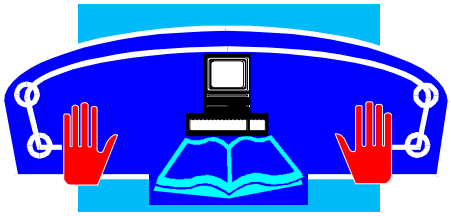

Northwest Territories Transportation Infrastructure Study - Deficiencies Report

Type of Study: Analysis/review

Date of Report: 1989

Author: The Proctor & Redfern Group

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NORTHWEST TERRITORIES TRANSPORTATION INFRASTRUCTURE STUDY DEFICIENCIES REPORT

The Proctor & Redfem Group
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1.0 Introduction

This report on the existing transportation infrastructure addresses the four modes found in the Northwest Territories - road, sea, air and rail. Although the latter is relatively insignificant in terms of operating distance it provides two important supply links to southern Canada via railheads at Hay River and Churchill.

There have been numerous previous studies of various aspects of transport in the N.W.T. but there has been little consolidation of the information to provide a comprehensive assessment. The project sought to assemble that data and assess the current situation firstly "to see what is there" and secondly to identify any deficiencies particularly those that constrain economic development.

The report contains inventories for three modes - road, air and marine. The former is well documented by GNWT Department of Transport but the other modes required data assembly. In all cases it has proven difficulties to obtain complete information on commodity movements and costs due to the (understandable) reluctance of private carriers to release commercial information.

Based upon the appraisal of the existing infrastructure, supplemented by our interviews and reconnaissance, deficiencies and potential improvements were noted.

2.0 Transporation Overview

a) General

Historically transportation links in the NWT were initially developed by water with air reinforcing the links at a later date. The development of the road network is not extensive (see figures la and lb) and generally responded to specific economic development. This evolution of transport in the NWT contrasts with southern Canada where predominately land transport, initially rail then road, was used to realize identified development potential.

The transportation issues in the NWT are readily divided into two distinct types - with and without road transport.

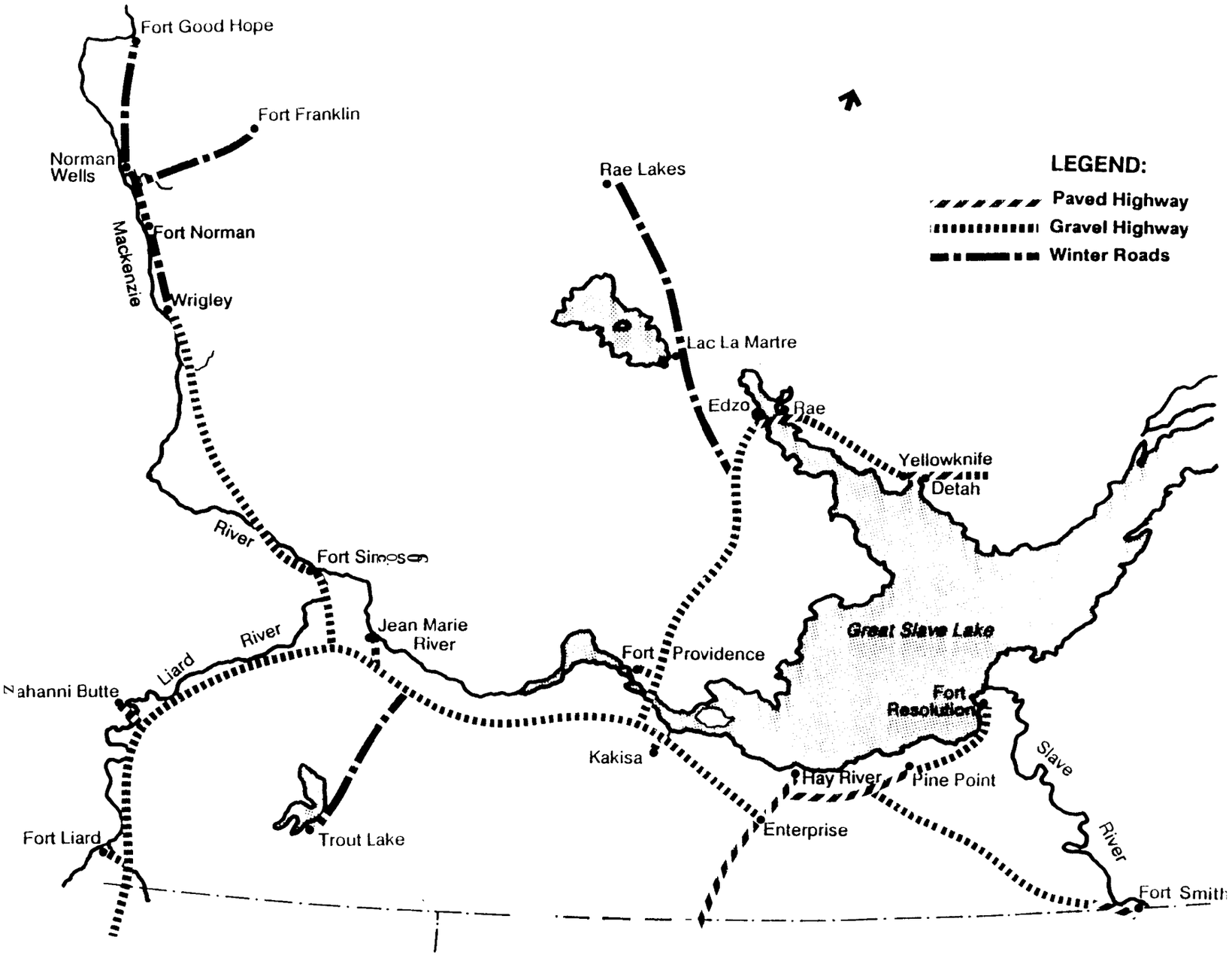

Figure la

EXISTING ROAD NETWORK (Sou h)

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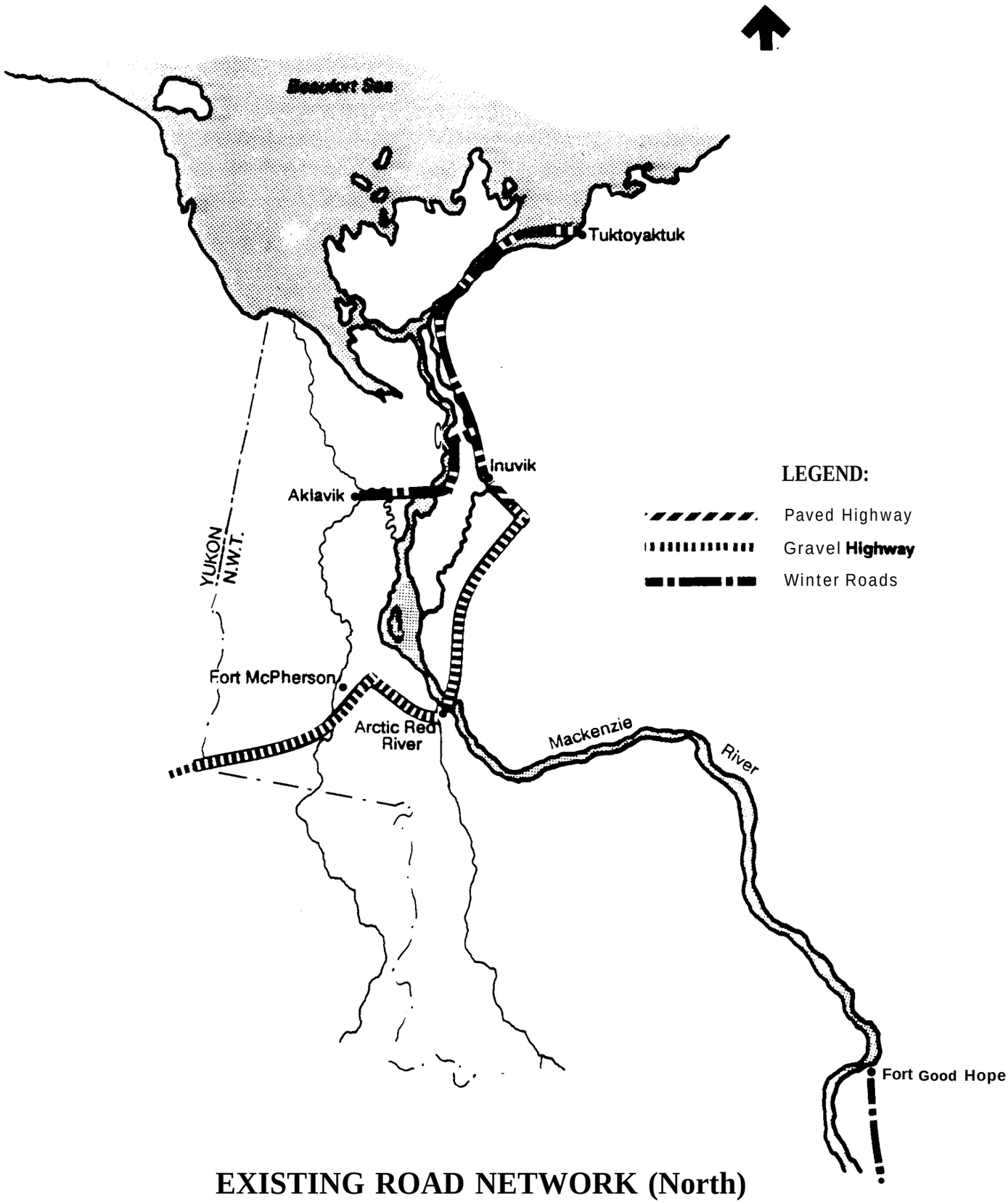

EXISTING ROAD NETWORK (North)

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Figure lb

The Eastern Arctic is dependent upon air and marine modes. The population distribution, the scale of development, the topography and climate all mitigate against developing a extensive road network. In this area the communities must rely exclusively on air for all year mobility. (see Figure 2 air service routes by major carriers in NWT).

In the area around the Great Slave Lake road transport has developed to complement air and river transport. The Western and Central areas are also served predominately by air and sea but have the potential for expansion of the road network associated with economic development.

Along the Mackenzie Valley many communities have winter roads and/or summer barge as well as air service. (Figure 3 shows the marine resupply network servicing the NWT).

b) Existing Capacity

There are at present no serious examples of inadequate capacity in infrastructure on a system basis.

- The barge operations on the Mackenzie and Keewatin have adequate capacity for projected growth.

  The road network is currently operating at typically 25-30% of its design capacity in rural sections (including major ferry crossings).

- The eastern Arctic sealift has considerable flexibility to respond to demand fluctuations. Similarly the Western Arctic sealift can respond to major development project demands.

  The air carriers also have operational flexibility to respond to demand fluctuations, particularly these serving the Category “A” airports. Selected Category “B”, **“C”** and “D” aerodromes and terminal facilities impose capacity constraints and/or impede operations, but none have major adverse impacts.

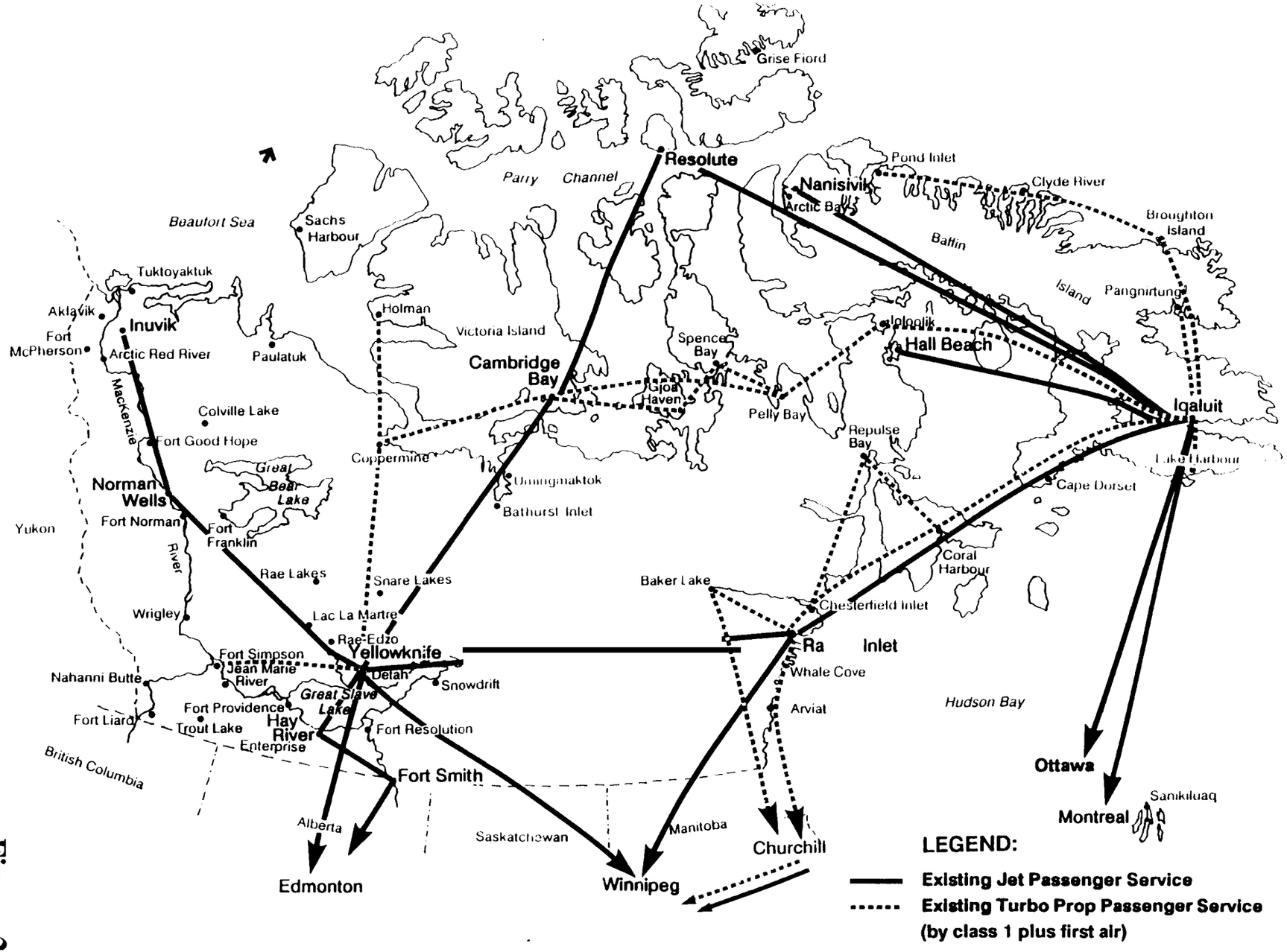


Figure 2

The Proctor & Redfern Group

AIR ROUTES NN.W.T.

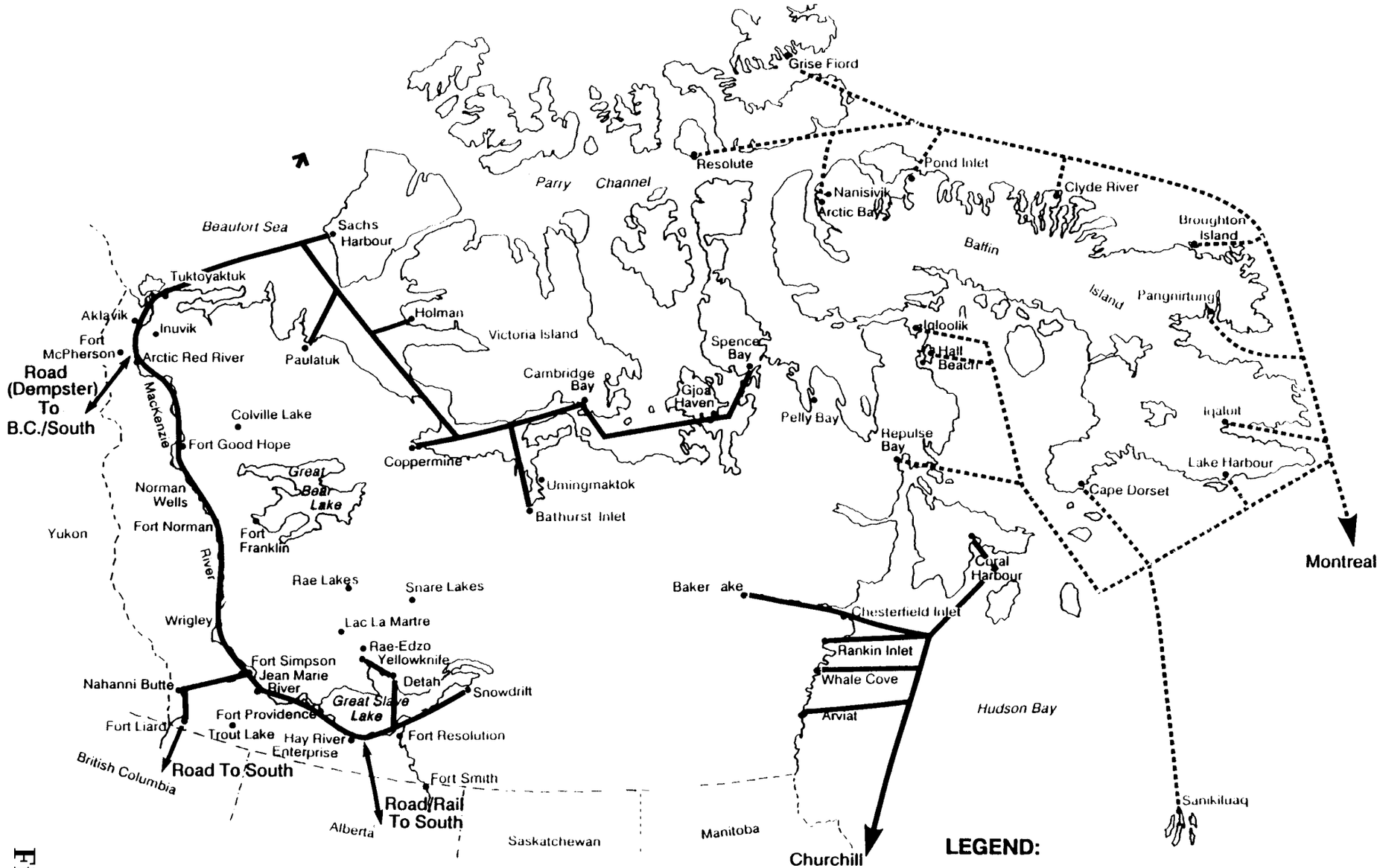


Figure 3

MARINE RESUPPLY

The Proctor & Redfern Group

c) Transportation Costs

A common complaint recorded during the community visits was the standard and cost of transportation. There are arguably examples of over provision of services (e.g. Yellowknife - Rankin Inlet - Iqualuit air services). No examples of poorly planned service were noted that resulted in communities having inadequate services from air and sea modes. Although there are numerous instances of damaged goods, poor management, lack of organization and confused landside activities, preferably with Sealift, which the public usually attribute to causing higher transportation costs, the major reasons given by the carriers/operators are:

- a) that the existing infrastructure does not eater to the efficient use of equipment nor permit the economies of scale or standardization which would minimize transport costs, especially for eargo and freight,

- b) high cost of aviation fuel in the High Arctic which accounts for 30% of their operating costs, and

- c) the lack of navigation and landing aids and poor weather reporting which increases the frequency of abortive/cancelled flights.

A selected list of air fares is shown on Table 1 for flights to/from the NWT, internal NWT flights and similar flight distance in southern Canada. Figure 4 plots the cost/km against flight distance and indicates that costs to and from South Canada and along the Mackenzie Valley are comparable with southern Canada rates. Flights within the High Arctic and Baffin are significantly more expensive on a seat/km basis than the Western NWT and Southern Canada.

d) Rail

Both rail lines linking the NWT to southern Canada are subject to varying degrees of uncertainty. The link to Hay River which is a main supply route for the Mackenzie Barge is in doubt, due to the uncertainty surrounding the Pine Point Mine. While there is the prospect of increased economic activity in Northern Alberta together with the proposed

AI RCOSTS

AIR Kms.	ROUTE	One-way fares as of November 24, 1987	
		Passenger	Aircraft Type
860	Edmonton - Yellowknife	$265.00	737 Jet
1960	Edmonton - Inuvik	$409.00	737 Jet
1000	Yellowknife - Inuvik	$287.00	737 Jet
1130	Yellowknife - Tuktoyaktuk	$361.00	737 / Prop
2275	Yellowknife - Iqaluit	$550.00	727 Jet
30	Inuvik - Tuktoyaktuk	$74.00	Prop
523	Inuvik - Sachs Harbour	$206.00	Prop
400	Inuvik - Paulatuk	$168.00	Prop
200	Yellowknife - Hay River	$84.00	737 Jet
345	Yellowknife - Fort Simpson	$141.00	Prop
683	Yellowknife - Norman Wells	$204.00	737 Jet
	Norman Wells - Fort Norman		
2147	Winnipeg - Yellowknife	$443)00	737 Jet
1464	Winnipeg - Rankin Inlet	3482.00	737 Jet
1068	Rankin Inlet - Yellowknife	$339.00	727 Jet
256	Rankin Inlet - Baker Lake	$157.00	HS7 Prop
240	Rankin Inlet - Eskimo Point	$136<00	HS7 Prop
720	Iqaluit - Coral Harbour	$287.00	HS7 Prop
960	Yellowknife - Cambridge Bay	$276.001	Prop
1560	Yellowknife - Resolute Bay	$384.00	737 Jet
1550	Iqaluit - Resolute Bay	$471,00	737 Jet
2060	Montreal - Iqaluit	$546.00	737 Jet
	Rankin Inlet - Iqaluit	$339.00	727 Jet
1216	Iqaluit - Arctic Bay		
1825	Iqaluit - Cambridge Bay	$589<00	HS7 Prop
740	Iqaluit - Clyde River	$322.00	HS7 Prop
1310	Yellowknife - Pelly Bay	$501.00	HS7 Prop
640	Yellowknife - Hall Beach		
460	Iqaluit - Broughton Island	$219.00	HS7 Prop
400	Iqaluit - Cape Dorset	$189.00	HS7 Prop
1300	Iqaluit - Nanisivik	$396.00	737 Jet
826	Edmonton - Vancouver	$210.00	Jet
1187	Edmonton - Winnipeg.	3261,00	Jet
363	Toronto - Ottawa	$144.00	Jet
2667	Edmonton - Toronto	$471.00	Jet
2966	Edmonton - Kingston (Ont.)	$512.00	Jet/Prop
299	Toronto - Kingston (Ont.)	$132.00	Prop
151	Montreal to Ottawa	$115.001	
299	Toronto to North Bay	$135.00	
1662	Vancouver to Winnipeg	$357.00	
2207	Toronto to Saskatoon	$406.00	
1816	Montreal to Winnipeg	$350.001	

07-Feb-90
FILE: AIRCOSTS.WK1

TAX NOT INCLUDED Tax Rate = 10% of Fare + $4.00
No Greater than 350.00

SELECTED AIR FARES

The Proctor & Redfern Group

Table 1

Air Trave Costs
A Comparison of NWT Passenger Costs
One Way Ticket Price ($)
500
400
300
200
100
0
0
0.4
0.8
1.2
1.6
2
2.4
2.8
Air Kilometers travelled
(Thousands)
+ Within NWT West
× Within NWT East
◇ From NWT East
□ Southern Canada
△ From NWT West
The Proctor & Redfern Group

Figure 4

pipeline development along the Mackenzie, which would probably assure the continued operation of this rail link, the possibility of abandonment must not be ignored. The implication of additional road transport to replace the rail would have significant implications on the investment in the road link to Alberta.

The rail line to Churchill is a primary connection to the Keewatin barge service. The abandonment of this line places in jeopardy the continuation of the existing barge service. The replacement of the rail with a road link to Southern Manitoba would minimize the impacts to the barge service and also raises the prospect of the Keewatin highway to Rankin Inlet and ultimately to Baker Lake. However, if a road link is not provided to Churchill, the tug barge service could be relocated to Moosonee with relatively minor impact to infrastructure. Alternatively a change in the operation to the sealift from Montreal could involve changes to the land side requirements and the infrastructure needs in order to maintain the resupply service to the Keewatin communities.

3. Methodology

a) Community Visits

The project visited, with few exception, all communities in the NWT to meet with the community leaders - mayors, band chiefs, administrators et al, to obtain their view on current transport problems and deficiencies, and to receive their suggestions for improvements to the transport infrastructure.

This provided an opportunity to inspect the aerodrome, visit the marine facilities and in some instances observe the sealift and community activities. In the Fort Smith and Inuvik Regions the main highways were driven and the ferry operations observed.

Major employers and trade associations were contacted during these visits and subsequently a series of interviews were arranged with the major oil and gas companies, mining operations, air carriers and government agencies in Southern Canada to obtain their view on existing conditions and where relevant, potential for development in NWT.

b) **Data** Collection

Previous reports contained much relevant data and these were expanded by researching national publications **such as the Canada** Flight Supplement, Statistics Canada Reports, the Arctic Pilot, etc.

c) Infrastructure Rating **System**

i) **Aerodromes**

A system to classify Arctic Airports was developed by Transport Canada (see Table 2) and has been retained by the **GNWT.** A description of the requirements is contained in Appendix Al. This system was utilized to assess the existing **aerodrome** infrastructure which is illustrated on Figure 5 and Table 3.

Subsequently it was determined that an additional category "CR" should be included to recognize the combination of population and air distance from Class "A" Airports. This category is appropriate for potential air service by modem regional jet aircraft. The formula weighted the population as follows:

$$\text{Weighted population} = \text{population} \times \frac{\text{air distance to nearest Class "A"}}{300\text{km}}$$

Communities with a weighted population in excess of 400 were candidates for "CR" airports. **300km** was selected as representing 1 hour flying time on a propeller aircraft. The proposed classification is shown on Figure 6.

ii) Marine

Appraisal of marine facilities required development of a rating system which is described in Appendix A2. Marine facilities were divided by two activities - Resupply and Local Community Uses. Recognizing the distinct nature of the two major marine activities, a separate classification system has been developed for each-resupply and local.

Table 2

Airport Classification

Arctic "A" (Major) Airports

Those airports serving population centres which have the following characteristics:

- served by an air carrier on a regular scheduled basis, including jet service
- no means of regular transportation other than air
- major distribution centre
- strategic location
- a capital or regional administrative centre
- an extensive continuing resource development role

Arctic "B" (Area) Airports

Those airports serving population centres which have the following characteristics:

- a population of more than 400
- no means of regular transportation other than air
- served by a regular, reliable air service
- a growing community
- an area administrative centre
- an active role in resource development

Arctic "C" (Community) Airports

Those airports serving population centres which have the follwing characteristics:

- a population of more than 100
- no means of regular transportation other than air

Arctic "D" (Local) Airports

Those airports serving population centres which have the following characteristics:

- a permanent population less than 100
- no means of regular transportation other than air

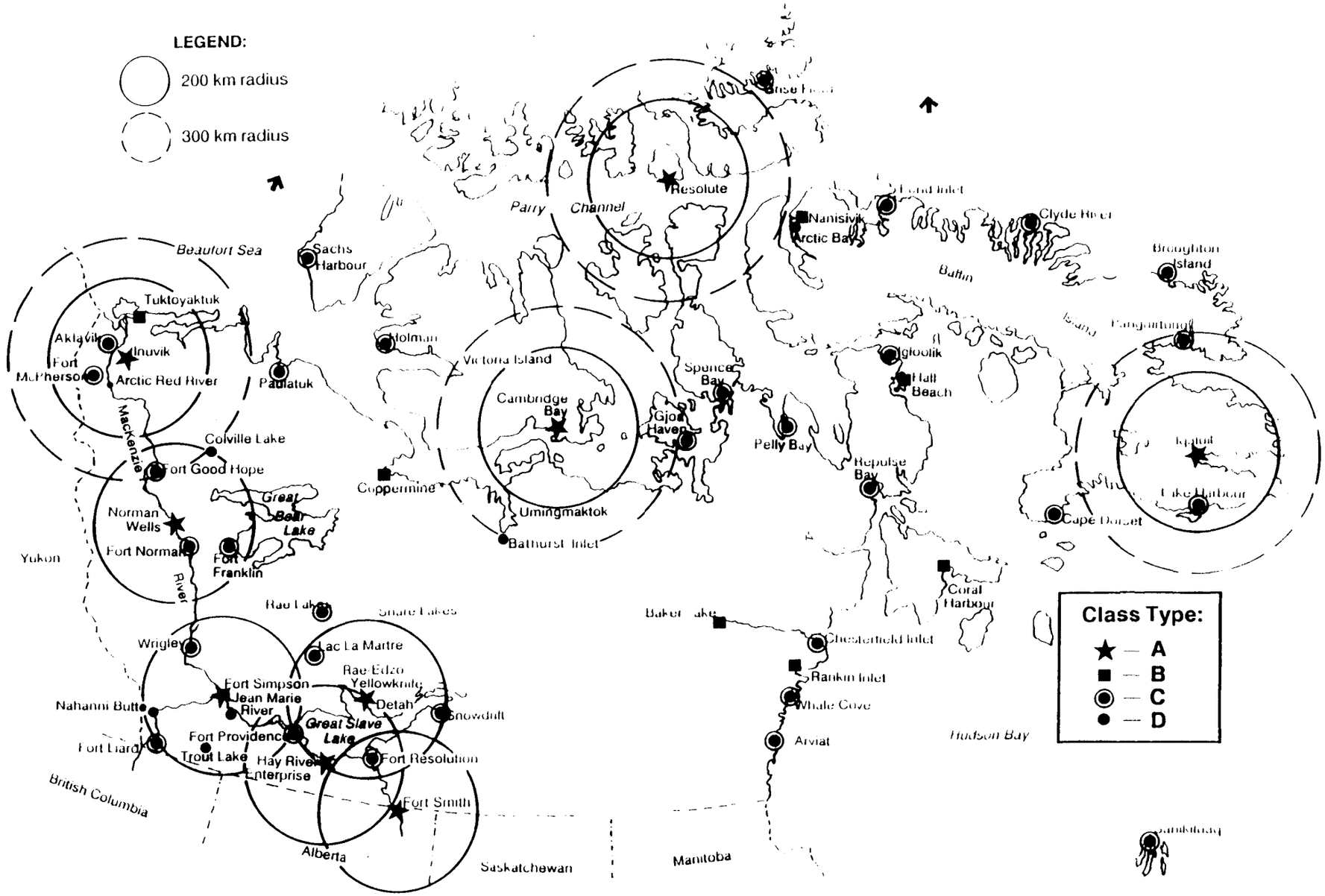


Figure 5

EXISTING AERODROME CLASSIFICATIONS

TABLE 3

Existing Airports Classification:

"A" Airports	"B Airports	"C" Airports	"D" Airports
Fort Simpson	Ranklin Inlet	Fort Liard	Snare Lakes
Fort Smith	Coppermine	Fort Providence	Jean Marie River
Hay River	Tuktoyaktuk	Fort Resolution	Nahanni Butte
Yellowknife	Hall Beach	Lac la Martre	Trout Lake
Inuvik	Nanisivik	Rae Lakes	Colville Lake
Norman Wells	Baker Lake	Snowdrift	Arctic Bay
Iqaluit	Coral Harbour	Wrigley	Bathurst
Resolute Bay		Aklavik	Bay Chimo
Cambridge Bay		Fort Franklin	
		Fort Good Hope	
		Fort McPherson	
		Fort Norman	
		Paulatuk	
		Broughton Island	
		Cape Dorset	
		Clyde River	
		Grise Fiord	
		Igloolik	
		Lake Harbour	
		Pangnirtung	
		Pond Inlet	
		Sanikiluaq	
		Chesterfield Inlet	
		Repulse Bay	
		Eskimo Point	
		Whale Cove	
		Gjoa Haven	
		Holman	
		Pelly Bay	
		Sachs Harbour	
		Spence Bay	

Table 3

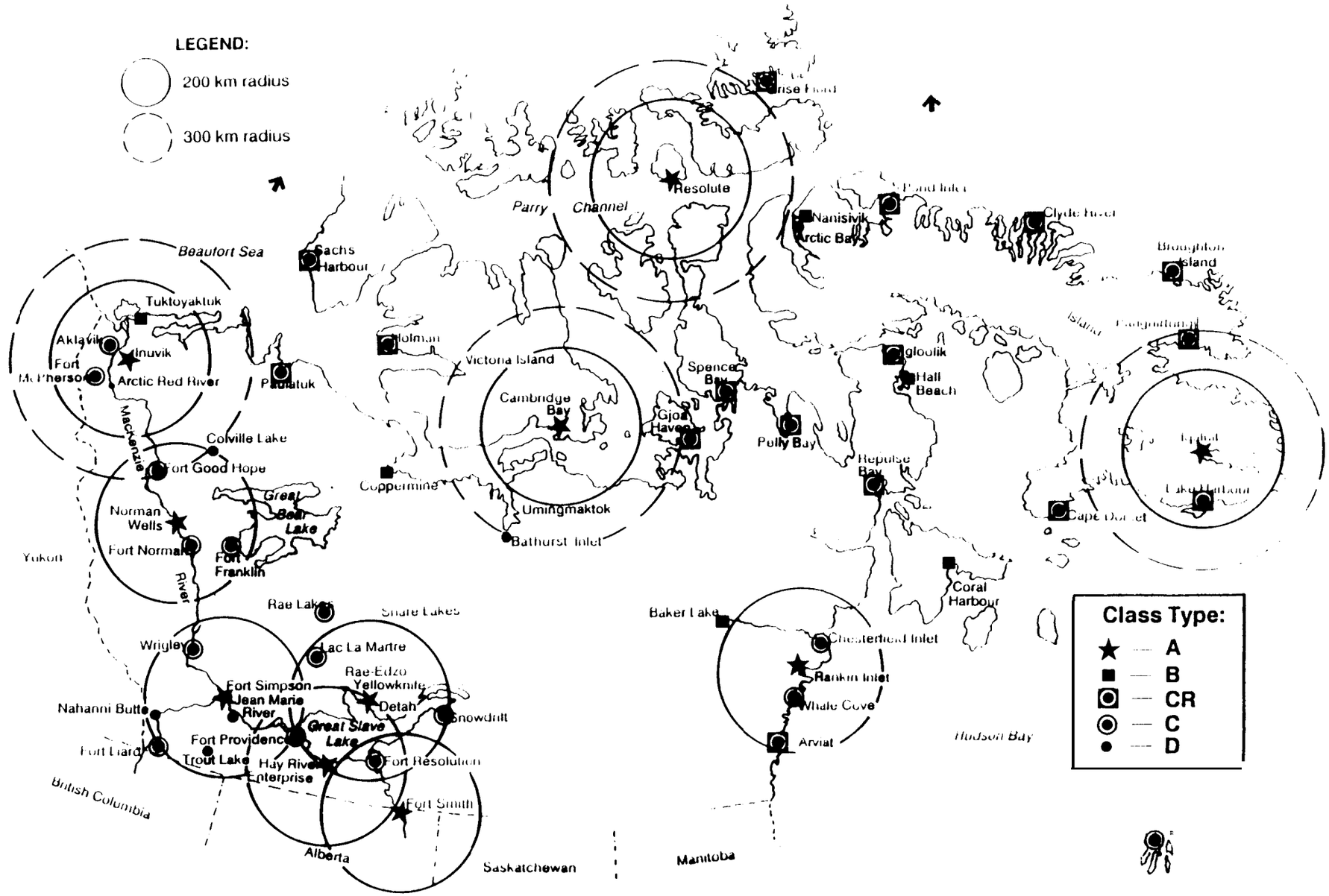


Figure 6

PROPOSED AERODROME CLASSIFICATIONS

A classification of A, B or Misapplied, based on a measure of volume demand for each acitivity. Table 4 gives the criteria for facility classifications under each category. The overall classification for a given community would be the higher of the two ratings. However the two ratings would be used in determining facility requirements in support of each activity.

Table 5 shows the resupply, local and overall marine classifications for each community, based on the criteria given in Table 6.

iii) Roads

All NWT primary highways are classified as Arterial, Collector or Local, for the purpose of planning and design. All those under Territorial Government jurisdiction are classed as rural and are undivided. Design speeds vary from 50 to 100 km/hr. The following range of classifications are applicable:

RAu 100	Rural Arterial Undivided, 100 km/hr
RCU 80 or 90 -	Rural Collector Undivided, 80 or 90 km/hr
RLC 50 to 70 -	Rural Local Undivided, 50 or 70 km/hr.

Table 6 lists the classification and design speed for each NWT all-weather primary highway. The Department of Transport have adopted RTAC standards for highway designs as detailed in Table 7. Based upon these standards, upgrading warrants for geometric improvements were derived and incorporated into a priority rating system. Appendix A3 contains a detailed explanation. This system has been applied by the Department and was adopted by this study.

d) Definition of "deficiency"

In absolute terms a deficiency in the transportation infrastructure indicates,

a missing link
a lack of service
a failure to satisfy a recognized standard

TABLE 4

MARINE FACILITY CLASSIFICATION

ACTIVITY	A	B	C	**NO RATING**
RESUPPLY	>100,000t per year throughout of dry cargo and fuel	2000-10,000t per year throughout	>2,000T resupply throughout	No Marine resupply
LOCAL	Significant Commercial Harvest and population >500	Significant Commercial Harvest with population<500 or Subsistence Harvest with population>500	Subsistence harvest/ tourism with pop. <500	No local marine activity

Note:

- Facility classification for each community shall be determined separately for Resupply and Local Marine activities.
- Overall classification shall be based on the higher of the two
- Throughput are 5 year moving averages

Table 4

Table 5

COMMUNITY MARINE FACILITIES CLASSIFICATIONS

COMMUNITY	POPULATION	ESUPPL	ASSIFICATIO LOCAL	OVERAL
Hay River	?858	A	A	A
Iqualuit	3057	A	A	A
Inuvik	3676	A	B	A
Tuktoyaktuk	945	A	B	A
Rankin Inlet	1401	A	B	A
Norman We//s	590	A	B	A
Nanisivik	292	A	c	A
Pangnirtung	1041	B	A	A
Yellowknife	1203s	A	A	A
Eskimo Point	12W	B	B	B
Cambridge Bay	1062	B	B	B
Baker Lake	1022	B	B	B
Cape Dorset	944	B	B	B
Coppermine	913	B	B	B
Igloolik	998	B	B	B
Pond inlet	946	B	B	B
Aklavik	789	B	B	B
Gjoa Haven	576	B	B	B
Spence Bay	5f2	B	B	B
Arctic Bay	496	B	c	B
Coral Harbour	495	B	c	B
Hall Beach	475	B	c	B
Broughton Island	444	B	c	B
Repulse say	437	B	c	B
Resolute	177	B	c	B
Fort McPherson	7s2	c	B	B
Fort Good Hope	577	C	B	B
Fort Simpson	984		B	B
Fort Providence	581		B	B
Fort Smith	2466		B	B
Rae-Edzo	1414		B	B
Fort Franklin	537		B	B
Fort Resolution	466		B	B
Clyde River	469	c	c	c
Sanikiluaq	449	c	c	c
Fort Norman	3s2	c	c	c
Lake Harbour	332	c	c	c
Holman	318	c	c	c
Snowdrift	281	c	c	c
Chesterfield Inlet	270	c	c	c
Whale cove	225	c	c	c
Paulatuk	209	c	c	c
Sachs Harbour	172	c	c	c
Wrigley	166	c	c	c
Grise Fiord	104	c	c	c
Jean Marie River	64	c	c	c
Say Chimo	62	c	c	c
Bathurst Inlet	16	c	c	c
Fort Liard	398		c	c
Lac La Martre	375		c	c
Pelly Bay	313		c	c
Rae Lakes	t 86		c	c
Hay River Reserve	181		c	c
Detah	131		c	c
Snare Lake	122		c	c
Arctic Rad River	103	c	c	c
Nahanni Butte	88		c	c
Trout Lake	54		c	c
Colville Lake	52		c	c
Kakisa	30		c	c
Reliance	11		c	c
Enterprise	56			

TABLE 6

HIGHWAY CLASSIFICATIONS

CLASSIFICATION & DESIGN SPEED	HIGHWAY SECTION	LENGTH KM
ARTERIAL 100	Mackenzie Hwy No. 1 km 0-187	187.6
	Hay River Hwy. No. 2 km O-43.7	43.7
	Yellowknife Hwy No. 3	338.8
	Hwy. 3 winter detour	12.5
COLLECTOR 90	Mackenzie Hwy No. 1 km 187-693	505.4
	Fort Smith Hwy. No. 5	266.0
	Fort Resolution Hwy No. 6	90.0
	Liard Hwy No. 7	254.1
	Dempster Hwy No. 8	267.1
COLLECTOR 80	Ingraham Trail, Hwy No. 4	69.2
	Kakisa Lake Access	12.9
	Ft. Simpson Access	3.4
	Ft. Providence Access	5.5
	Rae Access	10.5
	Detah Road	11.3
	Hay R. Indian Village Access	14.2
	Ft. Liard Access	5.3
LOCAL 70	Hay River Highway km 43.7 -48.6	4.9
	Yellowknife Access	1.7
	Pine Point West Access	1.5
	Pine Point East Access	1.0
	Pine Point Airport Road	2.4
	Ft. McPherson Access	1.1
	Inuvik Access	0.6
	Inuvik Marine Bypass	3.9
LOCAL 50	Pineview Access	0.6
	Four Mile House Access	2.5
	Patterson's Sawmill Road	1.0
	Paradise Gardens Access	2.0
	Market Gardens Access	0.8
	Delancey Estates Loop	1.3
	Hay River Service Rd	3.0
	Vee Lake Road	5.1
	Cassidy Point Road	4.1
	Prelude Lake West Access	1.2
	Prelude Lake East Access	2.4
	L. Buffalo R. Falls Access	1.0
	Salt River Access	15.5
	Ft. Smith Campground Access	3.2

CLASSIFICATION & DESIGN SPEED	HIGHWAY SECTION	LENGTH KM
LOCAL 50 (1 lane)	Hart Lake Access	1.3
	Polar Lake Access	3.2
	Sandy Lake Access	12.9
	L. Buffalo Fish Camp Road	0.7
	Nagel Channel Road	7.2
	Nanisivik - Arctic Bay Road	31.2
	Nanisivik Dock Road	5.2
	Nanisivik Airport Road	1.5
	TOTAL LENGTH - km	2222.4

Table 6 2 of 2

TABLE 7

NORTHWEST TERRITORIES HIGHWAYS - GEOMETRIC DESIGN STANDARDS

Design Year Traffic PSADT	PSADTT	Design Speed Km/h	Useable Width m	Minimum Pavement Width m	Min Curve Radius m	Stopping Sight Distance m	Min Sag k	Min Crest k	Max Gradie %
		100	10	8'	390	200	50	70	6
200-1000		90	9	7.5	300	170	40	55	6
or		80	8.5	7.5	230	140	30	35	8
100-200	>15	70	8	7	170	110	25	22	8
		90	8.5	7.5	300	170	40	55	6
100-200	<15	80	8	7.5	230	140	30	35	8
		70	7.5	7	170	110	25	22	8
		50	7	6.5	80	65	11	7	10
		90	8	na	300	170	40	55	6
<100		80	7.5	na	230	140	30	35	8
		70	7	na	170	110	25	22	8
		50	6.5	na	80	65	11	7	10
<30		50 (1 lane)	4	na	80	130	11	18	10

Notes:

Traffic: PSADT = peak season (3 consecutive months) average daily traffic
PSADTT = peak season average daily truck traffic
For PSADT >1000 refer to R.T.A.C. standards

Width For sideslopes steeper than41 add 0.5m rounding to each shoulder.
Allow 0.5m additional shoulder width if guardrail required.
Design width to allow for projected strengthening/resurfacing within design life.

Table 7

The existing infrastructure, with few minor exceptions, provides more than adequate capacity to meet current anticipated demands and is not obviously deficient.

Currently minimum (design) standards are adopted primarly because these are sufficient for current transportation demand. However, where justified either by demand and/or economics upgrading to a higher standard is provided e.g. paving of gravel roads or runways. The determination of appropriate standards requires professional judgement and must take account of the particular circumstances encountered in the NWT.

In comparative terms a deficiency is subjective and depends upon the datum selected. The community interviews discussed many deficiencies in this category. For example references were often made to the desirability of "competition" between airlines serving a community, implying that lower fares and/or improve service would be forthcoming with larger or more jet aircraft. However additional capacity, significantly in excess of that which existing demand can support, would likely result in operations which cannot be economic in the longer term. Ultimately this "competition" may not be to the benefit of the community. In a similar approach improved convenience (sometimes irrespective of cost) was used to identify a (perceived) deficiency.

The identification of possible projects attempted to identify shortages or failure to meet a standard; safety was a major consideration, as was impediments to economic development. The study attempted to avoid subjective assessments of deficiency.

4. Air Inventory and Deficiencies

a) Inventory

Table 8 summarizes the inventory of existing facilities.

b) Deficiencies

i) Tabulation

Table 9 contains the Deficiency Charts - Air Mode providing a listing of the deficiencies and identifies the project number for improvements to be investigated.

NORTHWEST TERRITORIES AERODROMES INVEN' ORY

Community	1988	Location		Operator				License		Terminal	Navaid Runway					Fuel	Main Runway Length	Width	Runway	Surface	Cross Runway Length	Width	Surface	Aerodrome Facilities Available	Licensed	Number of Aircraft Movements	Passengers	Cargo (Tonnes)	Net Revenue ($ 000)	Comments on Current Aerodrome Deficiencies – Required 1995.
Aklavik	[illegible]	[illegible]	[illegible]			X		Public-Cert	Limited	X	ARCAL	no	yes	yes	[illegible]	-	[illegible]													
Arctic Bay	617		D			X		No	-						No	-	460m	18m	-	Gravel	-	-	-	No	No		341			-
Arctic Red River	108		-	-	-	-	-	-	-						-	-	-	-	-	-	-	-	-	Yes	No					-
Arviat	1255	CYEK	C		X			Public-Cert	Mon-Fri,exc.hol	X	ARCAL	no	yes	yes	No	Arctic Diesel	1219m	30m	149T/329T	Gravel	-	-	-	Yes	No	1452	6,001		[186]	Runway-rehab needed
Baker Lake	1066	CYBK	B	X				Public-Cert	-	X	VASIS	yes	no	yes	No	100/130, Jet B	1280m	45m	161T/341T	Gravel	-	-	-	Yes	No	3113	7,490			Runway-dimension,surface,taxi/apron-regrading.
Bathurst Inlet	16		D				X	Private	-						No	-	610m	23m	-	Gravel/Sand	-	-	-	Yes	Yes					-
Broughton Island	489	CYVM	C		X			Unlicensed	-	X	ARCAL	no	yes	yes	No	-	1059m	30m	033T/213T	Gravel	-	-	-	No	No	1066	3,702			Runway-rehab,lighting-replace,ATB expansion needed
[illegible]																								Yes	No	[illegible]	[illegible]	501		Runway-surface-overlay needed
Chesterfield Inlet	312	CYCS	C		X			Public-Cert	Mon-Fri,exc.hol	X	ARCAL	no	yes	yes	No	Arctic Diesel	914m	30m	124T/304T	Gravel	-	-	-	Yes	No	[illegible]	[illegible]		[illegible]	-
Clyde River	507	CYCY	C		X			Public-License	-	X	ARCAL	no	yes	yes	No	Jet A-1	1067m	30m	024/204	Gravel	-	-	-	Yes	No	1080	2,822			Runway-regravel,ATB-rehab/maint needed
Colville Lake	70	EB3	D		X			Unlicensed	-		no	no	no	no	No	-	823m	49m	096/276	Gravel	-	-	-	Yes	No		102			Runway-surface-overlay needed
Coppermine	888	CYCO	B		X			Public-Cert	-	X	VASIS	yes	no	yes	No	100/130, F40	1524m	30m	121/301	Gravel	-	-	-	Yes	No	1946	6,273			Runway/Apron/Navaids need upgrading: runway strengthening needed
Coral Harbour	581	CYZS	B	X				Public-Cert	Mon-Sat	X	VASIS	yes	no	yes	No	Arctic Diesel	1524m	30m	155T/335T	Gravel	-	-	-	Yes	No	720	3,096		(949)	Fuel-Jet B needed
Fort Franklin	532	CYWJ	C			X		Public-Cert	-	X	LO	no	no	yes	No	-	762m	24m	060/240	Gravel	-	-	-	Yes	Yes		2,718			Community conflicts – relocation
Fort Good Hope	562	CYGH	C		X			Unlicensed	-	X	LO	RCO	yes	yes	No	-	914m	30m	032/212	Gravel	-	-	-	No	No	164	3,259			Upgrading required
Fort Liard	395	CYJF	C		X			Public-Cert	-	X	ARCAL	no	yes	yes	No	-	914m	30m	019/199	Gravel	-	-	-	Yes	No	1185				-
Fort McPherson	760	CZFM	C			X		Public-Cert	Limited	X	ARCAL	no	yes	yes	No	-	1067m	30m	107/287	Gravel	-	-	-	Yes	No	1662	4,444			-
Fort Norman	332	CZFN	C			X		Public-Cert	-	X	ARCAL	no	yes	yes	No	-	914m	23m	050/230	Gravel	-	-	-	Yes	No	1767	1,561			-
Fort Providence	700	CYJP	C		X			Public-Cert	-		no	no	no	yes	No	-	914m	30m	123/303	Gravel	-	-	-	Yes	Yes		174			-
Fort Resolution	475	CYFR	C		X			Public-Cert	-	X	ARCAL	no	yes	yes	No	-	1265m	30m	115/295	Gravel	-	-	-	Yes	No	734	1,515			-
Fort Simpson	1050	CYFS	A	X				Public-Cert	-	X	VASIS	yes	no	yes	No	100/130, Jet B	1829m	46m	125/305	Asphalt	1524m	46m	Sand/Turf	Yes	Yes	4905	8,186			-
		ET4	D				X	Private-Cert	PPR		no	no	no	no	No		914m	30m	122/302	Gravel	-	-	-	Yes	Yes					-
Fort Smith	2506	CYSM	A	X				Public-Cert	-		VASIS	yes	no	yes	No	100/130, Jet B	1829m	60m	108/288	Asphalt	610m	60m	Asphalt/Gravel	Yes	Yes	6073	19,650	172		-
Gjoa Haven	760	CYHK	C		X			Public-Cert	-	X	VASIS	no	yes	yes	No	-	1341m	30m	130T/310T	Gravel	-	-	-	Yes	No	1152	4,139		[186]	-
Grise Fiord	128	CYGZ	C		X			Registered	-		ARCAL	no	yes	yes	No	-	610m	23m	138T/318T	Gravel	-	-	-	No	No	161	670		[106]	Runway-rehab,taxi/apron-development,ATB-new needed
Hall Beach	484	CYUX	B	X				Public-Cert	-	X	VASIS	RCO	no	yes	No	100/130, F40	1646m	45m	124T/304T	Gravel	-	-	-	No	No	830	7,395	333	(504)	-
Hay River	2964	CYHY	A	X				Public-Cert	-	X	HI	yes	no	yes	Yes	100/130, Jet-B	1849m	46m	127/307	Asphalt	1219m	46m	Gravel/Asphalt	Yes	Yes	8549	26,070	224		-
Holman	303	CYHI	C		X			Public-Cert	Limited	X	ARCAL	no	yes	yes	No	Jet A-1, 100/130	1311m	30m	062/242	Gravel	-	-	-	Yes	No	498	2,232			Runway-rehab,Apron-expand,Navaids needed
Igloolik	919	CYGT	C		X			Public-Cert	-	X	ARCAL	no	yes	yes	No	F40	1158m	30m	149T/329T	Gravel	-	-	-	No	No	681	6,244		[151]	Runway-rehab,ATB-replace/expand,Navaids-NDB,DME needed
Jean Marie River	[illegible]	[illegible]	D				X	Unlicensed	PPR		no	no	no	no	No	-	457m	27m	-	[illegible]	-	-	-	[illegible]	[illegible]					
Lac La Martre Harbour	345	EM3	C		X			Unlicensed	-		no	no	no	yes	No	-	671m	18m	-	Clay/Sand	-	-	-	Yes	No		2,099			Major upgrading of runway/terminal/taxi/apron required
Nanisivik	315	CYSR	B	X				Public-Cert	-	X	ARCAL	no	yes	yes	No	F40	1951m	45m	[illegible]	Gravel	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Norman Wells	627	CYVQ	A	X				Public-Cert	-	X	VASIS	yes	no	yes	No	100/130, F40, Jet B	1829m	46m	083/263	Asphalt	-	-	-	Yes	Yes	16095	27,402	1,092		Taxi/Apron-expand,ATB enlarge (planned by T.C.)
Pangnirtung	1088	CYXP	C		X			Public-License	-	X	ARCAL	no	yes	yes	No	-	883m	30m	065/245	Gravel	-	-	-	Yes	No	1284	8,428			Taxi/apron-expand,ATB-expand/replace
Paulatuk	193	CYPC	C			X		Unlicensed	Limited		LO	no	yes	yes	No	-	975m	30m	128/308	Sand	-	-	-	Yes	No	499	1,477			Relocation needed
Pelly Bay	317	CYBB	C		X			Unlicensed	-		ARCAL	no	yes	yes	No	-	1473m	40m	051/231	Gravel/Clay	-	-	-	No	No	1035	2,055		[242]	Major upgrading of runway/terminal required.
Pond Inlet	863	CYIO	C		X			Public-License	-	X	LO	no	yes	yes	No	JA-1	1219m	30m	023/203	Gravel	-	-	-	No	No	1345	5,964			ATB-rehab needed
Rae Edzo	1378	-	-	-	-	-	-	Public(Winter)	-						No	-	-	-	-	-	-	-	-	No	No					-
Rae Lakes	240	EV4	C				X	Unlicensed	-		no	no	no	yes	No	-	853m	30m	-	Sand	-	-	-	No	No		967			Relocation needed
Rankin Inlet	1444	CYRT	B		X			Public-Cert	Mon-Fri,O/T-PNR	X	VASIS	yes	no	yes	No	100/130,F40,Arctic Diesel	1524m	46m	128T/308T	Gravel	-	-	-	No	No	7902	25,047		(461)	DND extending/paving runway
Repulse Bay	456	CYUT	C		X			Public-Cert	Mon-Fri,exc.hol		ARCAL	no	yes	yes	No	Arctic Diesel	1036m	30m	163T/343T	Gravel	-	-	-	No	No	197	2,934		[195]	Runway-rehab needed
Resolute	194	CYRB	A	X				Public-Cert	-	X	HI	yes	no	yes	Yes	100/130, F40	1981m	60m	167/347	Gravel	1219m	46m	Gravel	No	No	4549	10,781	1,374		ATB-repalce/expand.
Sachs Harbour	158	CYSY	C			X		Public-Cert	Limited	X	ARCAL	no	yes	yes	No	Jet B	1219m	30m	084/264	Gravel	-	-	-	No	No	456	1,960			-
Sanikiluaq	458	CYSK	C		X			Public-License	-	X	ARCAL	no	yes	yes	No	-	1158m	30m	-	Gravel	-	-	-	No	No	979	1,859			Runway-rehab needed
Snare Lake	119	-	-					-	-						-	-	-	-	-	-	-	-	-	Yes	No					-
Snowdrift	273	EL3	C			X		Unlicensed	-		no	no	no	yes	No	-	683m	24m	072/252	Gravel	-	-	-	Yes	No		2,897			Relocation needed
Spence Bay	488	CYYH	C		X			Public-Cert	-	X	ARCAL	no	yes	yes	No	100, F40	1039m	30m	151T/331T	Gravel	-	-	-	No	No	669	3,673		[211]	Runway-surface-overlay required
Trout Lake	54	EU9	D				X	Unlicensed	PPR		no	no	no	yes	No	-	762m	18m	132/312	Gravel	-	-	-	Yes	No					-
Tuktoyaktuk	929	CYUB	B	X				Public-Cert	-	X	ARCAL	yes	no	yes	No	-	1524m	46m	087/267	Gravel	-	-	-	Yes	Yes	10737	14,163			Community conflicts
Umingmaktok	61	-	-					-	-						-	-	-	-	-	-	-	-	-	Yes	No					-
Whale Cove	222	CYXN	C		X			Public-Cert	Mon-Fri,exc.hol	X	VASIS	no	yes	yes	No	Arctic Diesel	1200m	30m	150T/330T	Gravel	-	-	-	Yes	No	980	1,477		[243]	-
Wrigley	161	CYWY	C		X			Public-Cert	-	X	ARCAL	RCO	yes	yes	No	-	1067m	30m	101/281	Gravel	-	-	-	Yes	No	1476				-
Yellowknife	11753	CYZF	A	X				Public-Cert	-	X	VASIS	yes	no	yes	Yes	100, F40, Jet B	2286m	46m	147/327	Asphalt	1524m	46m	Asphalt	Yes	Yes	42252	192,044	2,412		-

[ ] G & C Subsidized
N/A Not Available

07-Feb-90

The Proctor &

Table 8

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: AIR REGION: EAST

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT
Broughton Island	Runway-surface & lighting	rehabilitation & replace lights	AE 1
	ATB too small	expansion of building	AE 1
	CARS- hours of operation too short	lengthen hours from 40 to 60 hrs/wk.	AE 1
	graded area too narrow	widening	AE 1
Cape Dorset	Runway-poor surface	rehabilitation(1992)	AE 2
	ATB-poor shape,needs repairs	rehabilatation	AE 2
	aircraft must approach over community	-	
Clyde River	Runway too short	lengthen from 914m to 1066m	AE 3
	Runway surface poor	gravel needs rehabilitation(1990)	AE 3
Hall Beach	no current requirements		AE 5
Igloolik	Runway surface poor	rehabilation of gravel	AE 6
	ATB in poor condition	replace/expand	AE 6
	Navaids-location of NDB	relocate	AE 6
	-DME required	install DME	AE 6
	CARS-hours of operation too short	lengthen hours from 40 to 60 hrs/wk.	AE 6
Lake Harbour	Runway-poor surface	rehabilation of gravel	AE 7
	aerodrome is uncertified/community conflicts		
Nanisivik	(ATB too small)	(no current change scheduled)	AE 8
	Navaids-no DME	install DME	AE 8
	-ILS/MLS	needs to be checked	AE 8
	CARS-hours of operation too short	lengthen hours from 54 to 60 hrs/wk	AE 8
Pangnirtung	Taxi/apron-too small	expand area	AE 9
	ATB too small	expand/replace	AE 9
	CARS-hours of operation too short	lenghten hours from 40 to 60hrs/wk	AE 9
	weight restrictions/community conflicts		
Pond Inlet	ATB-poor condition	rehabilitation	AE 10
Sanikiluaq	Runway-surface poor	rehabilitation of gravel	AE 11

Table 9a

NORTHWEST TERRITORIES

DEFICIENCY CHARTS

MODE: AIR REG1ON: **KEEWATIN**

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Arviat	Runway-poor surface	rehabilitation of gravel	AK 1
	CARS-hours of operation too short	lengthen hours from 40 to 60 hrs/wk	AK 1
Baker Lake	critical aircraft needs upgrading	change from HS 748 to B737	AK 2
	runway-too short & narrow	dimensions changed to 1528mx45m	AK2
	taxi/apron- poor condition	regrading of area	AK 2
Chesterfield Inlet	Runway- too short	lengthen to 1066m	AK 3
	runway-poor surface	rehabilitation of gravel(1990)	AK3
Coral Harbour	no fuel on site	Jet B fuel storage	AK 4
Rankin Inlet	Runway too short	lengthen to 1830m	AK 5
	runway- poor surface	pave(1993)	AK 5
	runway-lights need upgrading	replace medium intensity with high intensity.	AK 5
	taxi/apron too small	expand/pave	AK 5
	ATB too small	expand	AK 5
	FSS-poor condition	replace (1994)	AK 5
	fuel supply	needs upgrading	AK 5
	equipment storage inadequate	pavement-expand garage,sand storage (1994)	AK 5
Repulse Bay	Runway-poor surface	rehabilitation of gravel	AK 6
	CARS- hours of operation too short	lengthen hours from 40 to 70hrs/wk	AK 6
	community conflicts		
Whale Cove	Navaids-NDB/poor location	relocate NDB	AK 7
	-no DME	install DME	AK 7
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AK 7
	access road (7km) poor condition	reconstruct	AK 7

Table 9b

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: AIR REGION: CENTRAL

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Coppermine	Runway-poor/weak surface/bearing	reconstruct &strengthen	AC 1
	runway-lighting is poor	upgrade from low intensity to medium	AC 1
	taxi/apron too small	expand/widen	AC 1
	(ATB too small)	(no current change scheduled)	AC 1
	Navaids-NDB poor location	relocate NDB	AC 1
	-no DME	install DME	AC 1
Gjoa Haven	Navaids-no DME	install DME	AC 2
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AC 2
	no fuel available on site	fuel storage	AC 2
Holman	Runway- poor surface	rehabilitation of gravel	AC 3
	taxi/apron too small	expand apron	AC 3
	Navaids-no DME	install DME	AC 3
Pelly Bay	Runway too short/wide	change dimensions to 1524mx30m	AC 4
	runway-poor surface	upgrade surface to gravel	AC 4
	runway -fighting poor	replace low intensity lights	AC 4
	taxi/apron-inadequate	relocate/enlarge	AC 4
	(ATB-non existant)	(no current change scheduled)	AC 4
	Navaids-no DME	install DME	AC 4
	CARS-hours of operation too short	lenghten hours from 40 to 60hrs/wk	AC 4
	some conflicts with community re.apron		
Resolute Bay	ATB-poor condition	replace/expand	AC 5
Spence Bay	Runway-poor surface	overlay gravel	AC 6
	Navaids-no DME	install DME	AC 6
	CARS-hours of operation too short	lenghten hours from 40 to 60hrs/wk	AC 6
Grise Fiord	Runway-poor surface	rehabilitation of gravel	AC 7
	taxi/apron too small	develop area	AC 7
	ATB-not existant	build a small 1200sqft ATB	AC 7
	(no fuel available on site)	(consider adding fuel storage)	AC 7
	approach lighting in community not certified		
Cambridge Bay	Runway-poor surface	overlay gravel	AC 8
	DND hanger does not zone-may have other zoning problems		

Table 9c

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: AI[redacted] REGION: WEST

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Aklavik	Navaids-no DME	install DME	AW 1
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AW 1
Colville Lake	Runway-poor surface	improve/overlay gravel	AW 2
Fort Franklin	Runway-poor surface	rehabilitation of gravel	AW 3
	runway lighting poor/not permanent	permanent low intensity lighting	AW 3
	taxi/apron-inadequate	relocate	AW 3
	ATB inadequate	relocate	AW 3
	Navaids-NDB is slow	relocate	AW 3
	-Unicom	to be abandoned	AW 3
	CARS-non existant	to be installed	AW 3
	community conflicts		
Fort Good Hope	Critical aircraft needs upgrading	change from Twin Otter to Cheyenne III	AW 4
	runway too short/bad location	relocate/change dimensions to 1067x30m	AW4
	runway-lighting not permanent	permanent low intensity lighting	AW 4
	taxi/apron-non existant	construct	AW 4
	ATB-inadequate log shelter	construct permanent ATB	AW 4
	Navaids-NDB,DME,VOR	relocate all 3	AW 4
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AW 4
	wind circulation adjust(?)		
Fort McPherson	Navaids-no DME	install DME	AW 5
Fort Norman	Navaids-no DME	install DME	AW 6
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AW 6
Fort Simpson	road to community (no current requirements)		AW 7
Jean Marie River	no current requirements		AW 8

MODE: AIR REGION: WEST

Lac LaMartre	Critical aircraft needs upgrading	change from Twin Otter to Cheyenne III	AW 9
	runway-bad location,too short/narrow	relocate/change dimensions tol 067x30m(1994)	AW 9
	runway-poor surface	change to gravel	AW 9
	runway-lighting is poor	permanent low intensity lighting	AW 9
	taxi/apron-poor	improvements	AW 9
	(ATB-non existant)	(no current changes scheduled)	AW 9
	Navaids-no DME	install DME	AW 9
	CARS-non existant	install wit h hrs.of operation of 40hrs/wk	AW 9
Nahanni Butte	flight approach (no current requirements)		AW1O
Paulatuk	Critical aircraft needs upgrading	change from Twin Otter to Cheyenne III	AW1I
	runway-bad location, X-winds, too short	relocate/lengthen to 1067m	AW1I
	runway-poor surface	upgrade surface to gravel	AW 11
	runway-poor lighting	permanent low intensity lighting	AW1I
	taxi/apron-nonexistant	construct	AW 11
	(ATB-non existant)	(no current change scheduled)	AW 11
	Navaids-NDB poor location	relocate NDB	AW 11
	-no DME	install DME	AW 11
	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AW1I
	no fuei available on site	fuel storage	AW1I
	access road needed		
Rae Edzo	Critical aircraft needs upgrading	change to Cessna 206	AW 12
	no airstrip on site	construct 457x1 6m gravel runway	AW12
Rae Lakes	Critical aircraft needs upgrading	change from Twin otter to Cheyenne III	AW 13
	runway-bad location,too short	relocate/lengthen to 1067m	AW13
	runway-poor surface	upgrade to gravel	AW13
	runway -fighting nonexistent	low intensity lighting	AW13
	taxi/apron-non existant	to be constructed	AW13
	(ATB-non existant)	(no current change scheduled)	AW13
	Navaids-no DME	install DME	AW13
	CARS-non existant	install with hrs of operation of 40hrs/wk	AW13
Sachs Harbour	CARS-hours of operation too short	lengthen hours from 40 to 60hrs/wk	AW 14

Table 9d 2 of 3

MODE: AIR REGION: WEST

Snare Lakes	no airstrip on site	build 762x23m gravel runway	AW 15
	no runway lighting	low intensity lighting	AW 15
	taxi/apron-non existant	to be constructed	AW 15
	Navaids-no DME	install DME	AW 15
	Critical aircraft	to be Twin Otter	AW 15
Snowdrift	Runway-poor condition,too short/narrow	replace/change dimensions to 1067mx30m	AW 16
	runway-poor surface	regravel surface	AW 16
	no runway lights	low intensity lighting	AW 16
	taxi/apron-non existant	to be constructed	AW 16
	approach conflicts		
Trout Lake	no current requirements		AW 17
Tuktoyaktuk	ATB-inadequate	temp.expansion(new ATB in2010)	AW 18
	taxi/apron-inadequate	temp. expansion	AW 18
	community conflicts		
Wrigley	no current requirements		AW 19
Arctic Red River	no runway	457x16m gravel runway	AW 20
	critical aircraft to be Cessna 206		
Inuvik	no current requirements		AW 21
Norman Wells	Taxi/apron-inadequate	expand (1990)	AW 22
	ATB-inadequate	new building(1994)	AW 22
Fort Providence	no current requirements		AW 23

ii) Discussion

Class A Airports. These airports are operated by Transport Canada and are satisfactory with the notable exception of Norman Wells which requires an expanded ATB and apron improvements. Transport Canada are committing to rectify these problems by 1995.

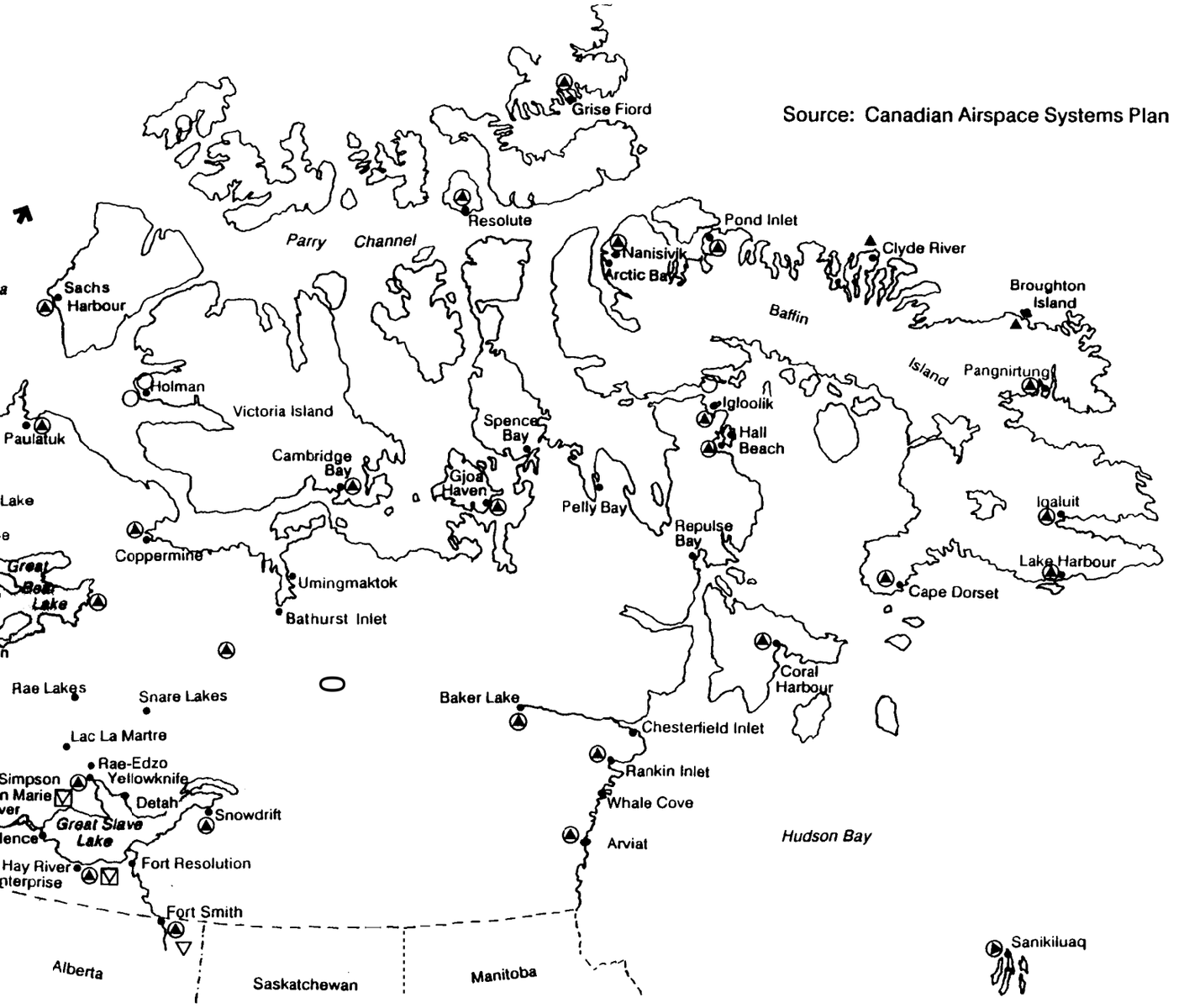
Class B Airports. Upgrading by DND is currently underway at Rankin Inlet and other improvements for civil aviation are being included. The result will be that Rankin Inlet will be almost to Class A standards. Coppermine requires the runway bearing capacity to be increased and at Tuktoyaktuk there are community conflicts while at Nanisivik the weather conditions often restrict operations.

With Class C and D there are numerous issues the most common of which related to a) condition of runway (often due to lack of adequate maintenance) b) condition and size of ATB (many are beyond their service life, others lack maintenance and a number require expansion). Airport runway lengthening and/or relocation is required to remove restrictions and improve operations at a number of airports. At most airports improved maintenance procedures are required. Improved landing aids are require at any airports in Class C and D including a) upgraded runway lighting, b) new or relocated NDB and c) in some cases DME

C.A.R.S. is constantly noted as requiring extended operational hours and the air carriers, particularly those on emergency flights, required procedures to be establish for airport service outside normal hours. It is suggested that the community initiating the call out should be responsible for advising the local airport and staff to ensure all services are available.

Additional en route aids are also required including coverage between Yellowknife and Norman Wells where there is an existing gap (T.C. proposals include coverage in this area) Transport Canada published improvements in the "Canadian Airspace System Plan" whit are illustrated in Figures 7, 8 and 9 and summarize the major feature dealing with, NDB

Table 10 tabulates T.C.



ENROUTE NDB SYSTEM

▲ 1988 -

○ 1990 - 2000

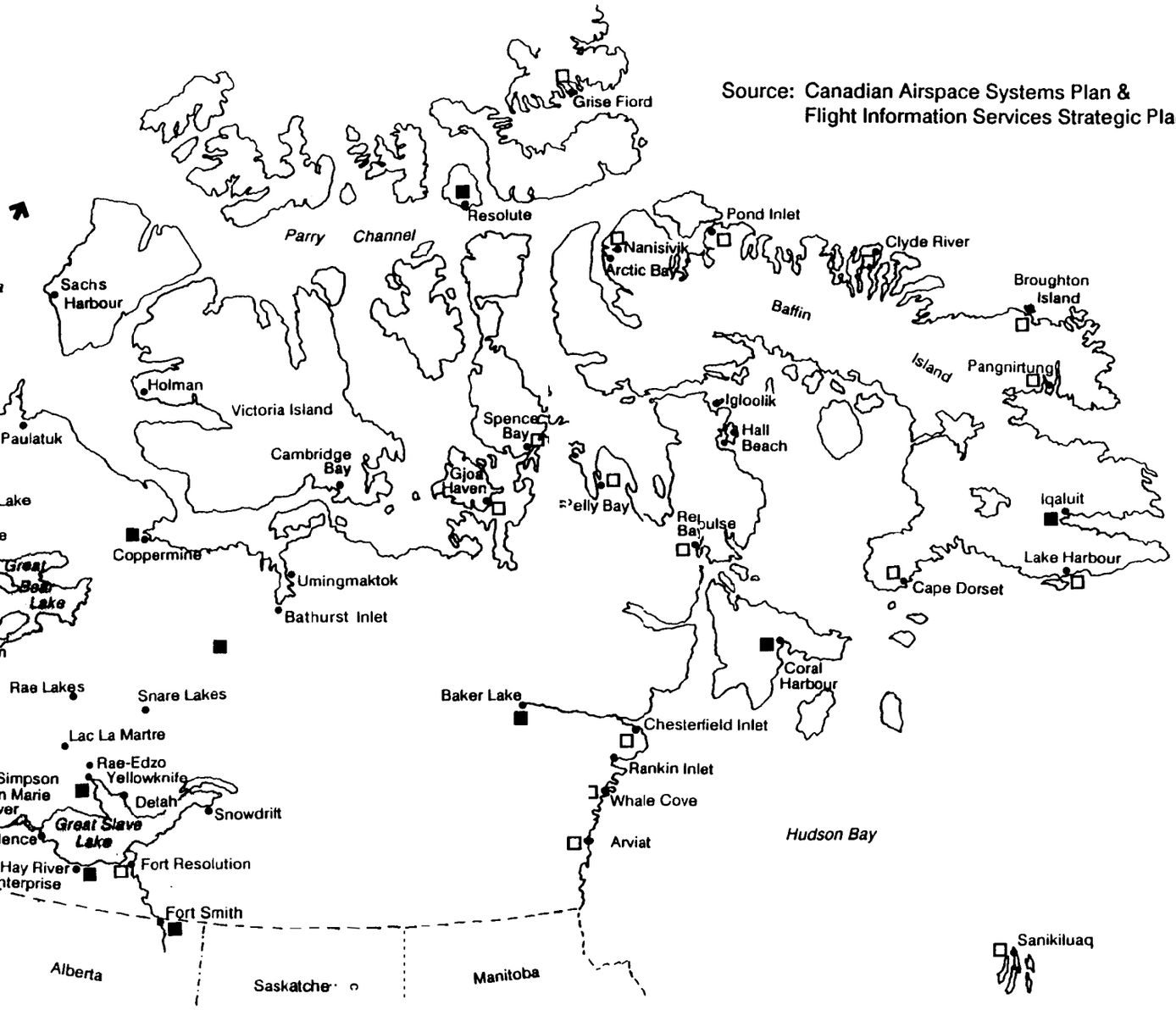
COMMUNICATIONS SYSTEM (ATC)

□ 1988 - (PAL)

▽ 1990 - 2000 (TERMINAL ENROUTE) (PAL)

NAVAIDS

Source: Canadian Airspace Systems Plan &
Flight Information Services Strategic Plan



MUNICATION
EMS

1988-2000 COMMUNICATIONS SYSTEM

- ■ **Flight Service Station**
- □ **C.A.R.S.**
- △ **R.C.O.(Remote Communications Outlet)**

1988 FUTURE UPDATE

Hall Beach - From RCO to RFSS
Coral Harbour - FSS down to CARS
Coppermine - FSS down to CARS and RCO

APPROACH A DS

Figure 9

NORTHWEST TERRITORIES

TRANSPORT CANADA IMPROVEMENTS

	TRANSPORT CANADA COMMITTED – IMPROVEMENT PROGRAMS (INSTALLATION DATE)																
COMMUNITY	ATC TOWER	F.S.S	MACS	MLS	VOR/DME	NDB	VHF/DF	HF Commun/ Replacement	MIDS	AWOS	TRANSMISS –RETROFIT	FSS/TWR R/R	WADDS #Displays	CATTS	AGG SPECIAL SYSTEMS	APRON AREA	RUNWAY & APPROACH LIGHTS
Aklavik	–	–	–	–	–	–	–	–	–	AWOS I–91/92	–	–	–	–	–	–	–
Arctic Bay	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Arctic Red River	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Arviat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Baker Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bathurst Inlet	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Broughton Island	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Rebuilding	–
Cambridge Bay	–	Renovate–92/93	FSS/NR–91/92	–	Replace RYC–95/96	–	–	2 RX–89/90	90/91	–	–	–	–	–	–	–	–
Cape Dorset	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Gravelling	–
Chesterfield Inlet	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Clyde River	–	–	–	–	–	New–90/91	–	–	–	–	–	–	–	–	–	Rebuild–92/94	Replace–89/90
Colville Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Coppermine	–	–	FSS/NR–Future	–	New DME–Future	Replace–96/97	–	2 RX–89/90	91/92	AWOSI (&AWOS3)–95/96	–	–	–	–	–	–	–
Coral Harbour	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fort Franklin	–	–	–	–	–	Relocate–Future	–	–	–	–	–	–	–	–	–	–	–
Fort Good Hope	–	–	–	–	Replace RYC–95/96	Relocate–Future	–	–	–	AWOS I–91/92	–	–	–	–	–	–	–
Fort Laird	–	–	–	–	–	–	–	–	–	AWOS I–92/93	–	–	–	–	–	–	–
Fort McPherson	–	–	–	–	–	–	–	–	–	AWOS I–92/93	–	–	–	–	–	–	–
Fort Norman	–	–	–	–	–	–	–	–	–	AWOS I–91/92	–	–	–	–	–	–	–
Fort Providence	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Fort Resolution	–	–	–	–	–	–	–	–	–	AWOS I–92/93	–	–	–	–	–	–	–
Fort Simpson	–	Renovate–94/95	FSS/SP–92/93	–	–	–	–	1RX–89/90	90/91	–	–	FSS–90/91	2–91/92	–	–	–	–
Fort Smith	–	New Cab–95/96	FSS/NR–92/93	–	–	–	–	1 RX–89/90	90/91	–	–	–	–	–	–	–	–
Gjoa Haven	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grise Fiord	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hall Beach	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hay River	–	New Cab–95/96	FSS/NR–91/92	–	Replace RYC–96/97	–	–	1 RX–89/90	90/91	–	–	–	–	–	–	–	–
Holman	–	–	–	–	–	Replace–83/94	–	–	–	AWOSI (&AWOS3)–97/98	–	–	–	–	–	–	–
Igloolik	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inuvik	–	–	FSS/SP–92/93	Replace BCRS–93/94 Replace ILS–96/97	DVOR Replace RYC 95/96	–	FSS–Replace 93/94	2 RX–89/90	–	–	–	–	–	–	–	– –	– –
Iqaluit	–	–	–	–	DME–91/92	–	–	–	–	–	–	–	–	–	Radar–ANS project	–	Paving 92/94
Jean Marie River	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lac LaMartre	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Lake Harbour	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Stand.&Threshold35(RILS)–92/94
Nahanni Butte	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nanisivik	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Norman Wells	–	ATB Project–93/94	FSS/SP–93/94	New AZ/DME–92/93	Replace RYC–97/98	–	–	1 RX–89/90	90/91	–	–	FSS–90/91	2–91/92	–	–	–	–
Pangnirtung	–	–	–	–	–	Standardize–NDB	–	–	–	–	–	–	–	–	–	–	–
Paulatuk	–	–	–	–	–	Relocate–Future	–	–	–	AWOSI (&AWOS3)–97/98	–	–	–	–	–	–	–
Pelly Bay	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pond Inlet	–	–	–	–	–	Replace–91/92	–	–	–	–	–	–	–	–	–	–	Repl.Its–91/92
Rae–Edzo	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Rae Lakes	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Rankin Inlet	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Repulse Bay	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Resolute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sachs Harbour	–	–	–	–	–	Replace–95/96	–	–	–	AWOSI (&AWOS3)–97/98	–	–	–	–	–	–	–
Sanikiluaq	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Rebuild.Runway–90/91
Snare Lakes	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Snowdrift	–	–	–	–	–	New–Future	–	–	–	–	–	–	–	–	–	–	–
Spence Bay	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trout Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tuktoyaktuk	–	Upgrade FSS–94/95	FSS/SP–93/94	New–91/92	New–95/96	–	–	–	91/92	–	–	–	–	–	–	–	–
Umingmaktok	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Whale Cove	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wrigley	–	–	–	–	–	–	–	–	–	AWOS I–92/93	–	–	–	–	–	–	–
Yellowknife	Renovate–90/91 – –	Relocate (ATB)–90/91 – –	TWR/FSS–Futur (SP/SP–90/91) –	Replace ILS–92/93 Replace BCRS–98/99 –	Replace RYC–98/99 – –	– – –	TWR/FSS Replace–93/94 –	2 RX–89/90 – –	90/91 – –	– – –	R–33/TTR–93/94 – –	– – –	4–90/91 – –	94/95 – –	PA–ATB Rehab–89/90 X–Ray ATB Rehab–89/90 CCTV Tower–90/91	– – –	– – –

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Table 10

5. Marine Inventory and Deficiencies

a) Inventory

Table 11 provides an inventory of the existing marine facilities.

b) Deficiencies

i) Tabulation

Table 12 is the Deficiency Chart - Marine Mode and lists the deficiencies and identifies the project numbers for improvements to be investigated by the project.

ii) Discussion

In general the current annual resupply operates efficiently. The major problems relate to the landside processing and typically the eonfused management and organization, which is compounded at many sites by the lack of adequate marshaling area and/or conflicts with community activities. The recent decision to provide longer duration for Sealift contracts should be beneficial and encourage investment by operators. The lack of shore based barges, tugs and unloading equipment results in the shipper having to transport unloading equipment on his vessel (for Montreal). This requires space which could be more productive carrying resupply cargo. The lack of containerization in the Baffin is a defect that significantly increases handling and loading costs, particularly in Montreal.

The tug barge sealift have identified some landside infrastructure improvements e.g. upgrade pushouts, additional deadmen, selected dredging at Coppermine which are generally minor in scale but which would assist their operations. In the Hudson Bay there is the need to identify safe havens not only for sealift vessels but for all other marine traffic. N.T.C.L. endorse a previous report recommending dredging parts of the Mackenzie to remove operational constraints and hence improve efficiency and productivity of the tug barge operations.

NORTHWEST
TERRITORIES
MARINE FACILITIES INVENTORY

COMMUNITY	POPULATION	TYPE Tidal	TYPE River	TYPE Lake	Natural	Exposed	Break-water	Depth at Dock	Deadman/ Tie-ups	APPROACH Dredged	APPROACH Natural	WHARF Wharf	WHARF TYPE Floating	WHARF TYPE Permanent	Condition	Vessel Size	Float Planes	SEALIFT Pushout	SEALIFT Marshalling Area	COMMENTS
Aklavik	763	-	Yes	-	-	Beach	-	0m	X	-	-	Yes	Yes	-	Unused	sm.craft	Use sm.dock	-	-	no operational wharf-need dock for sm. craft
Arctic Bay	517	Yes	-	-	-	Beach	-	0m	-	-	-	No	-	-	-	sm.craft	-	tugs and barges	Satisfactory	-
Arctic Red River	108	-	Yes	-	-	Earth filled landing	-	-	X	-	-	Yes	Yes	-	-	sm.craft	Use sm.dock	-	-	need for larger floating dock
Arviat	1255	Yes	-	-	Yes	Beach, high winds	-	0-~3.5m	-	-	-	Yes	Yes	-	-	sm.craft	-	Yes	Barge landing area	pushouts covered in hi tide/inaccessable in low
Broughton Island	489	Yes	-	-	Yes	Beach	-	0m	-	-	-	No	-	-	-	sm.craft	-	tugs and barges	Satisfactory	access road requires improvement
Colville Lake	70	-	-	Yes	-	-	-	0m	-	-	-	Yes	-	Yes	On beach	sm.craft	Use sm.docks	-	-	no navigable water connect community/supply source
Coppermine	888	-	Yes	-	-	-	-	<2M	X	-	Very shallow 1-2m	Yes	-	Yes	Poor	sm.craft	-	direct from vessel t	-	no doch for sm. craft, facilities need upgrading
Coral Harbour	501	Yes	-	-	Yes	No Protection	-	Shallow	-	-	-	Yes	-	Yes	Good	sm.craft	-	Yes	Remove boulders	pushout on open beach/constant repair/landing area exposed-elements
Fort Franklin	532	-	-	Yes	-	Beach	-	1.5m	-	-	-	Yes	-	Yes	Needs repair	Barges	Aerodrome	-	-	public wharf needs repair/build new for sm. craft
Fort Good Hope	562	-	Yes	-	-	Beach	-	1.2m	X	-	-	Yes	Yes	-	Weak securing device	Barges	Land on river	-	-	gravel landing/staging area at beach for heavy cargo
Fort Liard	395	-	Yes	-	-	-	-	-	-	-	-	No	-	-	-	Barges	-	no barge supplies	Barge landing area only	community does not see need for wharf or dock
Fort Simpson	1050	-	Yes	-	-	-	-	-	-	-	-	Yes	Yes	-	Excellent/not used	Barges	Aerodrome	-	-	dock not well used due to gr. height out of water
Fort Smith	2505	-	Yes	-	-	-	-	-	-	-	-	Yes	-	-	-	Barges	-	-	-	-
Gjoa Haven	750	Yes	-	-	Yes	Beach	-	0m(7-9m)	X	-	Could handle lg.vessels	No	-	-	-	Barges	-	-	Surface conditions poor	need facilities for sm. craft/pushout/barge landing area
Grise Fiord	128	Yes	-	-	-	Beach	-	0m	-	-	-	No	-	-	-	sm.craft	-	tugs and barges	Satisfactory	-
Hay River	2964	-	Yes	-	-	-	-	-	-	-	-	Yes	-	Yes	Excellent	-	-	-	-	-
Igloolik	919	Yes	-	-	Yes	Sheltered	-	0m	-	No	-	No	-	-	-	sm.craft	-	tugs and barges	Satisfactory	-
Inuvik	3389	-	Yes	-	-	Beach	-	0m	-	-	-	Yes	-	Yes	Excellent	Big Barges	Aerodrome	-	-	need wharf for sm. craft, have private wharfs
Iqaluit	3167	Yes	-	-	Yes	Beach	-	0m	-	Yes	-	No	-	-	-	sm.craft	-	tugs and barges	-	at low tide sealift vessel beached and unloaded
Lac LaMartre	345	-	-	Yes	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-
Nahanni Butte	84	-	Yes	-	-	-	-	-	-	-	-	Yes	Yes	-	-	sm.craft		-	-	dock high&dry major part of year-thus move operations 1/2km upstream
Nanisivik	315	Yes	-	-	-	-	-	-	-	-	-	Yes	-	Yes	Excellent	?	-	-	-	-
Norman Wells	627	-	Yes	-	-	-	-	1.2-1.4m	-	-	-	Yes-2	-	Yes	Very good	Barges	Aerodrome/dock	-	-	no wharf suitible for sm.craft: existing owned by NTCL and CCG
Pangnirtung	1088	Yes	-	-	Yes	Beach	-	0m	-	Yes	Very limited drought	No	-	-	-	sm.craft	-	tugs and barges	-	tourism potential not fully exploited
Paulatuk	193	Yes	-	-	Yes	each/sand ramp-new@yea	-	0-(7)m	-	-	-	No	-	-	-	Barges	Aerodrome	Yes	-	permanent barge landing/sm.dock-float planes/sm.craft needed
Pelly Bay	317	Yes	-	-	Yes	Bad Ice Conditions	Small	-	-	-	-	No	-	-	-	sm.craft	-	-	-	need dock for community use
Rae-Edzo	1378	-	-	Yes	-	-	-	-	-	-	-	Yes-2	-	-	2 in poor condition	-	-	-	-	-
Rae Lakes	240	-	-	Yes	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	need 2 float plane docks
Rankin Inlet	1444	Yes	-	-	-	Mooring area	-	1m	-	-	Tidal Range 4.7m	Yes-2	-	Yes	Good	Barge/conventional	-	Yes	-	conflicts between local boats and NTCL
Repulse Bay	456	Yes	-	-	Yes	Beach unprotected	-	0-7m	-	-	Tidal Range 6.8m	No	-	-	-	Barge		Yes	Beach area needs to be cleaned	no dock for sm. craft, barge landing needs upgrading
Resolute	194	Yes	-	-	Yes	Beach	-	0m	-	-	Large vessels to shore	No	-	-	-	-	-	direct from vessel	-	weather impacts operations
Sachs Harbour	158	Yes	-	-	Yes	Beach, sand ramps	-	1.8m	X	-	-	No	-	-	-	sm.craft	-	Yes	Only landing ramp/beach	cribdock eliminate need for spring line anchors&new sand ramps@year

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NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: MARINE REGION: KEEWATIN

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Arviat	damage to wharf	improvements	KM 1
Baker Lake	damage to wharf	repair wharf	KM 2
Chesterfield Inlet	damage to wharf	repair wharf	KM 3
Coral Harbour	no permanent wharf/berthing	floating wharf	KM 4
Rankin Inlet	no safe berthing	wharf for resupply & safe mooring	KM 5
Repulse Bay	lack of protection& inefficient sealift	breakwater,ramp & marshaling area	KM 6
Whale Cove	exposed & lack of wharf	breakwater & wharf	KM 7(?)

MODE: MARINE REGION: KITIKMEOT

Coppermine	shallow at entrance & damage to dock	dredging & rehabilitate sealift dock	KM1l
Gjoa Haven	poor facilities	combined dock for sealift/community	KM 12
Holman	poor barge facilities	upgrade barge landing	KM 13
Pelly Bay	no facilities for sealift due to ice conditions	consider sealift opportunities	KM 14
Spence Bay	poor facilities	combined dock for sealift/community	KM15

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: MARINE REGION: BAFFIN

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Arctic Bay	lack of protection	breakwater & wharf	BM 1
Broughton Island	lack of protection & confusion at sealift	breakwater, wharf & roadway	BM 2
Cape Dorset	lack of protection & confusion at sealift	breakwater & wharf	BM 3
Clyde River	lack of protection & confusion at sealift	breakwater, wharf & marshaling area	BM 4
Grise Fiord	lack of protection, shallow approach	breakwater & dredging	BM 5
Hall Beach	lack of protection	breakwater	BM 6
Igloolik	lack of protection, no secure docking	breakwater & wharf	BM 7
Iqaluit	inefficient sealift operation	dredging trench	BM 8
Iqaluit	no all-tide dock	deepwater dock	EM 9
Lake Harbour	iack of protection & inefficient sealift	breakwater, wharf & marshaling area	BM 10
Pangnirtung	shallow approach & inefficient sealift	dredging, breakwater & wharf	BM1I
Pelly Bay	poor facilities	breakwater,wharf & ramp	BM12
Pond Inlet	poor protection & inefficient sealift	breakwater & marshaling area	BM 13
Resolute Bay	poor protection, lack of wharf	breakwater, wharf & anchors	BM 14
Sanikiluaq	poor protection & lack of wharves	breakwater & wharves	BM15

MODE: MARINE REGION: INUVIK

Paulatuk	poor facilities	community wharf	IM 1
Sachs Harbour	poor facilities	barge facilities	IM 2

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: MARINE REGION: FRESHWATER

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Fort Laird	poor location	relocate barge facilities	F1
Fort Providence	damaged wharf	repair wharf & boat launch	F2
Fort Simpson	not existing	community dock	F3
Fort Simpson	not existing	barge base	F4
Fort Smith	not existing	community dock	F 5
Hay River	not existing	marina	F 6
Jean Marie River	poor barge landing	upgrade barge facility	F 7
Nahanni Butte	poor location	relocate dock	F8
Rae Edzo	not existing	community wharf	F 9
Snowdrift	poor facility	upgrade community dock	F1O
Aklavik	no facility	community/barge dock	F I I
Fort Good Hope	poor facility	upgrade community wharf	F12
Fort McPherson	no facility	provide community dock	F13
Fort Norman	poor facility	upgrade barge wharf	F 14
Inuvik	no satisfactory facility	provide community wharf	F15
Norman Wells	no facility	provide community wharf	F16

The community use of marine facilities is primarily concerned with safety of users and protection of vessels in adverse weather. Associated with these concerns are improved loading/unloading wharfs. At some communities the wharf would also serve float planes. Marine facilities in the Baffin and Keewatin have been subject to a separate and more detailed study and along the Mackenzie system Coast Guard have an ongoing study. At Iqualuit and Pangnirtung the lack of a suitable wharf is considered to limit opportunities to develop commercial fishing.

6.0 Road Inventory and Deficiencies

a) Inventory

Table 13 contains the road inventory, and ratings, prepared by the GNWT Department of Transport as of September 1989.

b) Deficiencies

i) Tabulation

Table 14 is the Deficiency Charts - Road Mode and notes the deficiencies and the reference to the project number for improvements.

ii) Discussion

The communities identified a number of community roads that would, in their view, be convenient and/or assist in developing additional economic activity.

At the other extreme are major projects conceived to complement the territorial, and national road network e.g. Mackenzie Highway extension, Keewatin Highway.

The existing territorial road network totals some 2200 of which about 1330 kilometers or 60% is geometrically deficient. Approximately 280 km (13%) is presently paved but it

ROAD INVENTORY

NW T PRIMARY HIGHWAYS IN CONSTRUCTION PRIORITY RATINGS OF RANK SEPTEMBER 1989

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING	RANK
3-13	Pavement to Nwy #4 Jct	333.5	338.8	5.3	4000	17.0	0.0	35.0	0.0	2.0	37.0	0	1	0	4	5	0	42.0	60.4	2537	1
A3-KH338	Yellowknife Access Road	0.0	1.7	1.7	4000	17.0	0.0	15.0	0.0	0.0	15.0	0	1	0	4	5	0	20.0	60.4	1208	2
2-02	Alta Power to BST	31.5	43.7	6.2	4218	7.2	0.0	7.0	0.0	0.0	7.0	0	0	0	2	2	0	9.0	51.3	462	3
4-et	North of Hwy #3 Jct	0.0	5.0	5.0	1946	8.1	0.0	15.0	0.0	0.0	15.0	2	0	0	0	2	0	17.0	24.2	411	4
1-08	Hart Lake Access	130.3	136.5	6.2	222	31.5	0.0	24.0	6.5	5.0	35.5	10	1	4	0	15	10	60.5	4.3	261	5
8-11	Inuvik Airport Access Road	257.6	267.1	9.5	1856	7.6	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	22.8	228	6
3-10	East of Rae Access	245.0	273.0	28.0	312	12.9	1.8	16.0	0.0	5.0	22.8	10	2	4	0	16	5	43.8	4.3	190	7
3-11	West of Boundary Creek	273.0	303.5	30.5	312	12.9	1.6	16.0	0.0	5.0	22.6	10	.2	4	0	16	5	43.6	4.3	189	8
3-07	Tower to rest area	167.5	207.3	39.8	225	16.7	0.0	25.0	2.0	0.0	27.0	10	2	4	0	16	10	53.0	3.4	179	9
1-07	East of Hart Lake Access	103.5	130.3	26.8	222	31.5	0.4	15.0	9.0	2.0	26.4	10	1	4	0	15	0	41.4	4.3	179	10
3-12	East of Boundary Creek	303.5	333.5	30.0	312	12.9	1.7	13.0	0.0	5.0	19.7	10	2	4	0	16	5	40.7	4.3	176	11
3-08	Rest area to Edzo 0S1	207.3	236.5	29.2	225	16.7	0.0	19.0	4.8	0.0	23.8	10	2	4	0	16	10	49.8	3.4	168	12
4-02	Vee Lake - Prosperous Lake	5.0	19.0	14.0	564	7.3	0.0	0.0	0.0	5.0	5.0	2	2	4	0	8	10	23.0	6.9	158	13
1-03	North of pavement	33.2	40.0	6.8	303	39.0	0.0	5.0	0.0	0.0	5.0	6	1	2	0	9	10	24.0	6.6	158	14
3-04	North of rest Area	67.2	100.0	32.8	225	16.7	0.0	18.0	0.3	2.0	20.3	10	2	4	0	16	10	46.3	3.4	156	15
3-02	Ferry to Bluefish Creek	25.0	44.1	19.1	194	28.5	0.5	18.0	0.0	0.0	18.5	6	2	4	0	12	10	40.5	3.6	146	16
3-03	Bluefish Cr to rest area	44.1	67.2	23.1	225	16.7	0.0	16.0	0.0	0.0	16.0	10	2	4	0	16	10	42.0	3.4	142	17
3-06	End of Maintenance Beat	134.5	167.5	33.0	225	16.7	0.0	14.0	1.5	0.0	15.5	10	2	4	0	16	10	41.5	3.4	140	18
3-05		100.0	134.5	34.5	225	16.7	0.0	13.0	0.0	0.0	13.0	10	2	4	0	16	10	39.0	3.4	132	19
1-09	East of Kakisa Access	136.5	168.5	32.0	222	31.5	0.0	13.0	1.3	0.0	14.3	10	1	4	0	15	0	29.3	4.3	127	20
1-06	West of Enterprise	84.2	103.5	19.3	222	31.5	2.1	15.0	1.0	0.0	18.1	6	2	2	0	10	0	28.1	4.3	121	21
3-01	Jct Hwy #1 to ferry	0.0	24.1	24.1	194	28.5	1.7	8.0	0.0	2.0	11.7	6	2	2	2	12	10	33.7	3.6	121	22
1-04	Reconstructed gravel grade	40.0	68.0	2.9.0	303	39.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	5	15.0	6.6	99	23
A3-KH245	Fort Rae Access Road	0.0	11.5	11.5	446	4.3	0.0	0.0	0.0	2.0	2.0	10	1	4	0	15	0	17.0	5.0	86	24
8-05	South of Frog Creek quarry	85.6	126.0	40.4	143	18.1	0.2	20.0	0.7	0.0	20.9	10	1	4	0	15	0	35.9	2.2	79	25
8-06	Quarry to Arctic Red ferry	126.0	142.6	16.6	143	18.1	0.6	18.0	0.6	0.0	19.2	10	1	4	0	15	0	34.2	2.2	75	26
8-09	Crosses Caribou River	207.1	230.0	22.9	143	18.1	0.0	16.0	0.9	0.0	16.9	10	1	4	0	15	0	31.9	2.2	70	27
8-10	South of Inuvik Airport Rd	230.0	257.6	27.6	143	18.1	0.0	16.0	0.9	0.0	16.9	10	1	4	0	15	0	31.9	2.2	70	28
4-04	East of Prelude Access	28.5	37.0	8.5	67	4.4	15.3	7.0	47.1	2.0	71.4	10	1	4	0	15	5	91.4	0.8	69	29
1-10	West of Kakisa Access	168.5	181.9	13.4	222	11.5	0.0	0.0	0.0	0.0	0.0	10	1	4	0	15	0	15.0	4.3	65	30
8-02	North of James Creek Camp	14.4	44.1	29.7	62	24.2	2.4	14.0	8.4	5.0	29.8	10	0	4	4	18	10	57.8	1.1	62	31
A4-KH28	Prelude Lk West Access Rd	0.0	1.2	1.2	162	2.0	8.3	0.0	16.7	0.0	25.0	6	0	2	0	8	0	33.0	1.7	57	32
8-03	Midway Lake to Peel ferry	44.1	74.2	30.1	62	24.2	0.3	15.0	3.3	5.0	23.6	10	0	4	2	16	5	44.6	1.1	48	33
A3-KH17	South Ice Bridge Approach	0.0	2.6	2.6	83	28.5	0.0	20.0	0.0	0.0	20.0	10	0	0	0	10	0	30.0	1.5	46	34
1-02	Pavement	17.8	33.2	15.4	303	39.0	0.0	5.0	0.0	0.0	5.0	0	0	0	2	2	0	7.0	6.6	46	35

Table 13a

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	S TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	FLAT ING TOTAL	TRAFFIC PRIORITY FACTOR	RATING	RANK
8-08	North of emerg. airstrip	178.5	207.1	28.6	143	18.1	0.0	5.0	0.0	0.0	5.0	10	1	4	0	15	0	20.0	2.2	44	36
A8-KM85	Fort Macpherson Access Rd	0.0	1.1	1.1	541	4.0	0.0	0.0	0.0	0.0	0.0	6	1	0	0	7	0	7.0	6.1	42	37
A8-KM267	Inuvik Access Road	0.0	0.6	0.6	1731	7.1	0.0	0.0	0.0	0.0	0.0	0	0	0	2	2	0	2.0	21.0	42	38
8-01	North Of Yukon border	0.0	14.4	14.4	62	24.2	0.0	9.0	1.4	0.0	10.4	10	0	4	4	18	10	38.4	1.1	41	39
4-05	West of Cameron River	37.0	54.9	17.9	67	4.4	3.9	20.0	1.0	2.0	26.9	10	1	4	0	15	5	46.9	0.8	36	40
4-06	Cameron River-Tibbit lake	54.9	69.2	14.3	61	4.4	8.4	14.0	1.4	2.0	25.8	10	1	4	0	15	5	45.8	0.8	35	41
8-07	North of Arctic Red River	143.7	178.5	)4.8	143	18.1	0.0	0.0	0.9	0.0	0.9	10	0	4	0	14	0	14.9	2.2	33	42
A3-KM17	South Ice Bridge Approach	0.0	2.6	2.6	83	28.5	0.0	20.0	0.0	0.0	20.0	0	0	o	0	0	0	20.0	1.5	31	43
8-04	Ferry-Ft. McPherson Access	74.4	85.6	11.2	62	24.2	0.0	15.0	4.5	2.0	21.5	6	1	0	0	7	0	28.5	1.1	30	44
5-11	Pavement Into Fort Smith	252.6	266.0	13.4	920	20.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	14.7	29	45
4-03	Prosperous to Prelude	19.0	28.5	9.5	564	7.3	0.0	0.0	0.0	2.0	2.0	2	0	0	0	2	0	4.0	6.9	28	46
5-04	South of Sandy Lake Access	88.5	%.4	7.9	56	24.9	0.0	9.0	5.0	0.0	14.0	10	0	4	0	14	0	28.0	1.0	27	47
6-02	East of Pine Point Access	23.6	45.0	21.4	133	5.2	0.0	4.0	0.0	0.0	4.0	10	0	2	0	12	0	16.0	1.5	25	48
5-07	South of Klewle Lake camp	156.3	187.0	30.7	56	24.9	0.0	8.0	2.9	0.0	10.9	10	0	4	0	14	0	24.9	1.0	24	49
6-03	West of L. Buffalo River	45.0	67.3	22.3	133	5.2	0.0	3.0	0.0	0.0	3.0	10	0	2	0	12	0	15.0	1.5	23	50
5-05	South of Park boundary	%.4	119.4	23.0	56	24.9	0.0	8.0	1.3	0.0	9.3	10	0	4	0	14	0	23.3	1.0	23	51
1-13	East of Rabbit Tower	219.0	258.9	39.9	85	26.5	0.0	0.0	0.5	0.0	0.5	10	0	4	0	14	0	14.5	1.5	22	52
5-08	North of Little Buffalo R.	187.0	210.4	2).4	56	24.9	0.0	8.0	0.4	0.0	e.4	10	0	4	0	14	0	22.4	1.0	22	53
8-12	Marine Bypass Road	261.1	271.0	3.9	141	13.2	0.0	0.0	5.1	0.0	5.1	6	0	0	0	6	0	11.1	2.0	22	54
1-14	East of Wallace Creek	258.9	289.3	10.4	85	26.5	0.0	0.0	0.3	0.0	0.3	10	0	4	0	14	0	14.)	1.5	22	55
1-12	West of Hwy #3 Jct	187.6	219.0	31.4	85	26.5	0.0	0.0	0.3	0.0	0.3	10	0	4	0	14	0	14.)	1.5	22	56
5-06	North of Klewle Lake camp	119.4	156.3	36.9	56	24.9	0.0	6.0	2.2	0.0	8.2	10	0	4	0	14	0	22.2	1.0	22	57
1.15	East Of Trout River	289.3	324.5	35.2	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21	58
1-18	East of Hwy #7 jet	375.7	411.4	35.7	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21	55
1-17	East of Jean Marie Access	350.0	375.7	25.7	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21	60
1-16	West of Trout River	324.5	350.0	25.5	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21	61
1-22	South of Camsell Bend	471.3	553.3	82.0	45	40.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	5	21.0	1.0	21	62
1.20	South of Liard ferry	432.3	456.4	24.1	84	24.2	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	1*. O	1.4	20	63
1-19	North of Hwy #7 jct	411.4	432.3	20.9	84	24.2	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.4	20	64
5-09	Buffalo River-Salt River	210.4	217.7	27. >	56	24.9	0.0	5.0	0.7	0.0	5.7	11)	0	4	0	14	0	19.7	1.0	19	65
6-04	Buffalo River - Fort Res	67.3	90.0	22.7	133	5.2	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	1.5	18	66
A1-KM471	Ft. Simpson Access Road	0.0	3.4	3.4	225	9.5	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	2.9	17	67
1-21	Ferry to Ft. Simpson Access	457.2	471.3	14.1	183	7.7	0.7	0.0	0.7	0.0	1.4	6	0	0	0	6	0	7.4	2.3	17	68
A7-KM38	Fort Liard Access Road	0.0	5.3	5.3	114	12.6	0.0	0.0	0.0	0.0	0.0	6	2	0	2	10	0	10.0	1.6	16	69
7-01	North of B.C. border	0.0	37.6	37.6	54	16.9	0.0	5.0	0.0	0.0	5.0	10	2	2	0	14	0	19.0	0.8	15	70
A2-KM14	Paradise Gardens Access Rd	0.0 -	2.0	2.0	108	2.0	0.0	7.0	0.0	0.0	7.0	6	0	0	0	6	0	13.0	1.1	15	71
A5-KM3	Nay R. Indian Village Road	0.0 -	14.2	14.2	54	2.0	0.0	10.0	0.0	0.0	10.0	10	1	4	0	15	0	25.0	0.6	14	72
A1-KM168	Kakisa Lake Access Road	0.0 -	12.9	?2.9	54	2.0	0.0	0.7	0.0	0.0	0.7	10	0	4	0	14	10	24.7	0.6	14	73
2-04	Harbour Drive to hwy end	45.7 -	48.6	2.9	216	2.0	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	2.3	14	74
5-10	Salt River to pavement	237.7 -	252.6	14.9	56	24.9	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.0	14	75
2-03	BST to Harbour Drive	43.7 -	45.7	2.0	541	7.2	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	6.6	13	76
1-05	Pavement to Enterprise	68.0 -	84.2	16.2	303	39.0	0.0	0.0	0.0	0.0	0.0	0	0	0	2	2	0	2.0	6.6	13	77

Table 13b

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from		to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE	SURFACE RATING WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING	RANK
A4-KM5	Vet Lake Access Road	0.0	-	5.1	5.1	54	2.0	3.9	0.0	3.9	0.0	7.8	10	1	2	2	15	0	22.8	0.6	13	78
7-04	South of Nahanni winter rd	99.1	-	129.5	30.2	19	14.6	0.0	8.0	1.0	0.0	9,0	to	2	4	0	16	10	35.0	0.3	10	79
A3-KM32	Fort Providence Access Rd	0.0	-	5.5	5.5	305	14.8	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	4.4	9	80
t-n	Pavement to Hwy #3 Jet	181.9	-	187.6	5.7	222	31.5	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	4.3	9	81
A4-KM17	Cassidy Point Road	0.0	-	3.2	3.2	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	0.6	8	82
7-05	South of Blackstone River	129.5	-	146.4	16.9	19	14.6	0.0	3.0	0.0	0.0	3.0	10	2	4	0	16	10	29.0	0.3	8	83
A4-KM32	Prelude Lk East Access Rd	0.0	-	1.6	1.6	40	0.0	0.0	7.0	0.0	0.0	7.0	10	0	2	0	12	0	19.0	0.4	8	84
A5-KM248	Salt River Access Road	0.0	-	15.5	15.5	50	2.0	1.3	0.0	0.0	0.0	1.3	10	0	2	0	12	0	13.3	0.5	7	95
A1-KM469	Four Mile House Road	0.0	-	2.5	2.5	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.D	0.6	7	86
A2-KM24	Market Gardens Access Road	0.0	-	0.9	0.9	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.6	7	87
A2-KM29	Delaney Estates Loop	0.0	-	1.3	1.3	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.6	7	88
3-09	Edzo to Rae Access	236.5	-	245.0	8.5	225	16.7	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	3.4	7	89
7-02	North of Ft. Liard Access	31.6	-	65.0	27.4	19	14.6	0.0	9.0	1.0	0.0	10.0	10	2	2	0	14	D	24.0	0.3	7	90
A5-KM215	L. Buffalo R. Access Road	0.0	-	1.8	1.8	50	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	o	12.0	0.5	6	91
A2-KM1B	Patterson's Sawmill Access	0.0	-	1.0	1.0	54	2.0	0.0	5.0	0.0	0.0	5.0	6	0	0	0	6	0	11.0	0.6	6	92
5-02	West of Hwy #6 jct	40.0	-	60.4	20.4	199	14.3	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	2.8	6	93
A5-KM48	Polar Lake Access Road	0.0	-	3.2	3.2	50	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.5	5	94
7-06	North of Blackstone River	146.4	-	171.1	24.7	19	14.6	0.0	3.0	1.6	0.0	4.6	10	2	2	0	14	0	18.6	0.3	5	93
A4-KM10	Detah Access Road	0.0	-	11.3	11.3	27	4.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	0	16.0	0.3	5	96
7-07	South of Birch River	171.1	-	201.9	30.8	19	14.6	0.0	2.0	1.6	0.0	3.6	10	2	2	0	14	0	17.6	0.3	5	97
7-03	North of Rabbit Creek	65.0	-	99.3	34.3	19	14.6	0.0	3.0	0.6	0.0	3,6	10	2	2	0	14	0	17.6	0.3	5	98
6-01	East of Hwy #5 Jet	0.0	-	23.6	23.6	164	10.2	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	2.1	4	99
7-08	North of Birch River	201.9	-	228.1	26.2	19	14.6	0.0	0.0	0.4	0.0	0.4	10	2	2	0	14	0	14.4	0.3	4	100
7-09	Poplar Tower - Hwy #1 Jet	228.1	-	254.1	26.0	19	14.6	0.0	0.0	0.0	0.0	0.0	10	2	2	0	14	0	14.0	0.3	4	101
A1-KM 18)	Pine View Access Road	0.0	-	0.6	0.6	54	2.0	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	0.6	3	102
1-23	Camsell Bend to Wrigley	553.3	-	693.0	139.7	11	20.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	0	16.0	0.2	3	10
5-0}	South of Hwy #6 Jet	60.4	-	88.5	28.1	56	24.9	0.0	0.0	0.7	0.0	0.7	2	0	0	0	2	0	2.7	1.0	3	10
A2-KM33	Nay River Service Road	0.0	-	3.0	3.0	108	2.0	0.0	0.0	0.0	0.0	0.0	0	0	2	0	2	0	2.0	1.1	2	10
A6-KM25	Pine Point Airport Acc Rd	0.0	-	2.3	2.3	10	3.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.1	1	10
A5-KM88	Sandy Lake Access Road	0.0	-	12.9	12.9	10	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.1	1	10
A6-KM24	Pine Point East Access Nd	0.0	-	0.6	0.6	50	3.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	0.5	1	10
A6-KM21	Pine Point West Access Rd	0.0	-	1.5	1.5	50	3.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	0.5	1	10
A6-KM68	L. Buffalo Fish Camp Road	0.0	-	0.7	0.7	10	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.1	1	11
A5-KM261	f t. Smith Cmpgrd Access Rd	0.0	-	3.2	3.2	50	2.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	0.5	1	11
A6 KM90	Nagel Channel Road	0.0	-	1.2	7.2	10	2.0	0.0	0.0	0.0	D.O	0.0	10	0	0	0	10	0	10.0	0.1	1	11
	Nanisivik - Arctic Bay Rd	0.0	-	31.2	31.2	5.0	0.0	0.6	0.0	1.9	0.0	2.5	10	1	2	4	17	0	19.5	0.1	1	11
	Nanisivik Dock Road	0.0	-	5.2	5.2	5.0	0.0	0.0	0.0	0.0	0.0	0.0	10	1	2	4	17	0	17.0	0.1	1	11
	Nanisivik Airport Road	0.0	-	1.5	1.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	10	1	2	4	17	0	17.o	0.1	1	11
A1-KM130	Mart Lake Access Road	0.0	-	1.3	1.3	5	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.O	0.1	1	11
1-01	Pavement north of border	0.0	-	17.8	17.8	303	39.0	0.0	0.0	0,0	0.0	0,0	D	0	0	0	0	0	0.0	6.6	0	11
5-01	East of Hwy 42 jet	0.0	-	40.0	40.0	199	14.3	0.0	0.0	0.0	0.0	0.0	o	0	0	0	0	0	0.0	2.8	0	11
A3-KM26	North Ice Bridge Approach	0.0	-	6.8	6.8	83	?8.5	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	1.5	0	11

Table 13c

NWT PRIMARY HIGHWAYS - RECONSTRUCTION PRIORITY RATINGS — SEPTEMBER 1989

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY #1, Mackenzie Highway																			
1-01	Pavement north of border	0.0	17.8	17.8	30)	39.0	0.0	0.0	0.0	0.0	0.0	o	o	o	0	o	0	0.0	6.6	0
1-02	Pavement	17.8	33.2	15.4	303	39.0	0.0	5.0	0.0	0.0	5.0	0	0	0	2	2	o	7.0	6.6	46
1-03	North of pavement	33.2	40.0	6.8	303	39.0	0.0	5.0	0.0	0.0	5.0	6	1	2	0	9	10	24.0	6.6	158
1-04	Reconstructed gravel grade	40.0	68.0	28.0	303	39.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	5	15.0	6.6	99
1-05	Pavement to Enterprise	68.0	84.2	16.2	303	39.0	0.0	0.0	0.0.	0.0	0.0	0	0	0	2	2	0	2.0	6.6	13
1-06	West of Enterprise	84.2	- 103.5	19.3	222	31.5	2.1	15.0	1.0	0.0	18.1	6	2	2	0	10	0	28.1	4.3	121
1-07	East of Hart Lake Access	103.5	- 130.3	26.6	222	31.5	0.4	15.0	9.0	2.0	26.4	10	1	4	0	15	0	41.4	4.3	179
1-08	Hart Lake Access	130.3	- 136.5	6.2	222	31.5	0.0	24.0	6.5	5.0	35.5	10	1	4	0	15	ro	60.5	4.3	261
1-09	East of Kakisa Access	136.5	- 168. 5	32.0	222	31.5	0.0	13.0	1.3	0.0	14.3	10	1	4	0	15	o	29.3	4.3	127
1-1o	West of Kakisa Access	168.5	- 181.9	13.4	222	31.5	0.0	0.0	0.0	0.0	0.0	10	1	4	0	15	0	15.0	4.3	65
1-11	Pavement to Hwy #3 jet	181.9	- 187.6	5.7	222	31.5	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	4.3	9
1-12	West of Hwy #3 Jet	187.6	- 219.0	31.4	85	26.5	0.0	0.0	0.3	0.0	0.3	10	0	4	0	14	0	14,3	1.5	22
1-13	East Of Rabbit Tower	219.0	- 258.9	39.9	85	26.5	0.0	0.0	0.5	0,0	0.5	10	0	4	0	14	0	14.5	1.5	22
1-14	East of Wallace Creek	258.9	- .289.3	30.4	85	26.5	0.0	0.0	0.3	0.0	0.3	10	0	4	0	14	0	14.3	1.5	22
1-15	East of Trout Rl ver	289.3	- 324.5	35.2	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21
1-16	West of Trout River	324.5	- 350.0	25.5	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21
1-17	East of Jean Marie Access	350.0	375.7	25.7	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21
1-18	East of Nwy #7 Jet	375.7	411.4	35.7	85	26.5	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.5	21
1-19	North of Hwy #7 JcL	411.4	432.3	20.9	84	24.2	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.4	20
1-20	South of Liardferry	432.3	- 456.4	24.1	84	24.2	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.4	20
1-21	Ferry to Ft.Simpson Access	457.2	- 471.3	14.1	183	1.7	0.7	0.0	0.7	0.0	1.4	6	0	0	0	6	0	7.4	2.3	17
1-22	South of Camse 11 Bend	471.3	- 553.3	82.0	45	40.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	5	21.0	1.0	21
1-23	Camsel 1 Bend to Wrigley	553.3	- 693.0	139.7	11	20.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	0	16.0	0.2	3
	Hwy #1 Access Roads																			
A1-KM130	Hart Lake Access Road	0.0	1.3	1.3	5	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.1	1
A1-KM168	Kakisa Lake Access Road	0.0	12.9	12.9	54	2.0	0.0	0.7	0.0	0.0	0.7	10	0	4	o	14	10	24.7	0.6	14
A1-KM183	Pine View Access Road	0.0	0.6	0.6	54	2.0	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	0.6	3
A1-KM469	Four Mile House Road	0.0	2.5	2.5	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.6	1
A1-1041171	ft. Simpson Access Road	0.0	3.4	3.4	225	9.5	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	2.9	17

Table 13d

Table 13e

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from		to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SUNFACE RATING SURFACE WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY 92, Hay River Highway																			
2-01	North of Hwy #1 jct	0.0	-	37.5	37.5	1350	22.0	0.0	0.0	0.0	0.0	0.0	0	0	0	2	2	0	2.0	22.4	45
2-02	Alta Power to BST	37.5	-	43.7	6.2	4218	7.2	0.0	7.0	0.0	0.0	7.0	0	0	0	2	2	0	9.0	51.3	462
2-03	EkST to Harbour Drive	43.7	-	45.7	2.0	541	7.2	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	6.6	13
2-04	Harbour Drive to hwy end	45.7	-	48.6	2.9	216	2.0	0.0	0.0	0.0	0.0	0.0	6	0	0	0	6	0	6.0	2.3	14
	Hwy #2 Access Roads																			
A2-KM14	Paradise Gardens Access Rd	0.0	-	2.0	2.0	108	2.0	0.0	7.0	0.0	0.0	7.0	6	0	0	0	6	0	13.0	1.1	1>
A2-KM18	Patterson's Sawmill Access	0.0	-	1.0	1.0	54	2.0	0.0	5.0	0.0	0.0	5.0	6	0	0	0	6	0	11.0	0.6	6
A2-KM24	Market Gardens Access Road	0.0	-	0.9	0.9	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.6	7
A2-KM29	Delancy Estates Loop	0.0	-	1.3	1.3	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.6	7
A2-KM33	Hay River Service Road	0.0	-	3.0	3.0	108	2.0	0.0	0.0	0.0	0.0	0.0	0	0	2	0	2	0	2.0	1.1	2

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY #3, Yellowknife Highway																			
3-01	Jct Hwy #1 to ferry	0.0	- 24.1	24.1	194	28.5	1.7	8.0	0.0	2,0	11.7	6	2	2	2	12	10	33.7	3.6	121
3-02	Ferry to Bluefish Creek	25.0	- 44.1	19.1	194	28.5	0.5	18.0	0.0	0.0	18.5	6	2	4	0	12	10	40.5	3.6	146
3-03	Bluefish Cr to rest area	44.1	- 67.2	23.1	225	16.7	0.0	16.0	0.0	0.0	16.0	10	2	4	0	16	10	42.0	3.4	142
3-04	North of rest Area	67.2	- 100.0	32.8	225	16.7	0.0	18.0	0.3	2.0	20.3	10	2	4	0	16	10	46.3	3.4	156
3-05		100.0	- 134.5	34.5	225	16.7	0.0	13.0	0.0	0.0	13.0	10	2	4	0	16	10	39.0	3.4	132
3-06	End of Maintenance Beat	134,5	- 167.5	33.0	225	16.7	0.0	14.0	1.5	0.0	15.5	10	2	4	0	16	10	41.5	3.4	140
3-07	Tower to rest area	167.5	- 207.3	39.8	225	16.7	0.0	25.0	2.0	0.0	27.0	10	2	4	0	16	10	53.0	3.4	r79
3-08	Rest area to Edzo BST	207.3	- 236.5	29.2	225	16.7	0.0	19.0	4.8	0.0	23.8	10	2	4	0	16	10	49.8	3.4	168
3-09	Edzo to Rae Access	236.5	- 245.0	8.5	225	16.7	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	3.4	7
3-10	East of Rae Access	245.0	- 273.0	28.0	312	12.9	1.8	16.0	0.0	5.0	22.8	10	2	4	0	16	5	43.8	4.3	190
3-11	West of Boundary Creek	273.0	- 303.5	30.5	312	12.9	1.6	16.0	0.0	5.0	22.6	10	2	4	0	16	5	43.6	4.3	189
3-12	East of Boundary Creek	303.5	- 333.5	30.0	312	12.9	1.7	13.0	0.0	5.0	19. >	10	2	4	0	16	5	40.7	4.3	176
3-13	Pavement to Hwy #4 Jet	333.5	- 33.9.8	5.3	4000	17.0	0.0	35.0	0.0	2.0	37.0	0	1	0	4	5	0	42.0	60. 4	2537
	Hwy #3 Access Roads																			
A3-KM17	South Ice Bridge Approach	0.0	- 2.6	2.6	83	28.5	0.0	20.0	0.0	0.0	20.0	o	u	o	0	0	0	20. u	1.5	31
A3-KM26	North Ice Bridge Approach	0.0	- 6.8	6.8	83	28.5	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	1.5	0
A3-KM32	Fort Providence Access Rd	0.0	- 5.5	5.5	305	14.8	0.0	0.0	0.0	0.0	0. 0	2	0	0	0	2	0	2.0	4.4	9
A3-KM245	Fort Rae Access Road	0.0	- 11.5	11.5	446	4.3	0.0	0.0	0.0	2.0	2.0	10	1	4	0	15	0	17.o	5.0	86
A3-KM338	Yellowknife Access Road	0.0	- 1.7	1.7	4000	17.0	0.0	15.0	0.0	0.0	15.0	0	1	0	4	5	0	20.0	60.4	1208

Table 13f

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from		to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY #4, Ingraham Trail																				
4-01	North of Hwy #3 Jet	0.0	-	5.0	5.0	1946	8.1	0.0	15.0	0.0	0.0	15.0	2	0	0	0	2	0	17.0	24.2	411
4-02	Vee Lake - *Prosperous* Lake	5.0	-	19.0	14.0	564	7.3	0.0	0.0	0.0	5.0	5.0	2	2	4	0	8	10	23.0	6.9	158
4-03	Prosperous to Prelude	19.0	-	28.5	9.5	564	7.3	0.0	0.0	0.0	2.0	2.0	2	0	0	0	2	0	4.0	6.9	28
4-04	East of Prelude Access	28.5	-	37.0	8.5	67	4.4	15.3	7.0	47.1	2.0	71.4	10	1	4	0	15	5	91.4	0.8	69
4-05	West of Cameron River	37.0	-	54.9	17.9	67	4.4	3.9	20.0	1.0	2.0	26.9	10	1	4	0	15	5	46.9	0.8	36
4-06	Cameron River -Tibbit Lake	54.9	-	69.2	14.3	61	4.4	8.4	14.0	1.4	2.0	25.8	10	1	4	0	15	5	45.8	0.8	35
	Hwy #4 Access Roads																				
A4-KM5	Vee Lake Access Road	0.0	-	5.1	5.1	54	2.0	3.9	0.0	3.9	0.0	7.8	10	1	2	2	15	0	22.8	0.6	13
A4-10410	Detah Access Road	0.0	-	11.3	11.3	27	4.0	0.0	0.0	0.0	0.0	0.0	10	2	4	0	16	0	16.0	0.3	5
A4-KM17	Cassidy Point Road	0.0	-	3.2	3.2	54	2.0	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	0.6	8
A4-KM28	Prelude Lk West Access Rd	0.0	-	1.2	1.2	162	2.0	8.3	0.0	16.7	0.0	25.0	6	0	2	0	8	0	33.0	1.7	57
A4-KM32	Prelude Lk East Access Rd	0.0	-	1.6	1.6	40	0.0	0,0	7.0	0.0	0.0	7.0	10	0	2	0	12	0	19.0	0.4	8

Table 13g

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSAD T 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	ORY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY #5, Fort Smith Highway																			
>-01	East of Hwy #2 Jct	0.0	40.0	40.0	199	14.3	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0.0	2.8	0
5-02	west Or Hwy #6 Jct	40.0	60.4	M.4	199	14.3	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	2.8	6
5-03	South of Hwy #6 Jct	60.4	.98.5	28.1	56	24.9	0.0	0.0	0.7	0.0	0.1	2	0	0	0	2	0	2.7	1.0	3
5-04	South of Sandy Lake Access	88.5	%.4	7.9	56	24.9	0.0	9.0	5.0	0.0	14.0	10	0	4	0	14	0	28.0	1.0	27
5-05	South of Park boundary	%.4	119.4	23.0	56	24.9	0.0	8.0	1.3	0.0	9.3	10	0	4	0	14	0	23.3	1.0	23
5-06	North of Klewie Lake camp	119.4	156.3	36.9	56	24.9	0.0	6.0	2.2	0.0	8.2	10	0	4	0	14	0	22.2	1.0	22
5-07	South of Klewie Lake camp	156.3	187.0	30.7	56	24.9	0.0	8.0	2.9	0.0	10.9	10	0	4	0	14	0	24.9	1.0	24
5-08	North of Little Buffalo R.	187.0	210.4	23.4	56	24.9	0.0	8.0	0.4	0.0	8.4	10	0	4	0	14	0	22.4	1.0	22
5-09	L.Buffalo River-Salt River	210.4	237.7	27.3	56	24.9	0.0	5.0	0.7	0.0	5.7	10	0	4	0	14	0	19.7	1.0	19
5-1o	Salt River to pavement	237.7	252.6	14.9	56	24.9	0.0	0.0	0.0	0.0	0.0	10	0	4	0	14	0	14.0	1.0	14
5-11	Pavement Into Fort Smith	2>.2.6	266.0	13.4	920	20.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	14.7	29
	Nwy #5 Access Roads																			
A5-KM3	Hay R. Indian Village Road	0.0	14.2	14.2	54	2.0	0.0	10.0	0.0	0.0	10.0	10	1	4	0	15	0	25.0	0.6	14
A5-KM48	Polar Lake Access Road	0.0	3.2	3.2	50	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.5	5
A5-KM88	Sandy Lake Access Road	0.0	12.9	12.9	10	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.1	1
A5-KM215	L.Buffalo R. Access Road	0.0	1.8	1.8	50	2.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.5	6
A5-KM248	Salt River Access Road	0.0	15.5	15.5	50	2.0	1.3	0.0	0.0	0.0	1.3	10	0	2	0	12	0	13.3	0.5	7
A5-KM261	Ft. Smith Cmpgrd Access Rd	0.0	3.2	3.2	50	2.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	0.5	1

Table 13h

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RAT 1 NC SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	HATING TOTAL	TRAFFIC FAC1OR	PN1OH1TY RAT 1 NC
	HWY #6, Fort Resolution Highway																			
6-01	East of Hwy #5 jct	0.0	23.6	23.6	164	10.2	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	o	2.0	2.1	4
6-02	East of Pine Point Access	23.6	45.0	21.4	133	5.2	0.0	4.0	0.0	0.0	4.0	10	0	2	0	12	0	16.0	1.5	25
6-03	West of L. Buffalo River	45.0	67.3	22.3	133	5.2	0.0	3.0	0.0	0.0	3.0	10	0	2	0	12	0	15.0	1.5	23
6-04	L. Buffalo River - Fort Res	67.3	90.0	22.7	133	5.2	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	1.5	18
	Hwy#6 Access Roads																			
A6-KM21	Pine Point West Access Rd	0.0	1.5	1.5	50	3.0	0.0	0.0	0.0	0.0	0.0	2	o	0	0	2	0	2.0	0.5	1
A6-KM24	Pine Point East Access Rd	0.0	0.6	0.6	50	3.0	0.0	0.0	0.0	0.0	0.0	2	0	0	0	2	0	2.0	0.5	1
A6-KM25	Pine Point Airport Acc Rd	0.0	2.3	2.3	10	3.0	0.0	0.0	0.0	0.0	0.0	10	0	2	0	12	0	12.0	0.1	1
A6-KM68	L. Buffalo Fish Camp Road	0.0	0.7	0.7	10	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.1	1
A6-KM90	Nagel Channel Road	0.0	7.2	7.2	10	2.0	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	0.1	1

Table 13i

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSADT 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY 87, Liard Highway																			
7-01	North of B. C. border	0.0	37.6	37.6	54	16.9	0.0	5.0	0.0	0.0	5.0	10	2	2	0	14	0	19.0	0.8	15
7-02	North of Ft. Liard Access	37.6	65.0	27.4	19	14.6	0.0	9.0	1.0	0.0	10.0	10	2	2	0	14	0	24.0	0.3	7
7-03	North Of Rabbit Creek	65.0	99.3	34.3	19	14.6	0.0	3.0	0.6	0.0	3.6	10	2	2	0	14	0	17.6	0.3	5
7-04	South of Nahanni winter rd	99.3	129.5	30.2	19	14.6	0.0	8.0	1.0	0.0	9.0	10	2	4	0	16	10	35.0	0.3	10
7-05	South of Blackstone River	129.5	146.4	16.9	19	14.6	0.0	3.0	0.0	0.0	3.0	to	2	4	0	16	10	29.0	0.3	8
7-06	North of Blackstone River	146.4	171.1	24.7	19	14.6	0.0	3.0	1.6	0.0	4.6	10	2	2	0	14	0	18.6	0.3	5
7-07	South of Birch River	171.1	201.9	30.8	19	14.6	0.0	2.0	1.6	0.0	3.6	10	2	2	0	14	0	17.6	0.3	5
7-08	North of Birch River	201.9	228.1	26.2	19	14.6	0.0	0.0	0.4	0.0	0.4	10	2	2	0	14	0	14.4	0.3	4
7-09	Poplar Tower - Hwy #1 Jet	228.1	254.1	26.0	19	14.6	0.0	0.0	0.0	0.0	0.0	10	2	2	0	14	0	14.0	0.3	4
	Hwy #7 Access Roads																			
A7-KM38	Fort Liard Access Road	0.0	- 5.3	5.3	114	12.6	0.0	0.0	0.0	0.0	0.0	6	2	0	2	10	0	10.0	1.6	16

Table 13j

CONTROL SECTION	HIGHWAY / REFERENCE	SECTION from	to	LENGTH (km)	PSAD/ 1989	% TRUCKS	GEOMETRIC RATING HORIZ	WIDTH	VERT	PASS	TOTAL	SURFACE RATING SURFACE	WET	DRY	WINTER	TOTAL	MAINT RATING	RATING TOTAL	TRAFFIC FACTOR	PRIORITY RATING
	HWY #8, Dempster Highway																			
8-01	North of Yukon border	0.0	14.4	14.4	62	24.2	0.0	9.0	1.4	0.0	10.4	10	0	4	4	18	10	38.4	1.1	41
8-02	North of James Creek Camp	14.4	44.1	29.7	62	24.2	2.4	14.0	8.4	5.0	29.8	10	0	4	4	18	10	57.8	1.1	62
8-03	Midway Lake to Peel ferry	44.1	74.2	30.1	62	24.2	0.3	15.0	3.3	5.0	23.6	10	0	4	2	16	5	44.6	1.1	48
8-04	Ferry-Ft.McPherson Access	74.4	85.6	11.2	62	24.2	0.0	15.0	4.5	2.0	21.5	6	1	0	0	7	0	28.5	1.1	30
8-05	South of Frog Creek quarry	85.6	1.?6.0	40.4	143	18.1	0.2	20.0	0.7	0.0	20.9	10	1	4	0	15	0	35.9	2.2	79
8-06	Quarry to Arctic Red ferry	126.0	142.6	16.6	143	18.1	0.6	16.0	0.6	0.0	19.2	10	1	4	0	15	0	34.2	2.2	75
8-07	North of Arctic Red River	143.7	178.5	34.8	143	18.1	0.0	0.0	0.9	0.0	0.9	10	0	4	0	14	0	14.9	2.2	33
8-08	North of emerg.airstrip	178.5	207.1	28.6	143	18.1	0.0	5.0	0.0	0.0	5.0	10	1	4	0	15	0	20.0	2.2	44
8-09	Crosses Caribou River	207.1	230.0	22.9	143	18.1	0.0	16.0	0.9	0.0	16.9	10	1	4	0	15	0	31.9	2.2	70
8-10	South of Inuvik Airport Rd	230.0	257.6	27.6	143	18.1	0.0	16.0	0.9	0.0	16.9	10	1	4	0	15	0	31.9	2.2	70
8-11	Inuvik Airport Access Road	257.6	267.1	9.5	1856	7.6	0.0	0.0	0.0	0.0	0.0	10	0	0	0	10	0	10.0	22.8	228
8-12	Marine Bypass Road	267.1	271.0	3.9	141	13.2	0.0	0.0	5.1	0.0	5.1	6	0	0	0	6	0	11.1	2.0	22
	Nwy #8 Access Roads																			
A8-KM85	Fort McPherson Access Rd	0.0	1.1	1.1	541	4.0	0.0	0.0	0.0	0.0	0.0	6	1	0	0	7	0	7.0	6.1	42
A8-KM267	Inuvik Access Road	0.0	0.6	0.6	1731	7.1	0.0	0.0	0.0	0.0	0.0	0	0	0	2	2	0	2.0	21.0	42
	Miscellaneous Access Roads																			
	Nanisivik Airport Road	0.0	1.5	1.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	10	1	2	4	17	0	17.0	0.1	
	Nanisivik Dock Road	0.0	5.2	5.2	5.0	0.0	0.0	0.0	0.0	0.0	0.0	10	1	2	4	17	0	17.0	0.1	
	Nanisivik - Arctic Bay Rd	0.0	31.2	31.2	5.0	0.0	0.6	0.0	1.9	0.0	2.5	10	1	2	4	17	0	19.5	0.1	

Table 13k

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: ROAD REGION: HIGHWAYS

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
Manitoba/Keewatin	non existing	new all weather road	H I
MacKenzie Hwy Extension	missing section	new all weather section–Wrigley/Dempster	H 2
Izok/Tidewater	non existing	new all weather road	H 3
Yellowknife/Lupin	existing winter road	upgrade to all weather road	H 4
Inuvik/Tuktoyaktuk	existing winter road	upgrade to all weather road	H 5
Enterprise/Yellowknife	gravel surface	pave	H 6
Upgrade Dempster	geometric deficiencies (collector standard)	upgrade to arterial standard	H 7
Lupin/Izok	non existing	new all weather road	H8

MODE: ROAD REGION: FERRY/RIVER CROSSINGS

Arctic Red River	existing ferry service shared with Dempster	separate ferry operation to serve Hamlet	R I
Arctic Red River	service interrupted at freeze/break up	bridge crossing	R2
Fort Providence	service interrupted/delayed at freeze/break up	new bridge crossing	R3
Peei at Fort McPherson	service interrupted/delayed at freeze/break up	new bridge crossing	R4

MODE: ROAD REGION: WINTER

Keewatin	I non existing	new network	WR 1
Dempster–Fort Good Hope	non existing	new link to connect to south	WR 2
Izok/Tidewater	Inon existing	new winter road	WR 3
Pelly Bay/Spence Bay	Pelly bay dependant on air mode exclusively	winter road link to Spence Bay	WR 4
Aklavik/Fort McPherson	ski–doo trail available	upgrade to winter road	WR 5
Lupin/Izok	non existing	extend winter road–Yellowknife/Lupin	WR 6

Table 14 a

NORTHWEST TERRITORIES
DEFICIENCY CHARTS

MODE: ROAD REGION: COMMUNITY

LOCATION	DESCRIPTION OF DEFICIENCY	WHAT IS REQUIRED	PROJECT #
[illegible]	substandard	road to Willow Creek	CR 1
Arctic Bay	adequate	-	- - -
Arviat	non existant	Maguse River/Lake Road	CR 3
Baker Lake	non existant	Whitehills Lake Rd. community access rd.	CR 4
[illegible]	non existant	Ferguson Lake Rd. Mt.Pelly Rd.	CR 5
[illegible]	non existant	causeway to island road to bay	- - -
Coral Harbour	non existant	Kirchhner River Rd.	- - -
Fort Good Hope	[illegible]	lookfish Lake Rd.	CR 8
Fort Laird	non existant	Access Rd. across Laird	CR 9
Fort [illegible]	non existant	causeway to island Mill Creek Rd.	CR 10
Fort Resolution	non existant	extend Nagel Channel Rd.	CR 11
Fort Smith	non existant	Tabton River Rd.	CR 12
Gjoa Haven	non existant	Swan Lake Rd.,Koka Lake Rd.	CR 13
Hall Beach	non existant	Hall Lake Rd.	CR 14
Holman	deteriorated	Access roads	CR 15
Igloolik	deteriorated	reconstruct road to Igloolik Pt.	CR 16
Iqaluit	deteriorated	Access roads	CR 17
Jean Marie River	deteriorated	all weather link to Hwy 1	CR 18
Lake Harbour	non existant	Sobher Lake Rd.	CR 19
Pangnirtung	non existant	Aiyuittum NP Rd.	CR 20
Pelly Bay	non existant	Spense Bay Rd. or Shepard's Bay	CR 21
Pond Inlet	non existant	Mt. Heroden etc Rd.Salmon Creek Rd.	CR 22
Rankin Inlet	deteriorated	upgrade local access road	CR 23
Repulse Bay	deteriorated	upgrade local access road	CR 24
Resolute	deteriorated	upgrade local access road	CR 25
Sanikiluaq	deteriorated	upgrade local access road	CR 26
Snowdrift	deteriorated	upgrade local access road	CR 27
Spence Bay	non existant	Middle Lake Rd.	CR 28
Trout Lake	winter road	all weather road to MacKenzie	CR 29
Whale Cove	non existant	Whiterock Lake Rd.	CR 30

Table 14b

Planning for the next ten years indicates that paved roads will increase to 30% of the network and to carry 80% of the highway traffic. This plan for upgrading the existing network is documented in "Highway Reconstruction strategy and 5 Year Capital Plan" which has been adopted by this strategy as the short to medium term programme to be incorporated into the overall infrastructure strategy.

Presently, the major deficiencies are geometric on the Dempster, where traffic is generally light, and surface condition on the Mackenzie and Yellowknife Highways between Enterprise and the territorial capital. As shown on the inventory section dealing with surface rating there is a wide range in condition along the road. At many of the worst sections the locally available material is not satisfactory for road construction and road maintenance methods and costs should be adjusted to reflect these limitations. At present the maintenance procedures do not adequately take cognizance of the local material and concentrate upon traffic volumes, consequently at some "good" sections maintenance expenditures and effort should be redirected to the "poorer" sections with more acute problems.

The Ferry operations are not a constraint to current traffic and ice bridge building techniques are being evolved to minimize disruption particularly during "freeze-up" although it is more difficult to maintain service at "break-up".

Appendix A
Infrastructure Rating System

Al- Airports
A2- Marine
A3- Roads

APPENDIX Al - AIRPORTS FACILITIES

a) General

Airports in the Northwest Territories are generally categorized according to whether they were or are to be developed by Transport Canada or by others (i.e. Government of the Northwest Territories, Department of National Defence, Private Interests, etc.)

The airport classification system adopted by the Federal Government under the now expired Arctic Air Facilities Policy continues to be used, with some modification, to categorize the airports according to "role" and "level of service". Airports serving NWT communities are classified as either "A", "B", "C", or "D" airports according to the following criteria:

1. Arctic "A" **(Maior) Airports**

Those airports serving population centres which have the following characteristic:

served by an air carrier on a regular scheduled basis, including jet service
no means of regular transportation other than air
major distribution centre
strategic location
a capital or regional administrative centre
an extensive continuing resource development role

2. **Arctic "B" (Area) Airports**

Those airports serving population centres which have the following characteristics:

a population of more than 400
no means of regular transportation other than air

served by a regular, reliable air service
a growing community
an area administrative centre
an active role in resource development

3. **Arctic "C" (Community) Airports**

Those airports serving populations centres which have the following characteristics:

a population of more than 100
no means of regular transportation other than air

4. **Arctic "D" (Local) Airports**

a permanent population less than 100
no means of regular transportation other than air

The classification of each airport within the Northwest Territories Airport System is provided in Table A-1. The table defines the designated Arctic "B" and all the Arctic "C" and "D" Airports

The type of facilities and equipment provided for each airport classification is provided in Table A-2.

b) Standards

All facilities and equipment provided by the Department of Transportation for "dedicated" airport use at Arctic "D" Airports as well as facilities and equipment of an emergency or extraordinary nature provided by the Department of Transportation at designated Arctic "B" and all Arctic "C" and "D" Airports will be consistent with Transport Canada Airport Planning, Design & Construction, Equipment, and Building Standards and Guidelines.

TABLE A-1

Existing Airports Classification:

"A" Airports	"B" Airports	" " Airports	"D" Airports
Fort Simpson	Ranklin Inlet	Fort Liard	Snare Lakes
Fort Smith	Coppermine	Fort Providence	Jean Marie River
Hay River	Tuktoyaktuk	Fort Resolution	Nahanni Butte
Yellowknife	Hall Beach	Lac la Martre	Trout Lake
Inuvik	Nanisivik	Rae Lakes	Colville Lake
Norman Wells	Baker Lake	Snowdrift	Arctic Bay
Iqaluit	Coral Harbour	Wrigley	Bathurst
Resolute Bay		Aklavik	Bay Chimo
Cambridge Bay		Fort Franklin	
		Fort Good Hope	
		Fort McPherson	
		Fort Norman	
		Paulatuk	
		Broughton Island	
		Cape Dorset	
		Clyde River	
		Grise Fiord	
		Igloolik	
		Lake Harbour	
		Pangnirtung	
		Pond Inlet	
		Sanikiluaq	
		Chesterfield Inlet	
		Repulse Bay	
		Eskimo Point	
		Whale Cove	
		Gjoa Haven	
		Holman	
		Pelly Bay	
		Sachs Harbour	
		Spence Bay	

Table A-1

FACILITY REQUIREMENTS FOR AIRPORT CLASSIFICATION

	"A" Airports	"B' Airports	"C" Airports	"D" Airports	"CR" AIRPORTS:
CRITICAL AIRCRAFT	10 be used by Boeing 737 and 727, Lockheed Electra and Hercules and similar turbine-engined aircraft operated on a regular basis.	to be used by F28, HS748 YSII and similar turbine-engined aircraft operated on a regular air service.	to be used by Twin Otter, Cessna 402, Aztec and similar STOL and light twin aircraft.	to be used by Twin Otter, Islander, Aztec and similar fight twin aircraft.	10 be used by regional jet aircraft (eg BAe 146) operated on a regular air service.
RUNWAY:	1830 X 46 paved or stabilized ● urtem for year round use. Runways of a greater length will be provided based on a detailed evaluation of the operational and ● conomk factors 10 accommodate the operation of large aircraft. The maximum applicable clearway will be provided and declared.	1626 X 46 gravel surface for year round use. A runway of lesser length with ● designated clearway may b. acceptable where due 10 terrain restrictions 1625 h uneconomical or where a suitable site is too remote from the community.	914 X 3a gravel ● Urface for year round use. A runway of lesser length, with ● designated clearway may be acceptable where due to terrain restrictions 914 k uneconomical or the site k too remote from the community.	762 x 23 gravel surface for year round use. A runway of greater length may be provided where the "critical aircraft" requirements exceed 7d2.	1371 X 30 gravel surface for year round use. A runway of lesser length with a designated clearway may be acceptable where due to terrain restrictions 1371 is Uneconomical or where a suitable site b too remote from the community.
LIGHTING:	High intensity runway and approach lighting, lighted taxways, visual approach slope indicators and threshold identification lights, ● ither singly or In combination as will meet the operational requirements, rotating beacon, lighted wind cocks.	Runway and approach lighting, visual approach slope indicators and threshold identification lights, ● Ithof ● Ingfy or In combination as will meet the operational requirements, rotating beacon, lighted wind ● ocko.	Runway and approach lighting, visual approach slope indicators, threshold iden tification lights, singly or In combination as will meet the operational requirements, rotating beacon, lighted windsocks.	Runway lighting, threshold lighting rotating beacon and lighted windsock as required to meet certification standard for night VFR	Runway and approach lighting, visual approach slope indicators and threshold identification lights, either singly or In combination as will meet the operational requirements, rotating beacon, lighted wind socks.
APPROACH AIDS:	Instrument Landing System (ILS/MLS) Non-directional beacon (NDB)	Non-directional beacon (NDB)	Non-directional beacon (NDB)	Non-directional beacon (NDB)	Non-directional beacon (NOB)
NAVIGATION AIDS:	Very high frequency Omnirange and distance measuring equipment (VOR/DME)				
PASSENGER, AIRCRAFT, & AIRPORT FACILITIES:	Passenger terminal building, airport access road Paved or ● tabllized aircraft parking area and taxiway Aviation fuel storage and dispensing facilities Airport maintenance equipment, garages and servicing facilities.	Passenger-cargo shelter, airport access road, aircraft parking area, ● Vktkll fuel storage and dispensing facilities airport maintenance ● quiprn.nt, garages and servicing facilities.	Passenger-cargo ● heller, airport access road, aircraft parking apron, aviation fuel storage and dispensing facilities, airport maintenance equipment, garages and servicing facilities.	Airport access road, aircraft parking apron	Passenger-cargo shelter, airport access road, aircraft parking area, aviation fuel storage and dispensing facilities airport maintenance equipment, garages and servicing facilities.
COMMUNICATIONS:	Air-ground and point to point communications	Air-ground and point-to-poinl communications.			Air-ground and point-to-point communications.
METEOROLOGICAL:	Routine meteorological observing programs, connection 10 dedicated meteorological circuit(s) to provide requisite in formation required for pro-flight planning and flight watch.	Meteorological observations on request, communications (radio or land-line) links through whkh requisite meteorological information for pro-flight planning can be obtained on request.	Meteorological observations on request. communication (radio or land-use) links through which requisite me teorological information for pre-flight planning can be obtained on request.	Determined on a site requirements back.	Meteorological observations on request, communications (radio or land-line) links through which requisite meteorological information for pre-flight planning can be obtained on request.

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Table A- 2

c) **Arctic "CR" (Community Regional) Airports)**

The following criteria are to be applied to this category:

a weighted population of more than 400
no means of **regualr** transportation other than air
served by an air carrier on a **regualr** scheduled basis, including regional jet service (actual or proposed)
a growing community.

Table A-3 lists the class “CR” airports.

Table A-3
List of “CR” Airports

Broughton Island
Lake Harour*
Clyde River
Igoolik
Pelly Bay
Grise Fiord
Gjoa Haven
Sachs **Harbour**
Pangnirtung
Cape **Dorset**
Pond Inlet
Repulse Bay
Arviat
Spence Bay
Holman
Paulatuk

Included to allow for standardization equipment

APPENDIX A2 - MARINE FACILITIES

General

There are two major and distinct marine activities associated with most communities.

The marine resupply activity involves the annual movement of bulk goods including dry cargo and fuel. This is accomplished by barges or ocean going freight vessels. The nature of this activity and the marine facilities required to support it are very different from local marine activity. At most communities 75-80% of the resupply tonnage is Petrol, Oil and Lubricants which are normally pumped ashore along a floating hose. While this is an efficient and proven method there are environmental concerns regarding spillage and alternative unloading methods could result in substantial cost increases.

Local marine activity involves relatively small craft utilized for commercial or subsistence harvest of local marine resources including fish, seals and other marine species. Local marine activity would also include access to land based hunting activities in the area, access to non renewable resources such as soapstone, movement of supplies by smaller craft within a region and tourist activity.

The major differences between these two types of activity are the size and characteristics of the vessels and the volumes of goods moved. Also, the resupply activity at most locations tends to be of short duration (one or two landings per year) while local marine activity extends throughout the navigation season.

Other marine activities to be considered are float plane movements and major resource export centres (such as Nanisivik). These two activities have much in common with local and resupply activities respectively. Requirements for each should be considered accordingly.

Classification

A classification of A, B or C is applied, based on a measure of the volume demand for each activity. Table A-4 gives the criteria for facility classifications under each category.

The overall classification for a given site would be the higher of the two ratings. However the two ratings would be used in determining facility requirements in support of each activity.

Table A-5 shows the resupply, local and overall marine classifications for each community, based on the criteria given in Table A-4.

Standards

Marine facility standards are based on level of service requirements. The variations from site to site and such natural features as water fluctuation, ice conditions, hydrography, wind and local geology and topography require considerable flexibility in establishing optimum solutions. The objective of providing a prescribed level of service remains the same.

The standards given in Table A-6 are therefore level of service based. In some cases, considerable investment in facilities will be required. In other cases, most or all of the level of service criteria are provided by nature. For example a good natural harbour with favorable tidal conditions and a stable beach area may satisfy most of the requirements of a class "B" resupply facility and a class "A" local facility. In such a case, it may only be necessary to identify and protect land use areas for marshaling and an access easement and provide deadmen for anchorage.

At the other extreme it maybe necessary to provide dredging, navigation aids, breakwaters, ice protection, fried or floating wharves marshaling areas, moorage and/or access roads to satisfy the class standard.

In developing facilities for any site, all marine activities should be considered, including resupply, local activity, float plane activity and resource export. It may be desirable to

TABLE A-4

MARINE FACILITY CLASSIFICATION CRITERIA

ACTIVITY	A	B	c	NO RATING
RESUPPLY	>100,000t per year throughout of dry cargo and fuel	2000-10,000t per year throughout	>2,000T resupply throughout	No Marine resupply
LOCAL	Significant Commercial Harvest and population >500	Significant Commercial Harvest with population<500 Subsistence Harvest with population>500	Subsistence harvest/ tourism with pop. <500	No local marine activity

Note:

Facility classification for each community shall be determined separately for Resupply and heal Marine activities.

- Overall classification shall be based on the higher of the two.

- Throughput are 5 year moving averages.

Table A- 4

Table A-5

COMMUNITY MARINE FACILITIES CLASSIFICATIONS

COMMUNITY	POPULATION	RESUPPL	ASSIFICATION LOCAL	VERALL
Hay River	2856	A	A	A
Iqualuit	3057	A	A	A
Inuvik	2676	A	B	A
Tuktoyaktuk	945	A	B	A
Rankin Inlet	1401	A	B	A
Norman Wells	590	A	w	A
Nanisivik	2s2	A	c	A
Pangnirtung	1041	B	A	A
Yellowknife	12039	A	A	A
Eskimo Point	1200	8	B	B
Cambridge Bay	1062	B	B	B
Baker Lake	1022	B	B	B
Cape Dorset	944	B	B	B
Coppermine	9t3	B	B	B
Igloolik	896	B	B	B
Pond Inlet	846	B	B	B
Aklavik	769	B	B	B
Gjoa Haven	676	B	B	B
Spence Bay	512	B	B	B
Arctic Bay	4P6	B	c	B
Coral Harbour	4s5	B	c	B
Hall Beach	475	B	c	B
Brough tonisland	444	B	c	B
Repulse Bay	437	B	c	B
Resolute	177	B	c	B
Fort McPherson	752	c	B	B
Fort Good Hope	577	c	B	B
Fort Simpson	S64		B	B
Fort Providence	561		B	B
Fort Smith	2466		B	B
Rae-Edzo	1414		B	B
Fort Franklin	537		B	B
Fort Resolution	466		B	B
Clyde River	469	c	c	c
Sanikiluaq	44s	c	c	c
Fort Norman	352	c	c	c
Lake Harbour	332	c	c	c
Holman	318	c	c	c
Snowdrift	281	c	c	c
Chesterfield Inlet	.?70	c	c	c
Whale Cove	225	c	c	c
Paulatuk	209	c	c	c
Sachs Harbour	172	c	c	c
Wrigley	166	c	c	c
Grise Fiord	104	c	c	c
Jean Marie River	64	c	c	c
Bay Chimo	62	c	c	c
Bathurst Inlet	16	c	c	c
Fort Liard	3s9		c	c
Lac La Martre	375		c	c
Pelly Bay	313		c	c
Rae Lakes	186		c	c
Hay River Reserve	181		c	c
Detah	131		c	c
Snare Lake	122		c	c
Arctic Red River	103	c	c	c
Nahanni Butte	86		c	c
Trout Lake	54		c	c
Colville Lake	52		c	c
Kakisa	30		c	c
Reliance	11		c	c
Enterprise	56			

Table A-5

ABLE A-6

ARINE FACILITY STANDARDS

'ossification

CTIVITY	A	B	C
ESUPPL Y	-Protected all tide or water level access & moorage for loading/unloading dry cargo and fuel - Secure marshaling area & access for heavy equipment	-Protected access & moorage for loading/ unloading dry cargo and fuel at least 8 hrs. - Adequate marshaling area and equipment access	-Access and moorage for discharge of dry cargo and fuel at least 4 hrs. daily -Adequate marshaling area and equipment access
DCAL	- Protected all tide or water level access for off loading catch - Access for landside equipment - Protected secure moorage - Access for seasonal launching/ haul out	- Protected access for off loading catch at least 8 hrs. daily - Access for landside equipment - Protected secure moorage - Access for seasonal launching/ haul out	- Protected access for load/off loading at least 4 hrs. daily - Protected secure moorage
	- Facility designs based on current/projected critical vessel size and volume of traffic		

Table A-6

APPENDIX A3 - ROADS

The transportation Engineering Division has a formal process to determine the priority for highway sections to be upgraded or reconstructed. The basis of this process is the road priority rating system, whereby each defined highway section is numerically rated as to the current level of service provided to the public.

Each highway section is recorded on two pages. The first is an evaluation work sheet which shows that the priority rating depends upon a variety of factors which together define the level of service for any section. The second page is a narrative evaluation which provides comments on the page one information.

On the first page, the rating of a given highway section is defined in terms of its characteristics with respect to design geometries (horizontal alignment, usable width, vertical alignment, and passing opportunity), surface factors (type of surface and how it performs in wet, dry and winter conditions), and maintenance demand. Points have been assigned to each characteristic. Higher point ratings indicate relatively more serious deficiencies. The overall priority rating of a section is obtained by multiplying a traffic factor by the rating total (the sum of the points assigned for geometries, surface, and maintenance deficiencies). Higher rating totals indicate poorer overall levels of service.

The highway sections have been identified with the goals of

considering past projects as distinct sections (usually a project resulted in a given length of road being constructed or reconstructed to a uniform standard),

having sections approximately 30 kilometers or less in length (this helps to ensure that the most deficient sections in the entire system are recognized as such. Longer sections could result in a deficient stretch being included with adjoining better stretches, and thereby receiving an unrealistically low priority rating),

having sections begin and end at readily recognizable reference points (such as

The road priority rating system is used in conjunction with a cost/benefit analysis, the objective of which is to identify the reconstruction or upgrading technique which results in the lowest "equivalent uniform annual cost" for any given highway section. The result is the sections most in need of work are identified, along with the type of work which most benefits the public. This forms the basis for a capital plan for future projects.

The following is a description of the individual rating components:

1. **Geometric Rating**

Note: a deficiency exists when a particular geometric feature (usable width, curve radius, sag k, crest k, or gradient) fails to meet the minimum acceptable requirement as defined in the N.W.T. Geometric Upgrading Warrants, which are based upon standards set by the Roads and Transportation Association of Canada. See attached tables A-7 for Upgrading Warrants.

a. Horizontal alignment: ten points for each deficient curve in the section, divided by the number of kilometers in the section.

b. Roadway width: one point for each 0.1 meter deficiency in usable width.

c. Vertical alignment: ten points for each instance of deficient vertical curve or gradient, divided by the number of kilometers.

d. Passing opportunity: rated good (zero points), fair (two points), or poor (five points), depending on the overall incidence of deficient passing sight distance.

2. Surface Rating

a. Surface type: various points ratings: zero (asphalt concrete), two (bituminous surface treatment), six (gravel with calcium chloride treatment) or ten (gravel).

Table A-7
List of "CR" Airports

Broughton Island
Lake Harour*
Clyde River
Igoolik
Pelly Bay
Grise Fiord
Gjoa Haven
Sachs Harbour
Pangnirtung
Cape Dorset
Pond Inlet
Repulse Bay
Arviat
Spence Bay
Holman
Paulatuk

* Included to allow for standardization equipment

b. Surface condition: points assessed for good, fair, or poor performance under the predominant conditions experienced in the N.W.T. The wet condition has lower point ratings because this is a less common occurrence than dry or winter conditions.

3. Maintenance Rating

Low maintenance demand: zero points. Medium demand: five points. High demand: ten points. This is typically a function of the quality of the subgrade (poor subgrades correspond with failure zones during spring thaw and frost heave in winter), the quality and quantity of gravel surfacing materials available (long hauls result from deficiencies in quality/quantity, and a more intensive grading program maybe required for sections where the surface quickly loses integrity due to poor quality), and traffic volume and type. Paved surfaces generally have a low demand.

4. Traffic Factor

This is one percent of the sum of PSADT (peak season average daily traffic) and 3 X PSADTT (peak season average daily truck traffic), as measured by mechanical traffic counts and visual and mechanical classifications.