



SLAVE GEOLOGICAL PROVINCE  
TRANSPORTATION CORRIDOR  
COST ESTIMATES



**SLAVE GEOLOGIC PROVINCE  
TRANSPORTATION CORRIDOR**

**COST ESTIMATES**

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Department of Transportation**

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## INTRODUCTION

Cost estimates shown in this report were developed using standard engineering principles and standards along with, as much as possible, actual historic unit prices experienced by the Department over the past several years for similar type work. These prices were factored to take into account the remoteness of the project, the absence of public traffic, local soil conditions and the quality, quantity and location of natural granular deposits. An assessment on the aggregate potential for each route, or segment thereof, was made and a rating (poor, fair, good) was applied to these unit prices.

Factored unit prices for embankment construction and surfacing were determined for each route, or segment thereof. Each route was reviewed for drainage structure requirements (bridges and culverts) and estimated numbers and unit costs were applied. Costs for engineering, design and contract administration were then applied to establish an overall estimated cost per kilometre. These estimates are based on standard GNWT contracting policies and a 15 to 20 year construction period.

This estimated costs shown in this report were prepared to obtain a general idea of what the costs of this roadway would be and does not consider any definitive route or starting point, Rae/Edzo verses Yellowknife.

## STUDY AREA

The Slave Geological Province, as shown in Figure 2, lies entirely within the Precambrian or Canadian Shield. It runs north / northeast from the north shore of Great Slave Lake to the Bathurst Inlet / Coronation Gulf. It's boundaries are defined by three distinct fault lines;

Bathurst Fault along the east  
McDonald Fault along the south  
Wopmay Fault along the west

Two major bedrock structural subdivisions occur within the Slave Geological Province. The archean-age igneous intrusives which occupies approximately 45% of the Slave Geological Province; lies mainly to the east of Mackay and Contwoyto Lake areas; typified by massive, unusually uniform, granitic intrusions and the Yellowknife Supergroup supracrustal strata which occupies approximately 30% of the Slave Geological Province; especially prominent in the central portion west of Contwoyto and Lac de Gras; typified by volcanic to metavolcanic intrusives (granites, tonalites and granitoid gneisses).

Some areas are predominately bedrock which are generally overlain with a thin cover of sandy till materials. Eskers and kame (gravel ridges) complexes are scattered throughout (greater north of Lac de Gras). The area is basically a low lying area, rarely exceeding 600 metres above sea level, with a maximum relief that is generally in the 60 to 70 metre range. Lakes and localized ponding are found throughout the study area, along with bogs and marshlands blanketing large areas due to low relief and slow drainage and thin surficial deposits overlying the undulating bedrock.

## WORK AREAS

Six main work areas were identified for the Slave Geological Province Transportation Corridor study area between the north shore of Great Slave and the Bathurst Inlet.

The six work areas are identified as follows:

- Tibbet Lake to Exeter Lake (*northwest corner of Lac de Gras*)
- Rae / Edzo area to Exeter Lake (*northwest corner of Lac de Gras via Wekweti (Snare Lake)*)
- Exeter Lake to Lupin Mine area (*west side of Contwoyto Lake*)
- Exeter Lake to Bathurst Inlet (*around the south end of Contwoyto Lake*)
- Lupin Mine area to Bathurst Inlet (*around the north end of Contwoyto Lake*)
- Tibbet Lake to Bathurst Inlet (*east side of Mackay Lake*).

Route analysis results for each of these work areas are further explained in Volume 1 - Executive Summary and Volume 2 - Technical Report of the Multi-Level Mapping and Route Analysis for the Slave Geological Province Transportation Corridor, under separate covers, that are included as part of this study.

## DESIGN PARAMETERS

For the Slave Geological Province Transportation Corridor, design parameters and the resultant cost estimates (Class D) were developed for an all-weather roadway with a design speed of 90 kilometres per hour. The design parameters and cross-section that was selected for the Slave Geological Province Transportation Corridor are described below and shown in Figure 1.

### Design Speed

90 kilometres per hour

### Horizontal Alignment

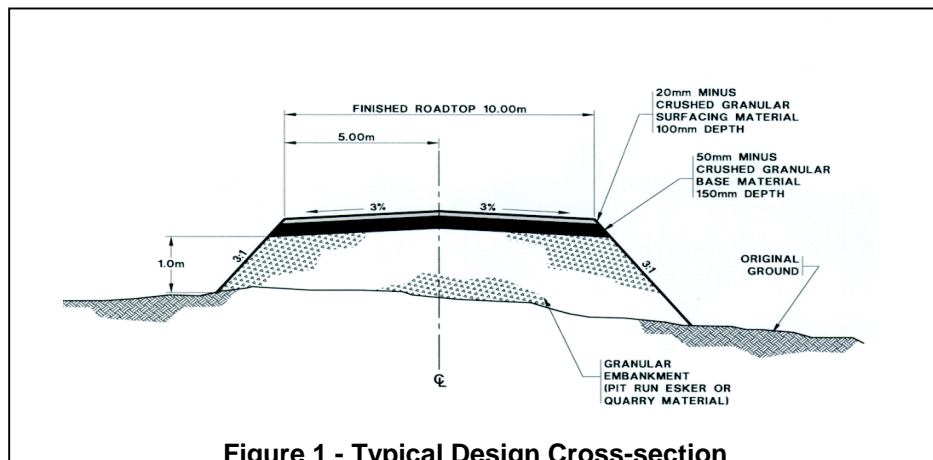
Minimum Radius (m)	300
Min. Stopping Sight Distance (m)	170

**Vertical Alignment**

Sag 'K' Value	40
Crest 'K' Value	55
Maximum Gradient (%)	8

**Cross Section**

Finished Roadtop Width (m)	10
Granular Base / Surfacing (mm)	250
Subgrade Width (m)	11.5
Min. Embankment Fill Height (m)	1.0
Cross-fall (%)	3
Max. Superelevation (%)	8
Side Slope Ratio	3 to 1



**Figure 1 - Typical Design Cross-section**

**QUALITATIVE RANKING FOR AGGREGATE POTENTIAL**

A qualitative ranking of aggregate potential for each route, or segment thereof, was developed from the review of the 1:60,000 black and white aerial photography. The following presents the qualitative description of the ranking system used; no quantitative assessments have been made of any esker/glaciofluvial deposit potential.

**Poor**

No or very few eskers or glaciofluvial deposits were identified on the aerial photographs; are poorly spaced along the route (*eskers are located only at one end of the route*).

**Fair**

Significant number of eskers were identified on the aerial photographs; eskers are somewhat poorly spaced throughout the route; and are comprised mainly of sand.

**Good**

Significant esker and glaciofluvial deposits in the form of outwash plains were identified on the aerial photographs; deposits are evenly distributed along the route; and are comprised of a combination of sand, gravels, cobbles and boulders.

**UNIT COSTS ESTIMATES**

Estimated unit costs were developed using, as much as possible, actual or historic unit prices associated with recent highway construction projects of a similar nature. These prices were then factored to take into account the extra costs that could be expected due to the remoteness of the project, local soil conditions and the qualitative ranking for aggregate potential. Costs were also adjusted to reflect the potential savings expected due to the absence of public traffic and the probability of completing the work on a larger scale with each project being somewhere around 20 million dollars..

Table 1 provides the estimated factored unit costs for embankment construction and surfacing based on the qualitative ranking of aggregate potential as described above.

Description	Estimated Unit Costs (per cu. M) (based on aggregate potential)		
	Poor	Fair	Good
Embankment Construction	\$27.50	\$22.00	\$18.00
Production/Application of Surfacing	\$28.00	\$22.00	\$20.00

**Table 1 - Estimated Unit Costs**

**ESTIMATED ROADWAY QUANTITIES**

Although the design parameters identified a minimum of one (1) metre for structural embankment fill, quantity estimates were developed using an average embankment fill of 1.3 metres. This would allow for the extra fill quantities required to meet the vertical alignment criteria, to level out the undulating original ground surface and allow for consolidation of the natural ground cover and natural settlement of the road embankment.

Table 2 provides the estimated quantity requirements for each kilometre of embankment construction and surfacing as described above.

Description	Average Height (m)	Average Width (m)	cu. metres per Linear metre	cu. metres per kilometre
Embankment	1.30	12.40	16.20	16,200.00
Surfacing	0.25	10.40	2.40	2,600.00

**Table 2 - Estimated Roadway Quantities**

### AVERAGE COST PER KILOMETRE

Estimated costs per kilometre of embankment construction were derived from the factored unit prices, as shown in Table 1, multiplied by the estimated quantities for embankment construction and surfacing, as shown in Table 2.

Table 3 provides the estimated average cost per kilometre for embankment construction and Surfacing only. These figures do not allow for any drainage/stream crossing structures, preliminary and design engineering or contract preparation and administration.

Description	Estimated Costs per km (based on aggregate potential)		
	Poor	Fair	Good
Embankment Construction	\$445,500.00	\$356,400.00	\$291,600.00
Production/Application of Surfacing	\$72,800.00	\$57,200.00	\$52,000.00
<b>TOTAL</b>	<b>\$518,300.00</b>	<b>\$413,600.00</b>	<b>\$343,600.00</b>

**Table 3 - Estimated Average Embankment Construction Cost Per Kilometre  
(based on Aggregate Potential)**



## STRUCTURES AND ENGINEERING COSTS

Single lane bridges were used in the development of cost estimates for the bridges required for this roadway. An estimated average of three culverts will be required for each kilometre of embankment construction. Engineering, design and contract preparation and administration costs were derived from historic costs associated with this type of activity.

Table 4 provides the estimated costs per structure or kilometre for drainage structures, engineering, design and contract administration.

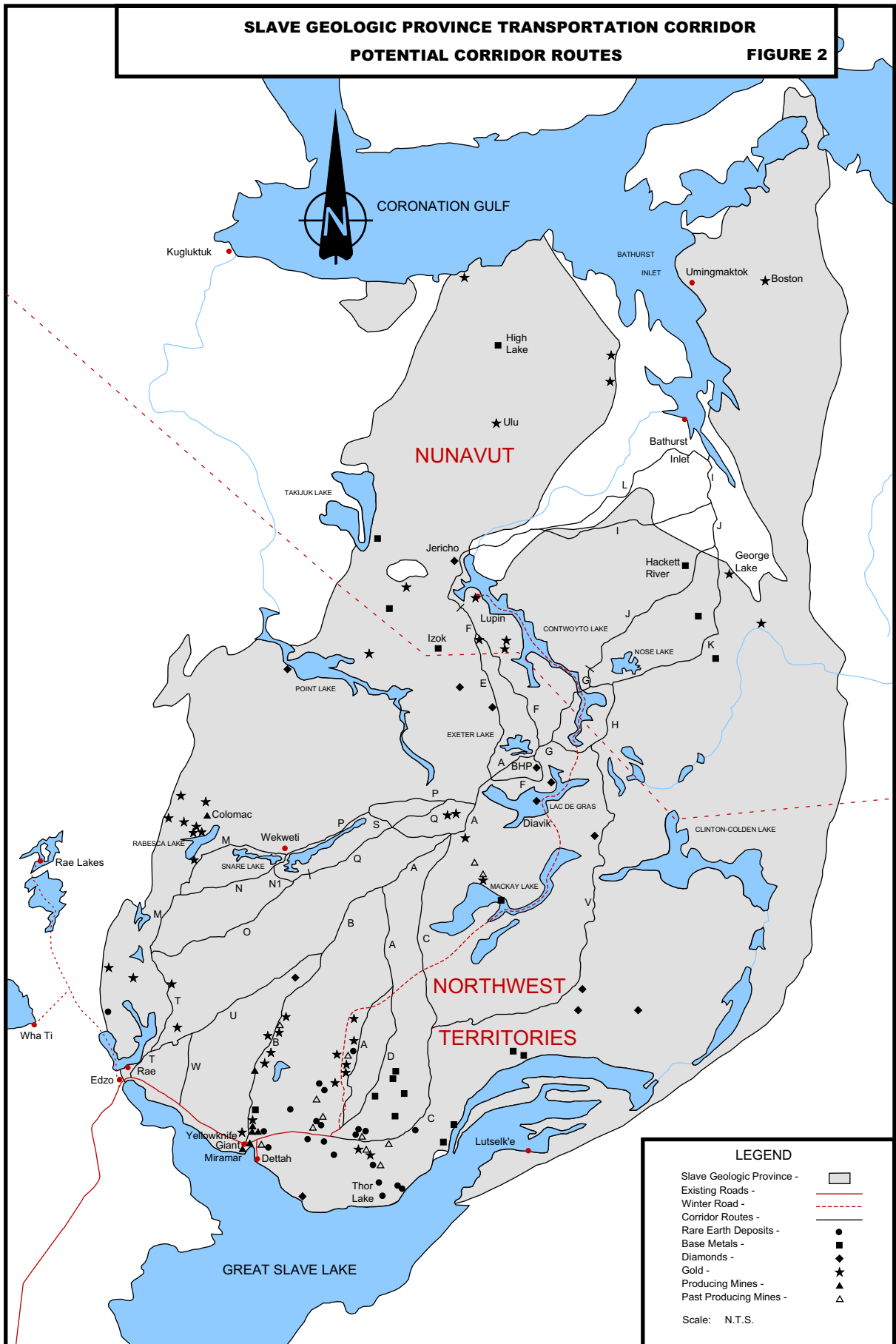
Description	Cost per Structure	Cost per Kilometre
Bridges	\$1,000,000.00	
Culverts / Drainage Improvements		\$18,700.00
Engineering Surveys & Geotechnical		\$20,000.00
Design & Contract Preparation		\$10,000.00
Contract Supervision & Admin.		\$10,000.00

**Table 4 - Estimated Structures and Engineering Costs**

## ESTIMATE CONSTRUCTION COSTS

This section provides a summary of the estimated construction costs for each sample route, within each work area previously identified, of the roadway from the north shore of the Great Slave Lake to Bathurst Inlet. These routes or segments thereof are shown in Figure 2. Further details of these estimates can be found in the estimate work sheets included in this document under Appendix A.

Table 5 provides the estimated total costs for each sample route along with the average total costs per kilometre.



DESCRIPTION	LENGTH (KILOMETRES)	ESTIMATED STRUCTURES	AGGREGATE POTENTIAL	ESTIMATED COSTS PER KILOMETRE	ESTIMATED COSTS FOR ROUTE
<b>Tibbet Lake Bathurst Inlet</b>					
Route A / G / J / I (Nuna Logistics Route)	715	14	Poor/Fair	\$538,006.99	\$384,675,000.00
<b>Tibbet Lake to Bathurst Inlet</b>					
Route C / V / H / G1 / G / J / I	825	24	Fair	\$498,528.48	\$411,286,000.00
<b>Tibbet Lake to Bathurst Inlet</b>					
Route A / F / I / L / I	840	23	Poor/Fair/ Good	\$522,276.79	\$438,712,500.00
<b>Yellowknife Hwy (km 271) to Bathhurst Inlet</b>					
Route W / U / B / A / G / J / I	765	22	Poor/Fair	\$551,013.07	\$421,525,000.00
<b>Rae Edzo to Bathurst Inlet</b>					
Route T / U / B / A / G / J / I	780	21	Poor/Fair	\$550,230.77	\$429,180,000.00
Route T / M / N / P / A / G / J / I	810	19	Poor/Fair	\$524,193.83	\$424,597,000.00
<b>Contwoyto Lake (East) to Bathurst Inlet (approximate location of Nuna Route)</b>					
Route J / I	235	5	Fair/Poor	\$488,576.60	\$114,815,500.00

Table 5 - Estimated Construction Costs

## CONCLUSION

The estimates, as provide in this report, indicate that any roadway, as defined earlier in this report, that is to be constructed within the Slave Geological Province over a 15 to 20 year construction period, will cost approximately \$ 500,000 to \$ 550,000 per kilometre, and the total length of roadway, between the north shore of Great Slave Lake and Bathurst Inlet, could cost in the neighborhood of between 380 and 440 million dollars dependant on the final route location.

**APPENDIX 'A'**

**COST ESTIMATE WORKSHEETS**

**SUMMARY OF SAMPLE CORRIDOR ROUTES**

DESCRIPTION	LENGTH (KILOMETRES)	STRUCTURES	AGGREGATE POTENTIAL	ESTIMATED COSTS PER KILOMETRE	ESTIMATED COSTS FOR SECTION
<b>Tibbet Lake Bathurst Inlet</b>					
<b>Route A / G / J / I</b>	715	14	Poor/Fair	\$538,006.99	\$384,675,000.00
<b>Tibbet Lake to Bathurst Inlet</b>					
<b>Route C / V / H / G1 / G / J / I</b>	825	24	Fair	\$498,528.48	\$411,286,000.00
<b>Tibbet Lake to Bathurst Inlet</b>					
<b>Route A / F / I / L / I</b>	840	23	Poor/Fair/Good	\$522,276.79	\$438,712,500.00
<b>Yellowknife Hwy (km 271) to Bathhurst Inlet</b>					
<b>Route W / U / B / A / G / J / I</b>	765	22	Poor/Fair	\$551,013.07	\$421,525,000.00
<b>Rae Edzo to Bathurst Inlet</b>					
<b>Route T / U / B / A / G / J / I</b>	780	21	Poor/Fair	\$550,230.77	\$429,180,000.00
<b>Route T / M / N / P / A / G / J / I</b>	810	19	Poor/Fair	\$524,193.83	\$424,597,000.00
<b>Contwoyto Lake (East) to Bathurst Inlet (approximate location of Nuna Route)</b>					
<b>Route J / I</b>	235	5	Fair/Poor	\$488,576.60	\$114,815,500.00

SUMMARY OF ROUTES

DESCRIPTION	LENGTH (KILOMETRES)	STRUCTURES	AGGREGATE POTENTIAL	ESTIMATED COSTS PER KILOMETRE	ESTIMATED COSTS FOR SECTION
<b>Tibbet Lake to Exeter Lake</b>					
Route A	315	4	Poor	\$589,698.41	\$ 185,755,000.00
Route B / A	360	10	Poor	\$604,777.78	\$ 217,720,000.00
Route C / A	375	9	Poor	\$601,000.00	\$ 225,375,000.00
Route D / A	325	6	Poor	\$595,461.54	\$ 193,525,000.00
<b>Rae / Edzo to Exeter Lake</b>					
Route T / U / B / A	380	11	Poor	\$605,947.37	\$ 230,260,000.00
Route T / O / Q / R / A	430	10	Poor	\$600,255.81	\$ 258,110,000.00
Route T / O / Q / P / A	410	10	Poor	\$601,390.24	\$ 246,570,000.00
<b>Yellowknife Highway (km 271) to Exeter Lake</b>					
Route W / U / B / A	365	12	Poor	\$609,876.71	\$ 222,605,000.00
<b>Rae / Edzo to Wekweti</b>					
Route T / M / N	220	6	Poor	\$604,272.73	\$ 132,940,000.00
Route T / M	240	7	Poor	\$606,166.67	\$ 145,480,000.00
<b>Wekweti to Exeter lake</b>					
Route P / A	190	3	Fair	\$488,089.47	\$ 92,737,000.00
Route P / S / Q / P / A	200	2	Fair	\$482,300.00	\$ 96,460,000.00
Route P / S / R / A	220	2	Fair	\$499,572.73	\$ 109,906,000.00
Route N / N1 / Q / P / A	222	6	Fair	\$499,327.03	\$ 110,850,600.00
<b>Exeter Lake to Bathurst Inlet</b>					
Route A / G / J / I	400	10	Fair	\$497,300.00	\$ 198,920,000.00
Route A / G / G1 / K / J / I	425	10	Fair	\$495,829.41	\$ 210,727,500.00
Route A / G / H / K / J / I	455	13	Fair	\$500,871.43	\$ 227,896,500.00
<b>Exeter Lake to Lupin Mine Area</b>					
Route E / F	150	3	Poor	\$597,000.00	\$ 89,550,000.00
Route A / F	200	9	Good	\$447,300.00	\$ 89,460,000.00

**SUMMARY OF ROUTES**

DESCRIPTION	LENGTH (KILOMETRES)	STRUCTURES	AGGREGATE POTENTIAL	ESTIMATED COSTS PER KILOMETRE	ESTIMATED COSTS FOR SECTION
<b>Lupin Mine to Bathurst Inlet</b>					
<b>Route I</b>	355	14	Poor	\$616,436.62	\$ 218,835,000.00
<b>Route I / L / I</b>	325	10	Fair	\$503,069.23	\$ 163,497,500.00
<b>Tibbet Lake to Bathurst Inlet</b>					
<b>Route C / V / H / K / J / I</b>	825	26	Fair	\$503,815.15	\$ 415,647,500.00
<b>Route C / V / H / G1 / G / J / I</b>	825	24	Fair	\$498,528.48	\$ 411,286,000.00

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**TIBBIT LAKE TO EXETER LAKE (Northwest Corner of Lac de Gras)**

<b>Route A</b>		<b>315 KM</b>
Estimated Construction Cost	\$ 163,264,500.00	
Estimated Structures Cost	\$ 4,000,000.00	
Estimated Drainage/Culvert Cost	\$ 5,890,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 6,300,000.00	
Design/Contract Preparation	\$ 3,150,000.00	
Contract Supervision	\$ 3,150,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 185,755,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 589,698.41</b>	
<b>Route B / A</b>		<b>360 KM</b>
Estimated Construction Cost	\$ 186,588,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 6,732,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 7,200,000.00	
Design/Contract Preparation	\$ 3,600,000.00	
Contract Supervision	\$ 3,600,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 217,720,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 604,777.78</b>	
<b>Route C / A</b>		<b>375 KM</b>
Estimated Construction Cost	\$ 194,362,500.00	
Estimated Structures Cost	\$ 9,000,000.00	
Estimated Drainage/Culvert Cost	\$ 7,012,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 7,500,000.00	
Design/Contract Preparation	\$ 3,750,000.00	
Contract Supervision	\$ 3,750,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 225,375,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 601,000.00</b>	
<b>Route A / D / A</b>		<b>325 KM</b>
Estimated Construction Cost	\$ 168,447,500.00	
Estimated Structures Cost	\$ 6,000,000.00	
Estimated Drainage/Culvert Cost	\$ 6,077,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 6,500,000.00	
Design/Contract Preparation	\$ 3,250,000.00	
Contract Supervision	\$ 3,250,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 193,525,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 595,461.54</b>	



**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**EXETER LAKE (Northwest Corner of Lac de Gras) to BATHURST INLET (North of Pellatt Lake)**

<b>Route A / G / J / I</b>		<b>400 KM</b>
Estimated Construction Cost	\$ 165,440,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 7,480,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 8,000,000.00	
Design/Contract Preparation	\$ 4,000,000.00	
Contract Supervision	\$ 4,000,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 198,920,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 497,300.00</b>	

<b>Route A / G / G1 / K / J / I</b>		<b>425 KM</b>
Estimated Construction Cost	\$ 175,780,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 7,947,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 8,500,000.00	
Design/Contract Preparation	\$ 4,250,000.00	
Contract Supervision	\$ 4,250,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 210,727,500.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 495,829.41</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**EXETER LAKE (Northwest Corner of Lac de Gras) to BATHURST INLET (South of Pellatt Lake)**

<b>Route A / G / H / K / J / I</b>		<b>455 KM</b>
Estimated Construction Cost	\$ 188,188,000.00	
Estimated Structures Cost	\$ 13,000,000.00	
Estimated Drainage/Culvert Cost	\$ 8,508,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 9,100,000.00	
Design/Contract Preparation	\$ 4,550,000.00	
Contract Supervision	\$ 4,550,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 227,896,500.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 500,871.43</b>	

**TIBBET LAKE / REID LAKE to BATHURST INLET (East side of McKay, de Gras & Pellatt Lakes)**

<b>Route C / V / H / K / J / I</b>		<b>825 KM</b>
Estimated Construction Cost	\$ 341,220,000.00	
Estimated Structures Cost	\$ 26,000,000.00	
Estimated Drainage/Culvert Cost	\$ 15,427,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 16,500,000.00	
Design/Contract Preparation	\$ 8,250,000.00	
Contract Supervision	\$ 8,250,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 415,647,500.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 503,815.15</b>	

**TIBBET LAKE / REID LAKE to BATHURST INLET  
(East side of McKay Lake & Lac de Gras & West of Pellatt Lakes)**

<b>Route C / V / H / G1 / G / J / I</b>		<b>820 KM</b>
Estimated Construction Cost	\$ 339,152,000.00	
Estimated Structures Cost	\$ 24,000,000.00	
Estimated Drainage/Culvert Cost	\$ 15,334,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 16,400,000.00	
Design/Contract Preparation	\$ 8,200,000.00	
Contract Supervision	\$ 8,200,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 411,286,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 501,568.29</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
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BREAKDOWN PER ROUTE / SECTION**

**EXETER LAKE (Northwest Corner of Lac de Gras) to LUPIN MINE Area**

<b>Route E / F</b>		<b>150 KM</b>
Estimated Construction Cost	\$ 77,745,000.00	
Estimated Structures Cost	\$ 3,000,000.00	
Estimated Drainage/Culvert Cost	\$ 2,805,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 3,000,000.00	
Design/Contract Preparation	\$ 1,500,000.00	
Contract Supervision	\$ 1,500,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 89,550,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 597,000.00</b>	

<b>Route A / F</b>		<b>200 KM</b>
Estimated Construction Cost	\$ 68,720,000.00	
Estimated Structures Cost	\$ 9,000,000.00	
Estimated Drainage/Culvert Cost	\$ 3,740,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,000,000.00	
Design/Contract Preparation	\$ 2,000,000.00	
Contract Supervision	\$ 2,000,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 89,460,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 447,300.00</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
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BREAKDOWN PER ROUTE / SECTION**

**LUPIN MINE area to BATHURST INLET (Around North end of Contwoyto Lake)**

<b>Route I</b>		<b>355 KM</b>
Estimated Construction Cost	\$ 183,996,500.00	
Estimated Structures Cost	\$ 14,000,000.00	
Estimated Drainage/Culvert Cost	\$ 6,638,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 7,100,000.00	
Design/Contract Preparation	\$ 3,550,000.00	
Contract Supervision	\$ 3,550,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 218,835,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 616,436.62</b>	

<b>Route I / L / I</b>		<b>325 KM</b>
Estimated Construction Cost	\$ 134,420,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 6,077,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 6,500,000.00	
Design/Contract Preparation	\$ 3,250,000.00	
Contract Supervision	\$ 3,250,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 163,497,500.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 503,069.23</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
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BREAKDOWN PER ROUTE / SECTION**

**YELLOWKNIFE HIGHWAY (km 271) to EXETER LAKE (direct to Exeter Lake)**

<b>Route W / U / B / A</b>		<b>365 KM</b>
Estimated Construction Cost	\$ 189,179,500.00	
Estimated Structures Cost	\$ 12,000,000.00	
Estimated Drainage/Culvert Cost	\$ 6,825,500.00	
Estimated Engineering		
Survey/Geotechnical	\$ 7,300,000.00	
Design/Contract Preparation	\$ 3,650,000.00	
Contract Supervision	\$ 3,650,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 222,605,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 609,876.71</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**RAE / EDZO to EXETER LAKE (Rae/Edzo direct to Exeter Lake)**

<b>Route T / U / B / A</b>		<b>380 KM</b>
Estimated Construction Cost	\$ 196,954,000.00	
Estimated Structures Cost	\$ 11,000,000.00	
Estimated Drainage/Culvert Cost	\$ 7,106,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 7,600,000.00	
Design/Contract Preparation	\$ 3,800,000.00	
Contract Supervision	\$ 3,800,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 230,260,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 605,947.37</b>	

<b>Route T / O / Q / R / A</b>		<b>430 KM</b>
Estimated Construction Cost	\$ 222,869,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 8,041,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 8,600,000.00	
Design/Contract Preparation	\$ 4,300,000.00	
Contract Supervision	\$ 4,300,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 258,110,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 600,255.81</b>	

<b>Route T / O / Q / P / A</b>		<b>410 KM</b>
Estimated Construction Cost	\$ 212,503,000.00	
Estimated Structures Cost	\$ 10,000,000.00	
Estimated Drainage/Culvert Cost	\$ 7,667,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 8,200,000.00	
Design/Contract Preparation	\$ 4,100,000.00	
Contract Supervision	\$ 4,100,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 246,570,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 601,390.24</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**RAE / EDZO to WEKWETI**

Rae / Edzo to Wekweti (South side of Cotterill / Snare Lakes)

<b>Route T / M / N</b>		<b>220 KM</b>
Estimated Construction Cost	\$ 114,026,000.00	
Estimated Structures Cost	\$ 6,000,000.00	
Estimated Drainage/Culvert Cost	\$ 4,114,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,400,000.00	
Design/Contract Preparation	\$ 2,200,000.00	
Contract Supervision	\$ 2,200,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 132,940,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 604,272.73</b>	

Rae / Edzo to Wekweti (North side of Cotterill / Snare Lakes)

<b>Route T / M</b>		<b>240 KM</b>
Estimated Construction Cost	\$ 124,392,000.00	
Estimated Structures Cost	\$ 7,000,000.00	
Estimated Drainage/Culvert Cost	\$ 4,488,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,800,000.00	
Design/Contract Preparation	\$ 2,400,000.00	
Contract Supervision	\$ 2,400,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 145,480,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 606,166.67</b>	

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**WEKWETI to EXETER LAKE**

Wekweti to Exeter Lake (Around north end of Snare Lake)

<b>Route P / A</b>		<b>190 KM</b>
Estimated Construction Cost	\$ 78,584,000.00	
Estimated Structures Cost	\$ 3,000,000.00	
Estimated Drainage/Culvert Cost	\$ 3,553,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 3,800,000.00	
Design/Contract Preparation	\$ 1,900,000.00	
Contract Supervision	\$ 1,900,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 92,737,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 488,089.47</b>	

<b>Route P / S / Q / P / A</b>		<b>200 KM</b>
Estimated Construction Cost	\$ 82,720,000.00	
Estimated Structures Cost	\$ 2,000,000.00	
Estimated Drainage/Culvert Cost	\$ 3,740,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,000,000.00	
Design/Contract Preparation	\$ 2,000,000.00	
Contract Supervision	\$ 2,000,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 96,460,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 482,300.00</b>	

<b>Route P / S / R / A</b>		<b>220 KM</b>
Estimated Construction Cost	\$ 90,992,000.00	
Estimated Structures Cost	\$ 6,000,000.00	
Estimated Drainage/Culvert Cost	\$ 4,114,000.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,400,000.00	
Design/Contract Preparation	\$ 2,200,000.00	
Contract Supervision	\$ 2,200,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 109,906,000.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 499,572.73</b>	



**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES  
BREAKDOWN PER ROUTE / SECTION**

**WEKWETI to EXETER LAKE**

Wekweti to Exeter Lake (Around south side of Snare Lake)

<b>Route N1 / O / Q / P / A</b>		<b>222 KM</b>
Estimated Construction Cost	\$ 91,819,200.00	
Estimated Structures Cost	\$ 6,000,000.00	
Estimated Drainage/Culvert Cost	\$ 4,151,400.00	
Estimated Engineering		
Survey/Geotechnical	\$ 4,440,000.00	
Design/Contract Preparation	\$ 2,220,000.00	
Contract Supervision	\$ 2,220,000.00	
<b>ESTIMATED TOTAL COST</b>	<b>\$ 110,850,600.00</b>	
<b>ESTIMATED AVG. COST / KM</b>	<b>\$ 499,327.03</b>	

# SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR CLASS "D" COST ESTIMATES

Estimated Embankment Construction Costs For a 90 Kilometre Per Hour Road are as follows:

ROUTE DESCRIPTION	COST/KM	ESTIMATED STRUCTURES
<b>Tibbet Lake to Exeter Lake (Northwest Corner of Lac De Gras)</b>		
A	\$ 518,300.00	4
B / A	\$ 518,300.00	10
C / A	\$ 518,300.00	9
D / A	\$ 518,300.00	6
<b>Exeter Lake to Lupin Area (West side of Contwoyto Lake)</b>		
E / F	\$ 518,300.00	3
A / F	\$ 343,600.00	9
<b>Exeter lake to Bathurst Inlet (North of Pellatt Lake)</b>		
A / G / J / I	\$ 413,600.00	10
A / G / G1 / K / J / I	\$ 413,600.00	10
<b>Exeter Lake to Bathurst Lake (South of Pellatt Lake)</b>		
A / G / H / K / J / I	\$ 413,600.00	13
<b>Tibbet Lake to Bathurst Inlet (East of McKay Lake, Lac de Gras &amp; Pellatt Lake)</b>		
C / V / H / K / J / I	\$ 413,600.00	26
<b>Tibbet Lake to Bathurst Inlet (East of McKay Lake &amp; Lac de Gras &amp; West of Pellatt Lake)</b>		
C / V / H / G1 / G / J / I	\$ 413,600.00	24
<b>LUPIN MINE area to BATHURST INLET (Around north end of Contwoyto Lake)</b>		
I	\$ 518,300.00	14
I / L / I	\$ 413,600.00	10
<b>RAE / EDZO to EXETER LAKE (Direct to Exeter Lake)</b>		
T / U / B / A	\$ 518,300.00	11
T / O / Q / R / A	\$ 518,300.00	10
T / O / Q / P / A	\$ 518,300.00	10
<b>YELLOWKNIFE HIGHWAY (km 271) to EXETER LAKE</b>		
W / U / B / A	\$ 518,300.00	12
<b>RAE / EDZO to WEKWETI</b>		
T / M / N (south of Cotterill & Snare Lakes)	\$ 518,300.00	6
T / M (north of Cotterill & Snare Lakes)	\$ 518,300.00	7

# SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR CLASS "D" COST ESTIMATES

Estimated Embankment Construction Costs For a 90 Kilometre Per Hour Road are as follows:

ROUTE DESCRIPTION	COST/KM	ESTIMATED STRUCTURES
<b>WEKWETI to EXETER LAKE</b>		
<b>P / A</b> (Around north end of Snare Lake)	\$ 413,600.00	3
<b>P / S / Q / P / A</b> (Around north end of Snare Lake)	\$ 413,600.00	2
<b>P / S / R / A</b> (Around north end of Snare Lake)	\$ 413,600.00	2
<b>N / N1 / Q / P / A</b> (Around south side of Snare Lake)	\$ 413,600.00	6

Estimated Costs for each Structure:           \$1,000,000.00

Estimated Drainage/Culvert Costs / Km:   \$    18,700.00

Estimated Costs for Engineering per kilometre:

Survey and Geotechnical	\$ 20,000.00
Design Work / Contract Preparation	\$ 10,000.00
Contract Supervision	\$ 10,000.00

**SLAVE GEOLOGICAL PROVINCE TRANSPORTATION CORRIDOR  
CLASS "D" COST ESTIMATES**

DESCRIPTION	Estimated Unit Costs		
	Poor	Fair	Good
Embankment Construction	\$27.50	\$22.00	\$18.00
Production and Application of Surfacing	\$28.00	\$22.00	\$20.00

Description	Average Quantities per Kilometre
Embankment 1.30 h X 12.40 w X 1000.00 l 16.20 cu. metres per linear metre	16200
Base / Surfacing 0.25 h X 10.40 h X 1000.00 l 2.60 cu. metres per linear metre	2600

DESCRIPTION	Estimated Unit Costs		
	Poor	Fair	Good
Embankment Construction	\$445,500.00	\$356,400.00	\$291,600.00
Production and Application of Surfacing	\$72,800.00	\$57,200.00	\$52,000.00
	\$518,300.00	\$413,600.00	\$343,600.00