are a common feature of P3 initiatives.

Although there are a number of toll roads in Canada, the concept is still relatively new. Generally there is some resistance to toll roads as a restriction to the individual traveller. There are several options to increase the acceptance of tolls, including:

- pricing the toll in a flexible manner;
- providing discounts to frequent users; and
- making the toll collection easy (e.g. electronic toll collection).

Toll infrastructure in Canada and the U.S. has been implemented where high user volumes are likely (e.g. Highway 407 in Ontario) and where the alternatives are costly (e.g. Confederation Bridge, PEI). Generally, the tolls can be used to offset both debt repayment and maintenance costs.

#### **3.2.3.2 Shadow Tolls**

Shadow tolls are charges paid by the public sector partner (e.g. Department of Transportation) to the private sector owner/operator of the highway on behalf of road users. Shadow tolls are like other tolls from the perspective of the private sector partner. Some observations about shadow tolls include:

- Low traffic volumes still result in having high tolls, but because the Department pays the toll it does not discourage people from using the new road.
- Uncertain traffic volumes put considerable risk on the developer. Arrangements can be made to share the risk of traffic volumes:
  - upper and lower caps to monthly tolls paid;
  - toll rates change depending on monthly traffic level.

- Implementation costs are likely lower than a toll road, as they simply require a vehicle counter. (Optionally it could measure length of vehicles to have differential tolls for larger vehicles).

Most frequently, shadow tolls are related to traffic volumes, analogous to tolls. The concept has been extended to include as well payments by the public sector partner for access to a road.

### **3.2.3.3 Other User Fees**

Transportation-related charges tend to flow into general revenue. They are, however, segregated and applied to transportation expenditures in other jurisdictions. Examples include:

- registration fees/registration fee surcharges, which are allocated to transportation in Metropolitan Montreal and which are a form of transportation income in the Netherlands;
- parking charges; and
- area licensing/permits, which are introduced mostly in congested areas as a way to limit access.

### **3.2.3.4 NWT Situation Analysis**

Tolls are an unlikely source of revenues for highways in the NWT due to the low usage numbers. Shadow tolls could be employed in a P3 project, since the level of the tolls would not be a deterrent to use.

Currently, approximately \$8 million in license, fee, and permit revenue from all sources of the GNWT flows into general revenue annually. This includes gaming, license plate, and other fees and represents approximately 1.1% of the total revenue and almost 6% of the revenue generated in the NWT.

## **3.2.4 Taxes and Royalties**

The transportation industry pays specific taxes, the most important one being the fuel tax. In Canada, fuel taxes levied by the federal and provincial/territorial governments flow into general revenue and are not allocated to transportation spending. In some cases, such as Manitoba, there is a rough equivalency but no formal linkage between the spending on highway construction and maintenance and the revenue

from provincial fuel taxes. In addition, there is ongoing discussion on the part of the provinces and territories about linking federal fuel tax income to federal spending on highway infrastructure.

Tax income is segregated and applied to transportation expenditures in some jurisdictions. Examples include:

- Montreal and Vancouver charge local fuel taxes and allocate the revenue to transit spending; U.S. federal fuel taxes are allocated to highway and transit infrastructure spending;
- Los Angeles, Denver and other U.S. jurisdictions allocate part of sales tax income to transportation spending;
- Several U.S. jurisdictions use a motor vehicle property tax, which can be seen as a value-based vehicle registration fee, as a funding source for transportation infrastructure.

The research conducted by the study team has not yielded any instances in which resource royalties are directly tied to highway construction and maintenance expenditures. However, the argument has been brought forward that particular roads should be high on priority lists precisely because they would facilitate resource development and thus government tax and royalty income. The discussion around twinning Highway 63 between Fort McMurray and the oil sands plants is an example of such discussions.

#### **3.2.4.1 NWT Situation Analysis**

The fuel tax yields approximately \$7.4 million annually, which now flows into general revenue. The fuel tax rate is 10.7 cents per liter for unleaded gas (6.4 cents in those communities not on the highway system), 9.1 cent per liter for diesel, and 1 cent per liter for aviation gas. An across-the-board 10% increase of the fuel tax and allocation of the additional revenue would yield between \$650,000 and \$740,000 in revenue annually.

Across the board tax increases are a logical possibility, recognizing that much highway construction is funded using general revenues. Without suggesting that a general increase in taxation levels is desirable or politically possible, it is instructive to note that the relatively small base

of the tax income of the GNWT limits the revenue that could be raised this way. The personal and corporate income tax revenue of the GNWT is estimated at \$58.9 million for the 1999/2000 fiscal year, indicating the need for a two percent surcharge for a 10 year period to pay for the Inuvik to Tuktoyaktuk Road.

The issue of resource revenue is not yet applicable to the NWT. Currently, any government royalties associated with resource development in the NWT flow to the federal government. Total royalties received from oil and gas production in Canada's north is about \$10 million per year, most of it from production in the NWT. A part of this royalty income flows to the Gwich'in and Sahtu First Nations as stipulated in their claims. Royalty revenue from mineral production, especially diamonds, is only now emerging. The GNWT estimates that the Diavik Project will generate between \$650 million and \$750 million in royalties for the federal government and potentially to aboriginal governments and organizations over the 25-year life of the mine.

The royalty situation is subject to discussions between the federal and territorial governments and may change in the future.

### **3.2.5 Development Related Charges**

Building transportation infrastructure changes the economic dynamics of the affected region. It facilitates other development, increases mobility, and causes other changes. A number of charges are used by (often local) governments to capture some of the positive impacts of transportation expenditure, including:

- special assessment districts, which are delineated areas affected by highway development where additional tax on properties can be levied. This vehicle places the burden of financing on all the beneficiaries of the transportation expenditures not just the highway users.
- tax increment financing, which allocates any increases in the property taxes resulting from the investment within an area to the financing of that investment.

There are also instances in which transportation expenditures are triggered by other developments. The clearest example is the need for roads associated with new residential subdivisions or new industrial

facilities. Municipalities allocate more and more of the infrastructure costs (including transportation) to the development by means of:

- off-site levies on an area or dwelling unit basis; and
- development agreements.

### **3.2.5.1 NWT Situation Analysis**

Considering the isolation of the proposed highway projects, it seems unlikely that the highway will spur considerable building activity. This observation suggests that special assessment districts and tax increment financing are not likely to yield significant revenues.

Not all lands for the highway right-of-ways are controlled by the GNWT. The Mackenzie Valley Highway Extension crosses private lands controlled by the Sahtu and Gwich'in Land Claims Groups and the Inuvik to Tuktoyaktuk Road crosses Inuvialuit lands. Negotiations are currently under way between the Sahtu Secretariat Incorporated and the GNWT to amend the Comprehensive Agreement with a view to accommodate exchanges of land for the right-of-way of the Mackenzie Valley Highway Extension. In addition, some lands are still under DIAND control. This limits the potential to use development charges.

Development agreements with resource companies may offer some possibility, but adding to the cost of development and production will reduce the likelihood of future resource development activity. Generally, industry-built roads are limited to access or haul roads that are used primarily by industry and do not include components of a provincial or territorial highway system. There are some roads in northeastern Alberta that were built as industry haul roads and were taken over (and improved) by the Province when public use started to become extensive.

## **3.3 SUMMARY**

There are basically three financing options for highway construction:

- existing government budgets, including a reallocation of government priorities;
- government debt; and
- private sector debt/equity.

These financing options have differing potential to raise the \$100 million needed for the Inuvik-Tuktoyaktuk road or the \$220 million to \$400 million for the Mackenzie Valley Highway Extension. Table 2 provides a summary of financing options and their ability to generate the necessary construction project budgets.

<b>TABLE 2</b>		
<b>Summary of Financing Options</b>		
<b>Source of Capital</b>	<b>Capital Generation Potential</b>	
<b>Department of Transportation</b>	Low	Current and anticipated DOT budget is inadequate to take on new major highway construction projects.
<b>Other GNWT Departments</b>	Low	Some programs, such as training and business support programs, may be used to offset some construction costs.
<b>GNWT Debt</b>	Low	Finance policy in the NWT has been driven by fiscal restraints and deficit reduction, providing limited scope for debt-financed initiatives. The GNWT does not have a history of issuing debt.
<b>Federal Government Budget</b>	Uncertain	No federal commitment to participate in funding a National Highway Strategy.
<b>Federal Government Debt</b>	High	The federal government has extensive debt issuing ability. However, financial policy in Canada has been driven by fiscal restraint and deficit and debt reduction, reducing the likelihood of major new infrastructure initiatives, using bond financing.
<b>Private Equity/Debt</b>	High	The private sector has extensive ability to raise money in the equity and debt markets. In addition, there is an increasing interest in private involvement in infrastructure development. The proposed highway projects, however, have a very limited ability to provide the desired rate of return on the private investment.

Table 3 summarizes the revenue options discussed in this section and indicates their appropriateness for the situation in the NWT. The table shows that there are few revenue generating options associated with the Inuvik to Tuktoyaktuk Road and the Mackenzie Valley Highway Extension. This will limit the possibility to develop the projects on a commercial basis. The next section explores ways in which the project budgets may be reduced by tapping into existing territorial and federal budgets and the role of Land Claims organizations

<b>TABLE 3</b>	
<b>Summary of Revenue Generating Options</b>	
<b>Source of Revenue</b>	<b>Revenue Generation Potential</b>
<b>Grant Anticipation Revenue Vehicle</b>	Low DOT funds for highway construction are committed in the near term.
<b>Gaming Revenue</b>	Low Gaming revenue flows to charities. General revenue limited to \$100,000 in license fees.
<b>User Tolls</b>	Low Low utilization of roads.
<b>Shadow Tolls</b>	Low Limited room in the GNWT budget to provide payments to compensate private sector developers.
<b>Registration Fees</b>	Low Limited number of vehicles in the NWT. Used mostly in urban or densely populated areas.
<b>Parking Charges</b>	Low With a few exceptions, no parking charges are levied in the NWT. Used mostly in large urban areas.
<b>Area Licensing/Permit</b>	Low Designed to reduce congestion, which is not an issue in the NWT.
<b>Fuel Tax</b>	Limited Total fuel tax income (from all sources) is \$7.4 million per year.
<b>Sales Tax</b>	High Potential to generate revenue is offset by the low level of public acceptance.
<b>Motor Vehicle Property Tax</b>	Low Variation of registration fees; low revenue potential due to the limited number of cars.
<b>Special Assessment District</b>	Low Low traffic volumes will limit the likely development along the highways.
<b>Tax Increment Funding</b>	Low Low traffic volumes will limit the likely development along the highways.
<b>Offsite Levy</b>	Low Low traffic volumes will limit the likely development along the highways.
<b>Development Agreement</b>	Low The oil and gas industry, which is likely the most active industry in the area in the near and medium term, is not dependent on a road.

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## **4. NORTHERN PROGRAMS AND PARTNERS**

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### **4.1 NORTHERN PROGRAMS**

One option to reduce the amount of financing required for highway projects is to minimize the projects' costs of construction and operation. The following table provides an overview of a number of existing programs that may provide some assistance. More detailed information about the programs is provided in Appendix B.

In compiling this listing, the study team was guided by the respondents of the various departments and by discussion with Yellowknife-based consultants with specific expertise in economic development and education in the north. The table is not meant to be a comprehensive list of all programs, but rather a listing of programs that may be applicable to the highway projects.

The table identifies 12 different programs from two territorial and two federal departments. Some programs have dual parentage with the territorial government delivering programs with federal funds. The length of the listing of potentially useful programs suggest that optimizing their contribution to the construction projects is not a trivial task, especially considering that community-based groups and businesses are likely the primary applicants for many of them.

As evidenced by the information in the table, assistance from existing funding programs is most likely in the areas of:

- training workers, which may reduce the construction wage cost through subsidized on-the-job work placements;
- supporting companies that may be involved in the project construction and maintenance.

There are no programs available to offset machinery operating costs and material purchases, both significant costs of highway construction projects.

<b>TABLE 4</b>		
<b>Summary of Programs</b>		
<b>Program</b>	<b>DOT Action</b>	<b>Potential Outcome</b>
<b>Business Credit Corporation (RWED)</b>	<ul style="list-style-type: none"> <li>• Work with contractors and BCC.</li> <li>• Align contract sizes with capability of regional or local construction firms.</li> </ul>	<ul style="list-style-type: none"> <li>• Viable community-based contractors.</li> <li>• BCC loans or support must be repaid: BCC involvement will not reduce total construction budgets.</li> </ul>
<b>Business Development Fund (RWED)</b>	<ul style="list-style-type: none"> <li>• Work with contractors and BDF.</li> <li>• Align contract sizes with capability of regional or local construction firms.</li> </ul>	<ul style="list-style-type: none"> <li>• Assistance with capital equipment purchases up to \$25,000 per job created.</li> <li>• BDF support must be repaid: BDF involvement will not reduce total construction budgets.</li> </ul>
<b>Training-on-the-Job (ECE)</b>	<ul style="list-style-type: none"> <li>• Work with contractors and program to align program objectives and construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 80% of trainees gross salary (max. of \$300/week).</li> <li>• Assistance limited by annual program budget (\$120,000 in Inuvik region).</li> </ul>
<b>Working Together (ECE)</b>	<ul style="list-style-type: none"> <li>• Work with contractors and program to align program objectives and construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Pays up to \$5/hour to facilitate youth and student summer employment.</li> <li>• Assistance limited by annual program budget (4194,000 in Inuvik region).</li> </ul>
<b>Building and Learning Strategy (ECE)</b>	<ul style="list-style-type: none"> <li>• Ensure that highway construction is part of GNWT Capital Plan; program not available to private sector projects.</li> <li>• Work with contractors and program to align program objectives and construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of wage costs through use of trainees.</li> <li>• limited by annual program budget (\$214,000 in Inuvik region).</li> </ul>
<b>Skills for Work Program/Investing in People (ECE)</b>	<ul style="list-style-type: none"> <li>• Work with contractors, community-based organizations and Aurora College to align program objectives and construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Assistance with wage costs through incorporation of trainees in construction work force.</li> <li>• Assistance limited by annual program budget (\$1 million in NWT)</li> </ul>

<b>TABLE 4</b>		
<b>Summary of Programs (cont'd.)</b>		
<b>Program</b>	<b>DOT Action</b>	<b>Potential Outcome</b>
<b>Apprenticeship Training Program (ECE)</b>	<ul style="list-style-type: none"> <li>• Coordinate with Training-on-the-Job program.</li> <li>• Work with contractors to ensure appropriate ratio of apprentices to journeymen.</li> </ul>	<ul style="list-style-type: none"> <li>• Pays up to \$7.50/hour to facilitate apprentices to become journeymen.</li> <li>• Assistance limited by annual program budget (\$289,000 in Inuvik Region).</li> </ul>
<b>Employment Insurance Training (ECE/HRDC)</b>	<ul style="list-style-type: none"> <li>• Work with contractors and community-based organizations to identify EI recipients, conduct needs assessments, and coordinate with construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Training allowance of \$675 per week; additional support for tuition and other costs.</li> <li>• Assistance limited to short term training needs.</li> </ul>
<b>Indian management Assistance Program (DIAND)</b>	<ul style="list-style-type: none"> <li>• Work with claimant groups to identify management needs that could be alleviated by a university student placement.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased ability to deal with demands of construction projects on stakeholders.</li> <li>• Assistance limited to budget allocation (\$80,000 for the NWT).</li> <li>• IMAP will not reduce total construction budgets.</li> </ul>
<b>Business Opportunity Fund (DIAND)</b>	<ul style="list-style-type: none"> <li>• Work with aboriginal groups that want to start highway construction-related business.</li> <li>• Help development corporations to structure applications to maximize job creation.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased viability of community-based contractors.</li> <li>• Assistance limited to budget allocation (\$300,000 for the NWT).</li> </ul>
<b>Northern Air Stage Program (Food/Mail) (DIAND)</b>	<ul style="list-style-type: none"> <li>• Engage in discussions with affected communities and DIAND regarding the diversion of funds under this program from Canada Post to construction projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertainty regarding budget re-allocation.</li> <li>• Total re-allocation likely not to exceed \$400,000 per year.</li> </ul>
<b>Aboriginal Human Resources Strategy (HRDC)</b>	<ul style="list-style-type: none"> <li>• Work with claimant groups and AHRS officials to structure training projects to fall within the parameters of the strategy.</li> <li>• Align work activities with training projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Training assistance to aboriginal workers, subject to acceptance of training projects proposals by the AHRS board.</li> <li>• \$2.2 million annually in AHRS funding to the Gwich'in and Inuvialuit and Sahtu, part of which may be allocated to training programs associated with the highway.</li> </ul>



The table supports a number of observations.

First, there is a mismatch of the program resources available and the requirements of the highway construction costs, assuming the Public Tender Approach. The labour cost of the Inuvik to Tuktoyaktuk Road project, the smaller of the two, is \$5 million per year over a seven-year period. In contrast, the total annual budget of the Training-on-the-Job program in the Inuvik Region is roughly \$120,000 per year and the sum total of all the government training budgets shown in the table is roughly \$900,000. The funds available under the Sahtu, Inuvialuit and Gwich'in Aboriginal Human Resources Development Strategy (AHRDS) have a combined annual budget of \$2.2 million.

All these budgets are currently allocated to a wide range of training and education projects and the highway project will need to compete for training assistance with numerous other projects. Many GNWT programs have a built-in geographic distribution ensuring that all communities in the NWT have access to assistance and the AHRDS funds are tied to the claims areas. It follows that each proposed highway project will have access to only part of the indicated funds.

The total available training funding is more in line with the wage component of the projects, especially the smaller Inuvik to Tuktoyaktuk Road, assuming a Community Construction Approach. A total project cost of, say, \$ 2 million per year implies a wage cost of approximately \$700,000, which is within the range of program budgets available in the region, although more than will be available for the projects in Inuvik and Tuktoyaktuk.

It is well outside the scope of this study to pre-judge how program administrators and the committees that determine the expenditures under the AHRDS will allocate their training monies if a highway project goes forward. The extensive regional training needs, ranging from basic literacy to trades and professional occupations, suggest that not all available training dollars will be allocated to highway projects.

Second, most programs address training needs, while wage costs account for only about 30% of total construction costs. Thus, wage subsidies would likely not reduce the project cost by more than 10% to 15%. Even if the full cost of the trainees is picked up by the program the cost savings to the project will likely be tempered by the lower productivity associated with trainees as compared to trained and experienced workers.

Third, the existing training programs can have an impact on the wage component of project budgets assuming a Community Construction Approach. However, the long-term nature of the Community Construction will limit the usefulness of these programs after the initial years when the bulk of the work force development has been completed.

Fourth, only one program identified in the table provides grants that could be used for the purchase of equipment, which accounts for 30% to 35% of highway construction costs.

Fifth, assistance to businesses may increase the likelihood that sufficient locally-based contractors are available, but it does not decrease the costs of the construction or maintenance.

This survey of programs suggests that the concept of reducing project costs by tapping into existing funding programs is not workable if the projects are executed using a Tender Approach over a relatively short period of time. The capital costs are simply too high relative to the available program resources.

If the projects are executed using a Community Construction Approach, the concept of reducing cost by using existing programs becomes more viable. However, even in this case, the annual construction costs of, say \$1 million, and a wage cost of \$300,000 is well in excess of the currently available training and job creation programs, unless the significant portion of the Aboriginal Human Resources Development Strategy monies are allocated to the projects.

There are other programs that may have some applicability to highway construction, but were not mentioned by our respondents. These include:

- DIAND's First Nation and Inuit Youth program, which provides funding for work experience projects for out-of-school, unemployed aboriginal youths;
- The Business Bank of Canada, Working Capital for Growth financing facility;
- Industry Canada's Small Business Program that may provide funding for capital and 75% of planning costs associated with business start-ups; and

- HRDC's Canada Job Fund, which fosters job creation and economic growth through strategic investments in such key sectors as youth, trade, technology, small and medium-sized businesses, tourism and infrastructure.

These programs all have a Canada-wide mandate and their applicability to the highway projects are likely marginal. More promising is the program development work that is being done with respect to a Joint Aboriginal-Industry Resource Development Program. Its strategic thrust is to:

- focus current policy on the importance of wealth creators, such as the mining and oil and gas industry;
- shift support structure to provide a single, independent, and integrated strategic economic development agency with a clear mandate to develop the mining and oil and gas sectors.

The emerging priorities of this proposed agency include facilitation of infrastructure projects. To date, no funding commitments have been made to this program.

## **4.2 NORTHERN PARTNERS**

The study team consulted with a number of claims organizations in the Sahtu and Inuvik regions, exploring their potential involvement in the projects. Appendix C provides a listing of persons contacted as part of the study, including both representatives of the Land Claims Groups and persons who provided the information discussed in the previous section.

The Mackenzie Valley Highway Extension to Fort Good Hope would be almost entirely through Sahtu territory and the extension to the Dempster Highway crosses substantial portions of Gwich'in lands. The Inuvik to Tuktoyaktuk Road crosses Inuvialuit lands and may touch a small section of Gwich'in lands. It follows that any construction activity will need to include involvement of the aboriginal groups as outlined in the various claims.

As part of this study, the consultants contacted the Land Corporations in the affected Sahtu communities. The Land Corporations are claims agencies with special responsibility for the land use and recipients of the

royalty and other income that flow to the communities under the claim. In addition, the projects were reviewed with the Chairperson of the Sahtu Secretariat Incorporated, the organization responsible for the implementation of the claim. In addition, the projects were discussed with the Inuvialuit Development Corporation and the Gwich'in Tribal Council. The former organization's aim is to fulfill the business goal of the Inuvialuit Final Agreement and the latter is the main implementing organization under the Gwich'in claim.

The contacts with the claims organizations were placed explicitly in the context of the preliminary and exploratory nature of the current study. Any involvement of the claims groups with the projects will need to be subject to extensive discussions and negotiations between officials of the GNWT and the representatives of the claims organizations. In addition, the study team contacted various organizations individually, realizing that coordinated discussions may well be necessary in case of for example, the community-based Land Corporations and the Sahtu Secretariat Incorporated.

These caveats notwithstanding, the consultation conducted in the context of this study suggests that there is considerable interest among claims organizations in the projects. Most respondents indicate that the claims organizations will need close involvement with the projects in terms of:

- land use;
- community liaison; and
- actual construction activity to be executed by companies owned by or associated with claims organizations and using local area workers.

Another message from the consultation is that the projects cannot really proceed without the meaningful participation of the claims organizations.

Several, but not all, respondents suggested a willingness to discuss equity involvement of the groups, which could take various forms, including:

- concessionary royalty rates for gravel;

- special considerations with respect to compensation for access to the land; and
- equity investment under a P3-type project structure.

The consultations suggest that current parameters of existing (non-highway) P3 project proposals are not conducive to providing equity partners with a comfort level that the required rates of return can be attained. This reduces the interest in P3 projects.

Without suggesting that any claims compensation money will be allocated in some form or another to highway construction, it is instructive to realize the claims have placed substantial pools of capital in the Inuvik and Sahtu regions. The Sahtu Dene and Metis Final Agreement includes a provision for \$75 million (\$1990) payable over 15 years; the Gwich'in Comprehensive Land Claim Agreement includes a capital transfer of \$75 million (\$1990) over 15 years; and the Inuvialuit Agreement includes compensation of \$45 million (\$1977) payable over 10 years, plus economic and social development funds.

In addition, both the Gwich'in and the Sahtu Agreements provide mineral rights on selected parcels of land and a share of resource royalties from developments in the Mackenzie Valley.

These observations suggest a congruence between the prime beneficiaries of any road construction and the owners of the largest pools of investment capital in the region.

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## 5. CONCLUSION

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The planning work of the Department of Transportation considers two approaches to building the Mackenzie Valley Highway Extension and the Inuvik to Tuktoyaktuk Road:

- a Public Tender Approach focusing on quick completion of the highway projects, using major contractors; and
- a Community Construction Approach, which would see community-based construction activity at a low level over an extended period of 30 years or more.

### **Public Tender Approach**

The size of the projects -- \$100 million for the Inuvik to Tuktoyaktuk Road and between \$220 million and \$400 million for the Mackenzie Valley Highway Extension -- will pre-empt the Public Tender Approach unless there is a substantial infusion of new money into the Department of Transportation and GNWT budgets.

Increasing the fuel tax and allocating the increase to highway construction or relying on user fees will not yield sufficient funds to finance the projects. It will require a surcharge on personal and corporate income taxes to yield the level of funds needed for these projects. This appears infeasible in the current climate of fiscal restraint and tax cuts. It will likely also have undesirable macro-economic impacts.

Attracting private capital from claims groups or private sector firms in other jurisdictions is an alternative. This would essentially trade-off the need for additional construction funds in the short and near term for a long-term commitment of funds to repay the private sector parties. Repayment of the projects through tolls, development fees, or other user fees appears infeasible due to the anticipated low usage of roads. This leaves government sponsored repayment, through user shadow tolls or some other mechanism as the only feasible option. The size of the projects will place these government payments well above the current fiscal capacity of the Department of Transportation budgets, thus requiring additional funds.

Additional federal money would allow the projects to proceed. This could take the form of either a significant highway program over the length of the construction period or a 30 to 40 year program allocated to payment of private sector partners that supplied the initial capital.

The findings presented in this report suggest that the Public Tender Approach to highway construction is not viable. The costs are simply too high and the potential revenues too low to attract private sector involvement. This suggests that the GNWT continue to work with the Government of Canada on the National Highway Strategy and to promote the completion of the highway system in the north.

### **Community Construction Approach**

Phasing the construction period over 30 or more years will reduce the capital costs per year, although not to a level that they can be accommodated within existing Department of Transportation budgets. Currently available funds for highway building, rehabilitation, and maintenance are fully committed to the existing highway system and the expansion of the system will require additional funds.

Key to this approach to the projects is to find ways in which the project costs can be reduced by:

- making use of existing training, wage subsidy, and business support programs. Consideration should be given to the creation of an infrastructure program that amalgamates or co-ordinates portions of the existing programs and provides a one-window interface for communities involved in highway building;
- developing engineering approaches optimized for community construction, recognizing that the community-based roads may initially have lower standards than the current highway system and will only experience relatively low usage; and
- local equity participation, not on the basis of a commercial P3 project, but as partners in economic development. Such a perspective will allow the discussion about local involvement to focus primarily on job creation and training and only secondarily on investment returns.

The findings suggest that the Department of Transportation should work within the structure of the GNWT to jumpstart the project by obtaining a long-term commitment of, say, \$2 to \$4 million per year for a multi-community construction project. The benefit-cost and regional economic impact work conducted for the Mackenzie Valley Highway Extension and Inuvik to Tuktoyaktuk Road projects suggests that such re-allocation of GNWT resources should be made on the basis of economic development arguments. If the political will exists for such a re-alignment of priorities, the Department of Transportation should further support it by:

- working towards simplifying and co-ordinating access of highway construction activities to existing or modified training, wage subsidy, and business support programs; and
- involving claims groups as potential equity partners in the economic development and training initiative centred on highway construction.

Showing a government commitment to a sustained economic development process using highway construction as a focus may be an inducement for claims groups to enter into the discussion. Any equity participation by these groups may augment and enhance the government-sponsored construction activity. It could also replace it, with the public funds then allocated to shadow tolls to compensate investors.

The Community Construction and Public Tender approaches are not incompatible. With a modest budget reallocation, the Community Construction Approach can be initiated in the near term, providing a focus on economic development and labour force training and downplaying the commercial aspects of highway construction. It can be scaled up if claims groups become actively involved. Then, if changes in the fiscal situation of Canada and the NWT will allow new public investment in infrastructure, the Community Construction Approach can be superseded by the Public Tender Approach. This would speed up the construction schedules and provide a more commercial focus. The preparatory economic development and labour force training work of the Community Construction Approach will increase the chances that the economic benefits of the expenditure can be captured regionally.

## **APPENDIX A**

### **Bibliography**

## BIBLIOGRAPHY

- Arthur Andersen. *Slave Geological Province Transportation Corridor Need/Feasibility Study Final Report*. March 29, 1999.
- Canadian Environmental Assessment Act. *Comprehensive Study Report, Diavik Diamonds Project*. June 1999.  
<http://www.ceaa.gc.ca/comps/diavik/Diavik%20revised.pdf>  
(29/7/ss99).
- Canada/NWT Economic Programs. September 1997.
- City of Edmonton. *Transportation Master Plan - Transportation Funding Study - Final Report*. December 1997.
- Coles Associates Ltd. Government of the Northwest Territories - P3 *Professional Development Workshop #1 - P3 Implementation Toolkit*. February 1998.
- Coles Associates Ltd. *The Potential for Greater Self Reliance Through Partnering*. November 1997.
- Collenette, David, *Speaking Notes* for Transport Minister David Collenette at the Canadian Auto Workers' first annual road transportation conference "Transportation in the Next Millennium: Where Are We Going?" Port Elgin, Ontario, June 7, 1999.  
<http://www.tc.gc.ca/speeches/990607e%2Dcaw.htm> (8/7/99).
- Federal-Provincial-Territorial Working Group on Public-Private Partnerships. *Public-Private Partnerships and Their Role in a Possible National Highway Program*. March 1999.
- Government of the Northwest Territories Department of Finance. *1999-2000 Main Estimates*  
<http://www.gov.nt.ca/FMBS/documents/dox/mainestimates/9920estimates.html> (8/7/99).
- Government of the Northwest Territories Department of Transportation. *Implementation Plan for the Mackenzie Highway Extension*. July 1992.
- Government of the Northwest Territories Department of Transportation. *Transportation Strategy*, 1990.
- Government of the Northwest Territories Department of Transportation. *Northwest Territories, Transportation Strategy*, 1990.
- Government of the Northwest Territories Department of Transportation. *Northwest Territories, Transportation Strategy Update, 1994*, March 1995.
- Government of the Northwest Territories Department of Education, Culture and Employment. *Building and Learning Strategy Kit*. December 1998.
- Innovative Finance Quarterly (Vol. 4, No. 2). *Resource Referral: Shadow Tolling in the U.S.: A Viable Financing Approach?*  
[Http://www.fhwa.dot.gov/innovativefinance/ifq42.htm](http://www.fhwa.dot.gov/innovativefinance/ifq42.htm). (5/20/99).

Nichols Applied Management. *Benefit-Cost and Regional Economic Development Analysis: Inuvik to Tuktoyaktuk Road*. Edmonton, March 1999.

Nichols Applied Management. *Benefit-Cost and Regional Economic Development Analysis: Mackenzie Highway Extension*. Edmonton, April 1999.

Roskin, Miriam (Ed.). FHWA's Innovative Finance Quarterly (Vol. 3, No. 2).  
wysiwyg://315/http://www.fhwa.dot.gov/innovativefinance/ifq32.htm (5/20/99).

Transport Canada. *Canada's National Highway System: Description*, Ottawa <http://www.tc.gc.ca/tfacts/report/hppb%2Dde/TOC.htm> (5/7/99).

Williams, Germaine and Howard, Tom. *Highway Finance: Past, Present and Future*.  
<http://www.tfrc.gov/pubrds/summer94/p94su13.htm>. (5/20/99).

**APPENDIX B**  
**Program Summaries**

**TABLE 2**  
**Program Summaries**

**GNWT RWED: Business Credit Corporation**

Board-governed crown corporation working in accordance with the directions and guidelines of the minister of Resources, Wildlife, and Economic Development.

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>To stimulate economic development and employment in the NWT. The BCC is a blend of a lender of last resort and a developmental agency to provide financial support for higher risk entrepreneurial ventures.</p>	<p>BCC services include:</p> <ul style="list-style-type: none"> <li>• providing loans to business enterprises;</li> <li>• guaranteeing loans made by financial institutions to businesses; and</li> <li>• providing bonds to resident business enterprises (up to 10% of contract value).</li> </ul>	<p>Any business in the NWT, whether a limited company, partnership, sole proprietorship, or cooperative association. The business may be new or existing.</p> <p>Normally equity of at least 10% of the requested loan amount is required from the applicant.</p> <p>BCC loan applications must be accompanied by proof of rejection by lending institution. This requirement is waived for applicants from level II and III communities.</p>	<p>BCC uses the RWED Deputy Minister, Assistant Deputy Ministers, and Regional Superintendents as lending officers. Applications up to \$200,000 can be dealt with without BCC board approval.</p> <p>Maximum exposure of BCC to any client or related group of clients is \$1 million.</p> <p>BCC has a total portfolio of loans of \$30 million and approved \$14 million in applications in 1998.</p>	<p>Yes: Support for community-based contractors may increase the number of local construction companies that may be in a position to work on the project. The BCC is a lending institution and loans etc. must be repaid. Hence the BCC may facilitate the project but will not decrease the cost of it.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

<b>GNWT RWED: Business Development Fund</b>				
Economic development funding program.				
<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>The BDF is a contribution fund of last resort to assist businesses with research and planning, business start-up and expansion, market and product development, training and emergency relief to assist businesses in financial difficulty.</p>	<p>One time assistance with business planning and other development costs up to 75% of eligible costs (max. \$20,000).</p> <p>Assistance with the acquisition or development of capital goods (including equipment) where it will result in an increase in employment. (max. \$25,000 per person year of employment created).</p> <p>Venture capital assistance to persons investing in NWT-owned businesses (max. \$150,000).</p> <p>Assistance to upgrade business skills (Max. \$20,000/year and \$60,000 total for any one business).</p>	<p>All NWT-based businesses. Some equity must be provided, either in the form of money, land or any unencumbered assets contributed to the venture by the owner or shareholders. "Sweat" or labour equity may be considered under special circumstances.</p> <p>Minimum equity requirements are 20% for level I communities, 10% for level II communities, and 5% for level III communities.</p>	<p>BDF is geared towards smaller communities and is very sensitive to avoid 'market disruption' where a new business with public support competes with existing companies.</p> <p>Total funding for the BDF is \$2.3 million per annum.</p>	<p>Yes: Support for community-based contractors may increase the number of local construction companies that may be in a position to work on the project.</p> <p>The BDF contribution for business creation or expansion may increase the availability of equipment for road building, especially since the project would be able to show long-term employment generation.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

**GNWT ECE Training on the Job Program**

a training program specifically aimed at Affirmative Action candidates experiencing employment barriers.

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>Intended to give northern residents the skills needed for permanent and meaningful employment.</p>	<p>Provides up to 80% of trainee's gross salary to a maximum of \$300/week or \$7.50/hr.</p> <p>Tuition reimbursements of up to \$300/course and \$75 for materials.</p>	<p>Employers: any business in operation longer than 6 months; preference to those eligible for business incentives registry.</p> <p>Employees: at least 16 and out of school; preference to affirmative action candidates.</p>	<p>Key to the program is the existence of a training plan, including:</p> <ul style="list-style-type: none"> <li>• training method:</li> <li>• objectives</li> <li>• skills</li> </ul> <p>Training, which may be on-site, institutional or both, can extend for two years and must lead to permanent employment with employer.</p> <p>Total budget of the Training-on-the-Job program is \$171,000 for the NWT and approximately \$120,000 for the Inuvik region.</p>	<p>Yes: Program may be able to provide long-term job opportunities for which persons can be trained, using T-o-J funds.</p> <p>Program may be useful in early years of project until sufficiently training workers are available.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

<b>GNWT ECE: Working Together.</b>				
A wage subsidy program for summer students.				
<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>Facilitate youth and student transitions to employment, and provide them with essential skills in the workplace, including reading text, writing, numeracy, thinking skills, working with others, computer skills, and continuous learning.</p> <p>Help employers offset costs of employing staff with little work experience.</p>	<p>Pays up to \$5/hr (or 90% of minimum wage to non-profits) for a student or youth worker. Max contract one year.</p>	<p>Priority to students (full-time status), then to youths 15-24. Business must be in operation at least 6 months.</p>	<p>Employer encouraged to top-up fund beyond minimum wage through other subsidy programs.</p> <p>Total budget for "Working Together" in the ECE Inuvik Region is \$194,000. Approximately one-third is allocated to clients in the Sahtu and two-thirds to clients in the delta communities.</p> <p>Program operates in the summer holiday period only.</p>	<p>Yes: Students can work on highway as part of their jobs.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

**GNWT ECE: Building and Learning Strategy.**  
An enhancement to the annual GNWT Capital Plan to work towards a skilled northern labour force and a reduced level of seasonal importation of skilled workers from other jurisdictions

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>Increase employment in the construction trades; focus specifically on communities with high unemployment.</p>	<p>Program pays training costs for trainees, and pay wage subsidies to the contractor.</p>	<p>Contractors working on projects that are part of the GNWT Capital Plan can apply of B&amp;L assistance.</p> <p>Preference is given to projects that provide the highest number of new trainee positions, commit the most training staff and other on -site resources to the training activity, use effective training methods.</p> <p>B&amp;L monies are available in Level II and III communities only.</p>	<p>Originally, Building and Learning Strategy money was not available for highway construction projects. The strategy is now expanded to include such projects.</p> <p>B&amp;L budgets are administered by the regional offices of ECE and the total B&amp;L budget is allocated to the regions.</p> <p>B&amp;L budget for the ECE Inuvik Region is \$214,000.</p>	<p>Very: program focuses specifically on infrastructure development. Caveat that funding is region-specific; would apply only if road was near a community identified as having high unemployment.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

<b>GNWT ECE: Skills for Work Program (formerly Investing in People)</b>				
Labour market development program aimed at moving people on social assistance towards increased attachment to the labour force				
<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
Training to move people on social assistance towards self sufficiency.	<p>The program has two components:</p> <ul style="list-style-type: none"> <li>• the Northern Skills Development program which is executed by Aurora College and consists mainly of classroom-based training, much of it basic upgrading.</li> <li>• community-based programs with more of an emphasis work placements and work experience.</li> </ul>	<p>Social assistance clients. Applications for the program are vetted by local committee.</p>	<p>Originally a program funded jointly by the NWT and Canada; Now NWT only, funded (\$2 million per year) for the 1998/99 and 1999/00 fiscal year.</p> <p>The budget of the Skills for Work program in the ECE Inuvik Region was \$175,000. This is allocated to the communities up to a maximum of \$25,000 per community.</p> <p>The 1999/2000 budget allocates \$1 million to the program.</p>	<p>Yes, Especially the community-based could include work on infrastructure programs. There is a precedence in the program (IIP year 2) where one project was run by a construction company and participants essentially worked full-time on the Snare River Dam project.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

**GNWT ECE: Apprenticeship Training Assistance**

Government support for the industry-based apprenticeship system

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>Assistance to northern businesses to employ apprentices to attain training to the journeyperson level of competence.</p>	<p>Wage subsidy for apprentices over a three-year period. The maximum subsidy is \$7.50 hour in the first year, reducing as the apprentice gains experience and becomes more productive.</p>	<p>Employer must employ persons enrolled in the apprenticeship system:</p> <ul style="list-style-type: none"> <li>• on site training of apprentice under the supervision of journeyperson;</li> <li>• college-based course work</li> </ul>	<p>ECE Inuvik region budget for Apprenticeship Training Assistance is \$289,000. Currently there are 60 apprentices in the region supported by the program.</p>	<p>Yes: The program can be used to offset some of the training cost of apprentices. Could be used in combination with or subsequent to T-o-J program, if workers enroll in the apprenticeship system.</p>

**TABLE 2**  
**Program Summaries (cont'd.)**

**GNWT ECE/Government of Canada: Employment Insurance Training**  
Short-term training for EI recipients

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
To provide occupationally-oriented, short-term training to assist Employment Insurance recipients to re-enter the workforce.	Training allowance of \$675/week. Additional support is available for tuition, transportation to the place of instruction and childcare.	EI recipients and "reach-backs" or persons are unemployed and have received EI assistance in the past 3 years.	EI training dollars are also used to enrich ECE training programs, such as T-o-J.	Yes: Program can be used to prepare workforce for employment on the highway project. Short-term focus of the training may limit the types of skills that may be taught using this program, but Class I drivers license training, WHMIS, and other safety courses may be applicable.

**TABLE 2**  
**Program Summaries (cont'd.)**

**Government of Canada, DIAND: Indian Management Assistance Program (a subprogram of the Indian Management Development Program)**  
A summer student programs for aboriginal university students.

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
Intended to strengthen the management capabilities within bands through summer placement of university students with bands or tribal councils.	Provides wage subsidies for a university student during the summer months who works for an aboriginal groups in a managerial role.	An aboriginal group must support the applying aboriginal university student.	Sponsoring organizations could allocate the summer student to the highway project, if desired.  Total annual funding of \$80,000 in the NWT.	Marginal.: A advanced university student could expand the management capabilities of claims organizations and associated companies, thus increasing the viability of stakeholder groups and/or construction companies working on the projects.

**TABLE 2**  
**Program Summaries (cont'd.)**

**Government of Canada, DIAND: Business Opportunity Fund**  
an regional economic development fund

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
To encourage economic growth in aboriginal communities	Provides one-time funding to the aboriginal group desiring to undertake an appropriate business venture.	Project must create significant business activity, preferably on a continuing basis.  Applications should comes from aboriginal development corporations.	Total annual funding of \$300,000.  Maximum contribution is to match the equity of the applying development corporation.  Is a new program offered by DIAND, so limited historical precedent regarding what types of project are appropriate.	Likely: Construction companies will experience considerable activity and, in the long-run, business will be further stimulated by the presence of a highway.

**TABLE 2**  
**Program Summaries (cont'd.)**

**Government of Canada, DIAND: Northern Air Stage Program (Food/Mail)**

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
To provide affordable postal service and perishable food transportation to remote communities in Canada.	Reduces the cost of freight for perishable food to \$0.80 /kg through a subsidy of air delivery.	Funds are provided to Canada Post to reduce freight rates to 150 communities throughout northern Canada.	\$15.6 million annual budget  Not all of these eligible communities participate because they may already have lower freight rates than the subsidized rate.	No: The program is not directly applicable because funding is to Canada Post.  However, a highway would eliminate the need for airfreight to serviced communities therefore allowing future savings in subsidy payments. Perhaps pursue redirection of some funds for the highway's long-term solution or approach Canada Post.

**TABLE 2**  
**Program Summaries (cont'd.)**

**Government of Canada, HRDC: Aboriginal Human Resources Development Strategy.**  
Key federal reaction to the recommendations of the Royal Commission on Aboriginal Peoples/

<b>Mandate</b>	<b>Services</b>	<b>Eligibility</b>	<b>Other</b>	<b>Applicability to Highway Construction</b>
<p>Follow-on program to Regional Bilateral Agreements (RBA).</p> <p>The focus of the Strategy is to enable Aboriginal groups to deliver a wider range of human resource programming than was available under the RBA.</p> <p>Objective is to enable Aboriginal organizations to assist clients to prepare for, obtain and maintain employment.</p>	<p>HRDC negotiates AHRDS agreements with Aboriginal organizations to give them the opportunity to develop employment programs that reflect and serve Aboriginal needs at the local labour market level.</p> <p>As with the RBA, the local board accepts and evaluates proposals for training and labour market development programs.</p>	<p>Must train aboriginal persons in a new skill, preferably for sustained employment.</p> <p>Training in other workplace skills such as CPR, safety would be an asset.</p> <p>All applicants are acceptable although it was recommended that the hamlets or the DOT would be most credible.</p>	<p>The AHRA is a five-year commitment.</p> <p>Total funding of \$2.2 million annually in the Inuvialuit, Sahtu, and Gwich'in organizations.</p> <p>Disagreement between respondents as to whether a wage subsidy or funding for worker training program was more likely to be supported. Both types of programs are eligible for support, subject to local approval.</p>	<p>Yes: Could be used to prepare workforce for work on project and/or subsidize wages.</p>

**APPENDIX C**  
**List of Contacts**

Buckle, Bill	Manager Community Operations Programs, Department of Municipal and Community Affairs
Cayen, Liz	Gwich'in Tribal Council
Collins, Ian	Manager, Lending & Operations, Business Credit Corporation
Connelly, Roger	Chief Executive Officer, Inuvialuit Regional Corporation
Currimbhoy, Afzal	Chief Executive Officer, Business Credit Corporation
Davidson, Brian	Sahtu Secretariat
De Kock, Oti	Human Resources Advisor, Inuvialuit Regional Corporation
Hill, Fred	Indian and Northern Affairs Canada, Northern Air Stage Program (Food / Mail)
Lathani, Altaf	Indian and Northern Affairs Canada, Aboriginal Economic Development Program
Lucy Jackson	A/ President, Yomoga Land Corporation / Xawahgu Financial Corporation
McDonald, Ruby	Chairperson, The Sahtu Secretariat Incorporated
Scott, Sheryll	Career Development Officer, Education, Culture, and Employment, Inuvik Office
Sullivan, Helen	Regional Superintendent, Inuvik, Education, Culture, and Employment
Taniton, Raymond	President, Deline Land Corporation / Financial Corporation
Tourangeau, Larry	Ernie McDonald Land Corporation / Hib Hodgson Financial Corporation (Norman Wells)
Watson, Steve	Manitoba Department of Finance
Yakeleya, Gordon	President, Tulita Land Corporation / Financial Corporation