Chapter IV

Utilization of Present Transport Services

Introduction

Before any attempt to identify the major system deficiencies can be made and before any plans for future modification to the system can be determined, it is essential that the utilization of existing services be analyzed, trends noted and reasons for mode choice be clearly understood. Subsequent parts of this chapter trace the historical utilization of each mode, namely truck, rail, sea, air, bus and Gulf ferry with respect to the movement of both passengers and freight. Where significant departure from the normal growth pattern has taken place, the reasons for such behaviour are speculated.

Although the Commission had access to a large amount of data both from government sources and some carriers concerned, cases were encountered where valid data was simply unavailable. Where this has occurred the Commission has attempted to synthesize the actual case or where only limited historical data was available, extrapolations were made on the premise of certain basic assumptions. Specific cases are identified as encountered.

Freight Movements

1. *Intra-Provincial*

Figure 4-1 graphically illustrates the major trends that have occurred in intra-provincial transport in recent years. In the case of sea movements, it is noted that the only information available was for the years 1963, 1970, 1973 and 1976, and therefore the trend line was interpolated from these. From Figure 4-1 it can be seen that truck tonnages have increased from 1,912,000 tons in 1964 to an estimated 7,800,000 tons in 1976. Rail on the other hand has declined from 696,000 tons in 1972 to 403,000 in 1976. Sea transport has also declined from 938,000 tons in 1963 to 479,000 tons in 1976.

The increase in truck utilization accompanied by a decline in the other modes can be attributed to improvements made to the highway network over the time frame concerned, less dependence on the coastal boat as a means of basic transport, and a more favourable competitive position *vis-a-vis* the rail operation. Since many of the movements involved are relatively short hauls and often between points of origin and destination which are not accessible by other modes, the shift from rail and sea to highway is likely to continue.

2. *Interprovincial Freight*

a) *Incoming General Cargo*

The total incoming freight has increased in volume since 1961 although there was a slight drop-off in 1976. The periods between 1964 and 1966, and between 1970 and 1975, recorded rapid increases in the volume of incoming goods. Rail freight followed these trends as Figure 4-2 indicates, although there was a decline in tonnage around the late 1960's. Rail carried a peak volume of 585,000 tons in 1974 after which the tonnage plunged to 425,000 tons in 1976. Trucking has risen steadily, particularly since 1970, and with recessions in the other two modes, can be expected to rise in the future. Shipping revealed severe fluctuations between 1962 and 1967 but from that time slight increases were recorded until 1972 when a very slight downward trend appeared.

Generally speaking, trucking was the only mode showing definite increase while sea transport more or less maintained the status quo. For example, sea tonnages in 1961 amounted to 185,000 tons and

Figure 4-1

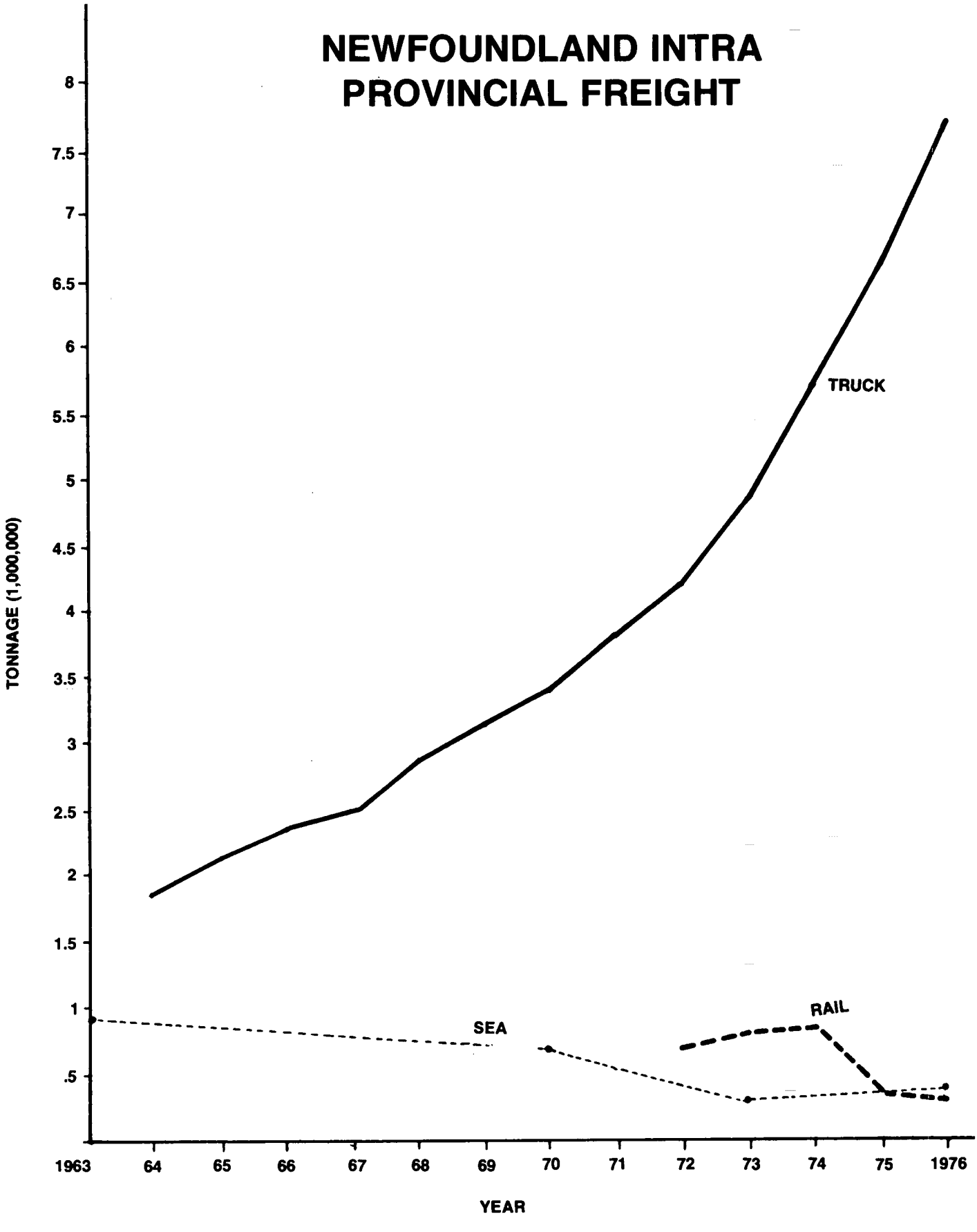
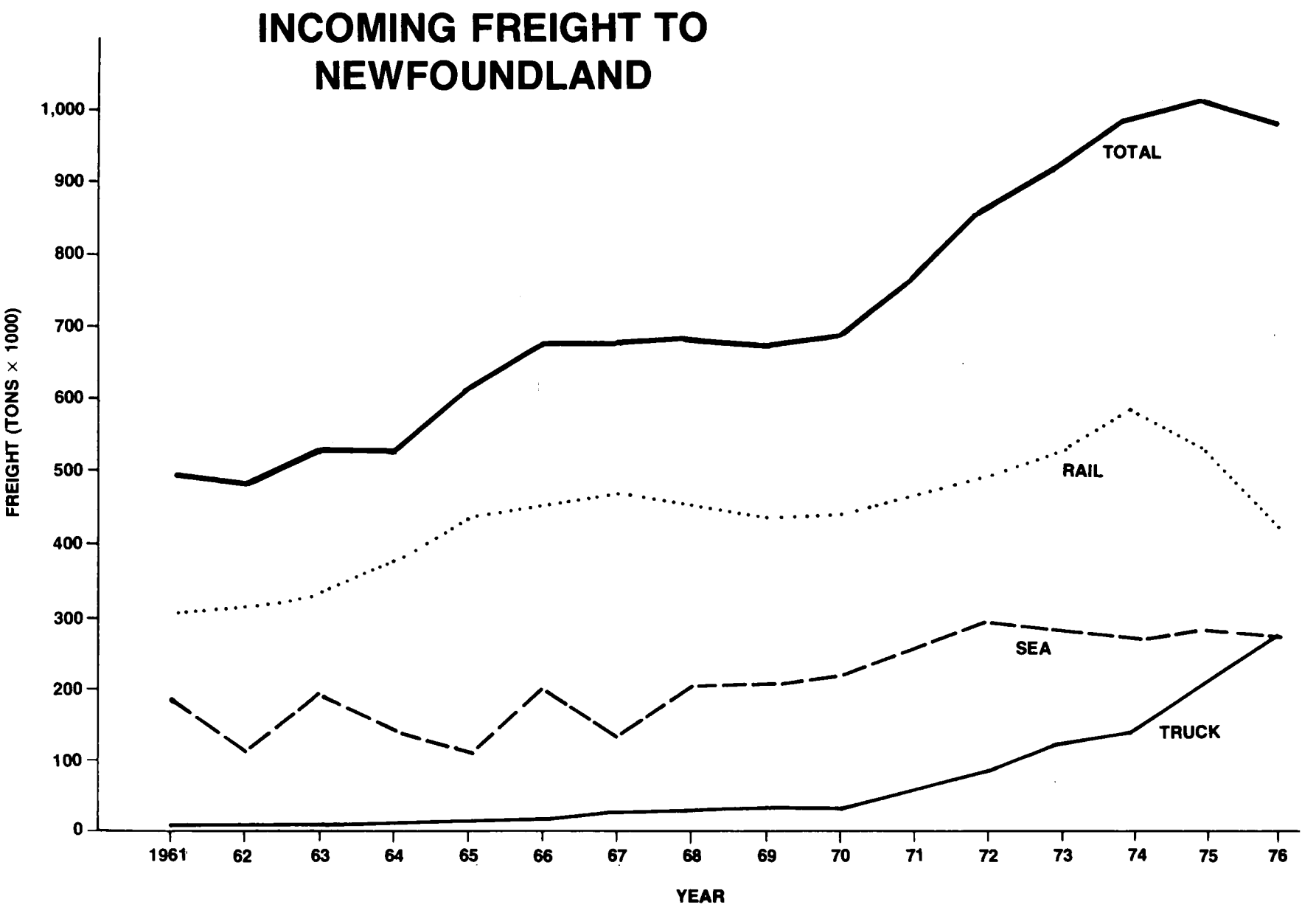

NEWFOUNDLAND INTRA PROVINCIAL FREIGHT
TONNAGE (1,000,000)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
.5
TRUCK
SEA
RAIL
1963
64
65
66
67
68
69
70
71
72
73
74
75
1976
YEAR

Figure 4-2


INCOMING FREIGHT TO NEWFOUNDLAND
FREIGHT (TONS × 1000)
1,000
900
800
700
600
500
400
300
200
100
0
TOTAL
RAIL
SEA
TRUCK
1961
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
YEAR

265,000 tons in 1976 for an average annual growth rate of 2.9% over the 15 year period.

The exceptionally large increase in truck traffic since 1970 is accounted for by the fact that up until that time there was a severe impedence to truck travel caused by (i) the inability of the Gulf ferries to handle large trucks and (ii) the rate structure for carriage of trucks on the ferries which effectively priced trucking out of the market. The removal of these obstacles has seen the satisfaction of what was a very large latent demand.

b) *Outgoing General Freight*

Figure 4-3 indicates that trucking activity has taken a substantial jump since 1970 in the transport of freight from the Province, with the tonnage rising from 2000 tons in 1965 to 136,028 tons in 1976. Rail tonnages reached a peak in 1974 when 97,000 tons of freight were carried out of the Island. By 1976, rail tonnages had declined to 70,000 tons.

Historically speaking, trucking has been on the increase while rail has experienced recent declines. Sea transport has declined somewhat, but still maintains an important function as a transportation mode.

The relatively large increase in the amount of truck traffic can be directly attributed to the capture by this mode of the export of fish products. Characteristics of the trucking industry have apparently met the requirements of the fishing industry to such a degree that all other modes have been virtually displaced. Another significant factor which influenced the increase in truck traffic was the extension of the ARFAA to the trucking industry.

Traffic Zone System

In order to analyze traffic data pertaining to the movement of both freight and passengers in a realistic manner a traffic zone system was devised. A map showing the boundaries of these zones is given in Figure 4-4.

Mode Utilization: Sea

1. *Incoming Sea Freight*

Sea freight incoming to Newfoundland is split into equal proportions between Maritime and non-Maritime origins, the quantities being 11,837,500 tons and 1,822,200 tons respectively. The breakdown by specific origin in Figure 4-5 indicates that Nova Scotia, excluding North Sydney, and the United States provide 28% and 27% respectively of incoming sea freight, while Montreal and North Sydney are sources for 14% and 11% respectively. The remaining 676,605 tons (20%) of sea freight came from Quebec (excluding Montreal), New Brunswick, Ontario and P.E.I. In many cases where there were large tonnages coming from a particular zone it was found that they were usually destined for specific areas and composed of a few basic commodities. The major destinations and commodities have been identified and enumerated in Table 4-1 and Figure 4-6. These commodities account for 74% (2,647,136 tons) of freight coming by sea.

Table 4-1 Major Destinations and Origins of Incoming Sea Freight

Origin	Total Tonnage	Zonal Destination	Major (Tons) Volume	Tonnage & Commodity
North Sydney	406,289	6	392,677	248,270 manu. & misc.
Nova Scotia	1,011,500	1	378,654	345,595 gasoline
Nova Scotia		8	184,181	157,013 gasoline
Nova Scotia		15	123,921	117,410 gasoline
New Brunswick	272,241	1	171,388	171,388 gasoline
Montreal	505,557	1	200,199	131,520 manu. & misc.
Montreal		8	170,313	110,303 gasoline
Quebec	297,781	2	113,093	113.093 gasoline
Ontario	82,684	1	57,424	23,818 pdts. of mine
Ontario		1		11,173 manu. & misc.
United States	954,299	2	855,286	823,602 pdts. of mine

Gasoline accounts for 1,014,802 tons (29%) of total incoming sea freight, products of mines for 847,420 tons (24%) and manufactures and miscellaneous for 390,963 tons (11%) for a total of 64% of all sea freight. The remaining 36% is distributed between the other major commodity classifications and traffic zones.

Clearly, over 50% of sea mode freight is composed of gasoline and products of mines, while another 88,148 tons of manufactures and miscellaneous was shipped to Goose Bay from Nova Scotia (excluding North Sydney).

2. *Intra-Sea Freight*

In 1976, a total of 479,234 tons of sea freight originated in Newfoundland for intra-provincial transfer. Of this, 405,291 tons were made up of 207,978 tons of gasoline and petroleum products and 197,313 tons of forest products originating from three zones. The details of these movements are illustrated in Table 4-2 from which we can see that forest products came from zone 18 (Goose Bay), destined for zone 7 (Stephenville), while the major gasoline and petroleum movements were from zone 2 to zone 11/12 and zone 1 as well as within zone 2. Significant transfers also occurred between zone 1 and zones 1, 4 and 14. Figure 4-7 graphically depicts the zonal origins of intra freight and it is noted that fully 97% of all intra sea freight originates in three zones.

The vast majority of intra-provincial sea freight was shipped to the three major origins detailed in Figure 4-8. These 197,876 tons of forest products shipped from Goose Bay to Stephenville and 54,236 tons of

Figure 4-3

OUTBOUND FREIGHT FROM NEWFOUNDLAND

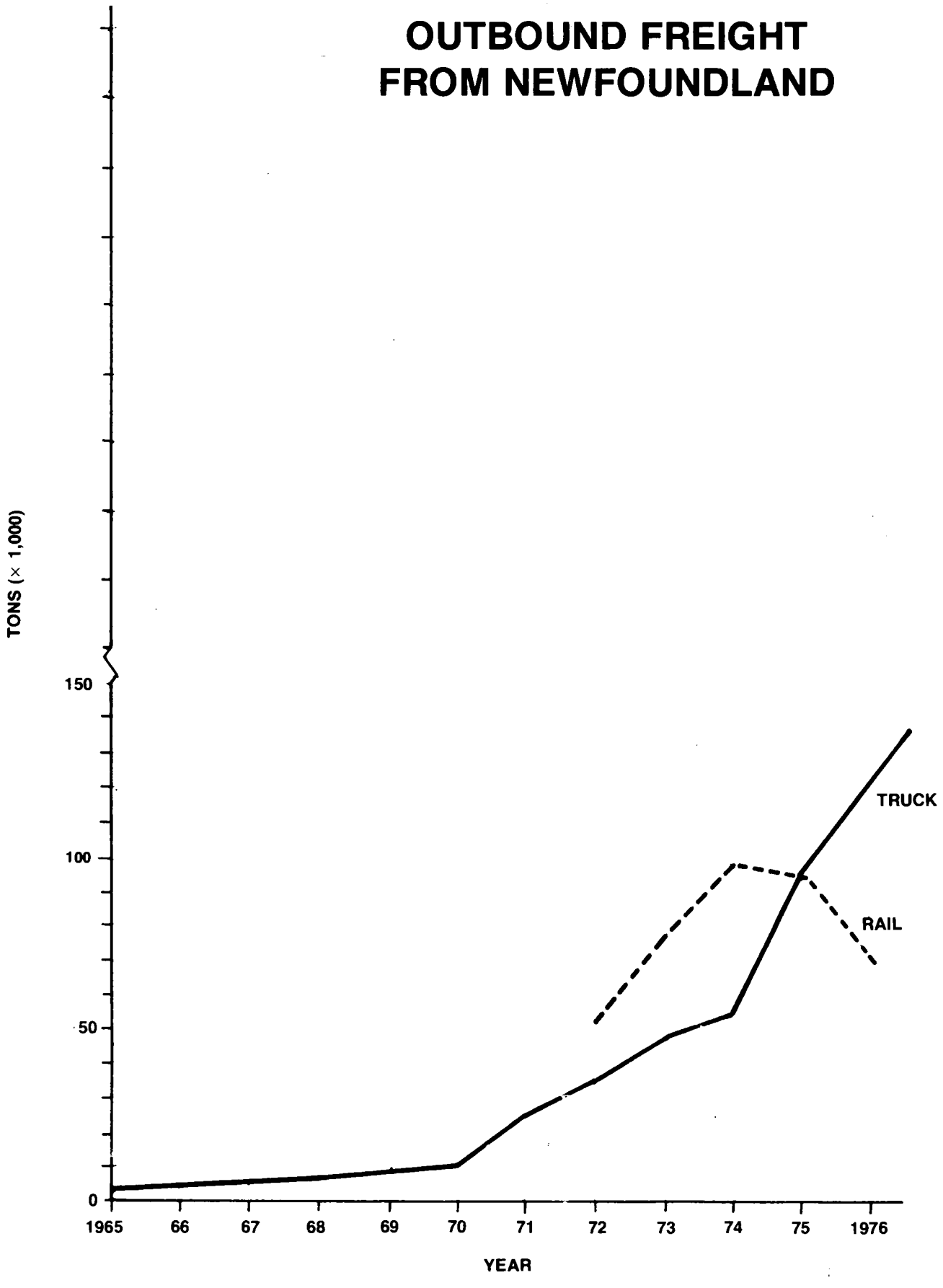


Figure 4-4

NEWFOUNDLAND TRAFFIC ZONES

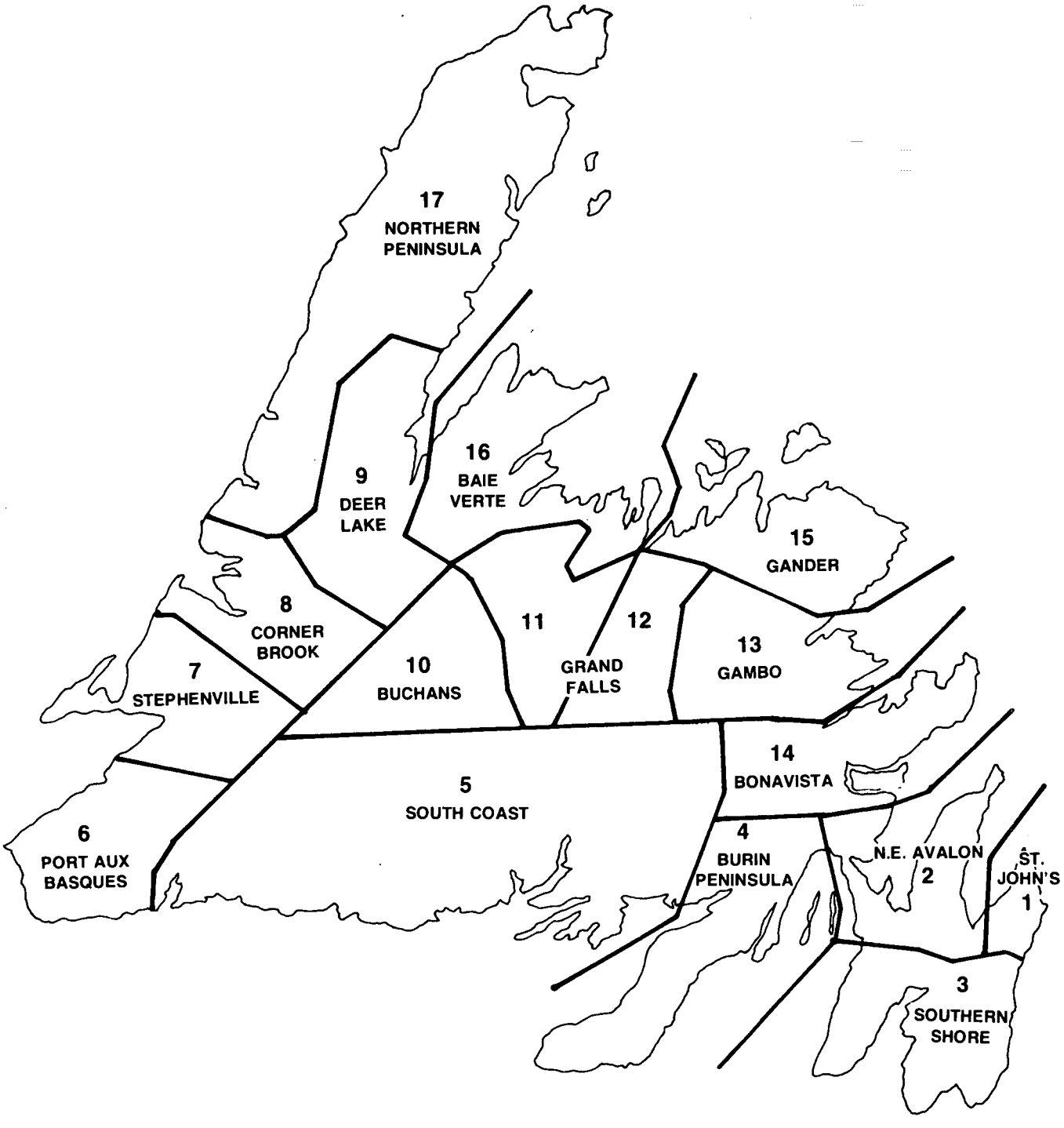
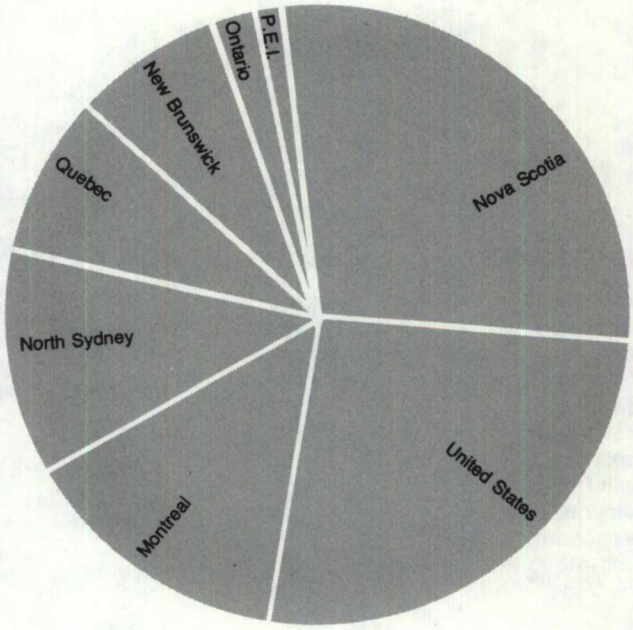


Figure 4-5

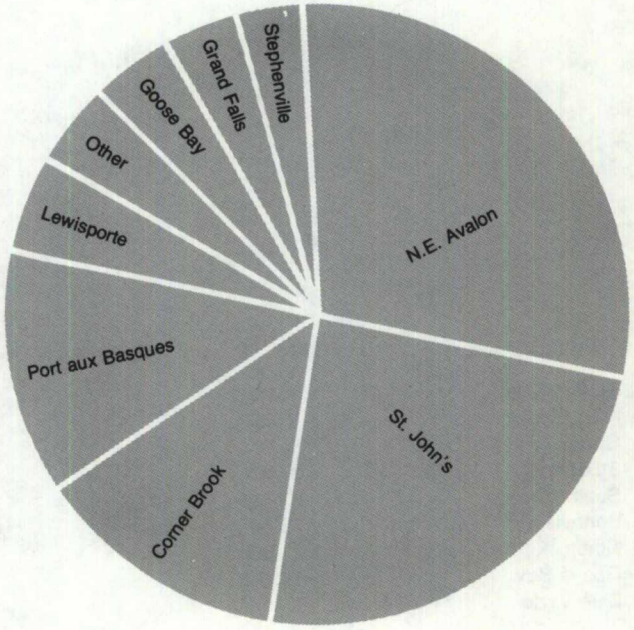
ORIGINS OF SEA FREIGHT INCOMING TO NEWFOUNDLAND BY PERCENTAGE



TRAFFIC ZONE	TONNAGE
Nova Scotia	1,011,550
United States	954,299
Montreal	505,557
North Sydney	406,289
Quebec	297,781
New Brunswick	272,241
Ontario	82,684
P.E.I.	23,900

Figure 4-6

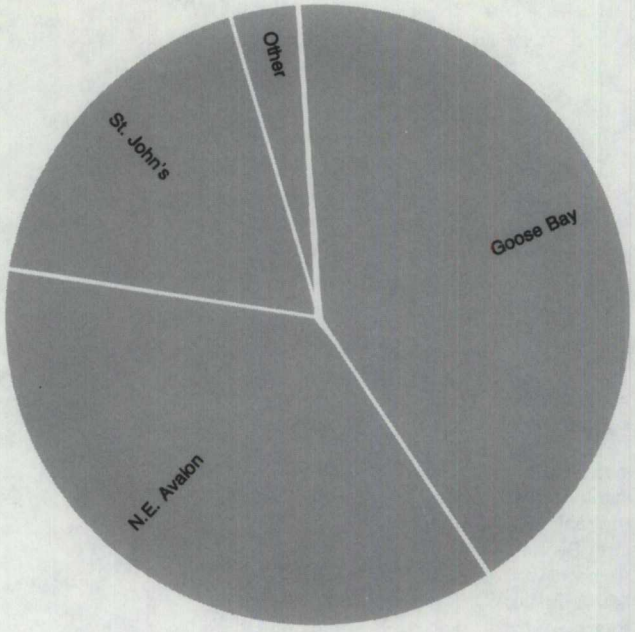
DESTINATION OF SEA FREIGHT INCOMING TO NEWFOUNDLAND BY PERCENTAGE



TRAFFIC ZONE	TONNAGE
N.E. Avalon	982,722
St. John's	840,936
Corner Brook	461,152
Port aux Basq.	440,896
Lewisporte	178,226
Goose Bay	146,067
Grand Falls	132,368
Stephenville	97,200
Other	166,616

Figure 4-7

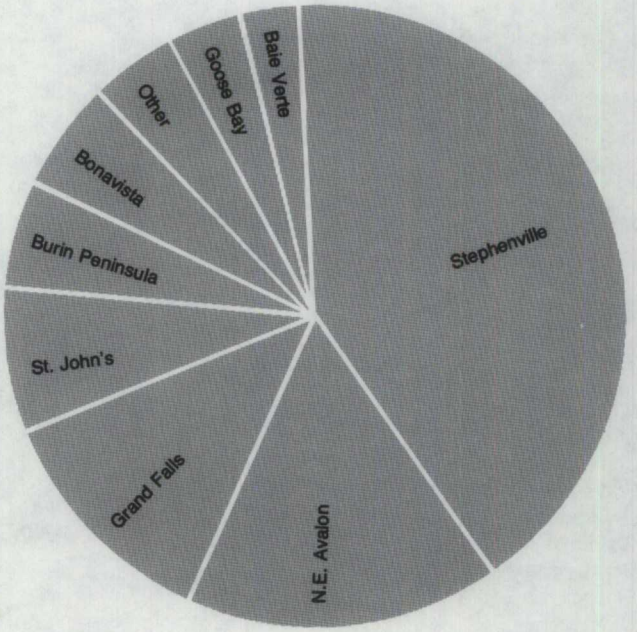
NEWFOUNDLAND ORIGINS OF INTRA SEA FREIGHT BY PERCENTAGE



TRAFFIC ZONE	TONNAGE
Goose Bay	201,016
N.E. Avalon	175,786
St. John's	87,206
Port aux Basques	4,961
Lewisporte	4,882
Southern Shore	3,438
South Coast	1,006
Burin Peninsula	426
Corner Brook	391
Stephenville	88
Bonavista	26
Baie Verte	8

Figure 4-8

NEWFOUNDLAND DESTINATIONS OF INTRA SEA FREIGHT BY PERCENTAGE



TRAFFIC ZONE	TONNAGE
Stephenville	200,901
N.E. Avalon	75,527
Grand Falls	60,474
St. John's	37,034
South Coast	27,404
Bonavista	26,741
Other	21,688
Goose Bay	18,288
Baie Verte	11,177

Table 4-2 Major Origins of Intra Freight

Zone	Total Outgoing	Tonnage	Zonal Destination	Commodity
1	87,206	10,837	1	Gasoline
		19,101	4	Gasoline
		25,630	14	Gasoline
2	175,786	33,488	1	Gasoline
		64,686	2	Gasoline
		54,236	11/12	Gasoline
18	201,016	197,313	7	Forest pdts.

gasoline and petroleum products shipped from N.E. Avalon to the Grand Falls/Botwood area. An additional 64,686 tons of the same were shipped internally in zone 2. There were 19,101 tons of gasoline and petroleum products sent from zone 1 to zone 4 (Burin Peninsula) and 5477 tons of manufactures and miscellaneous transported from St. John's to Goose Bay. In all but the latter case, these few commodities composed the major movements in their respective zones. In Goose Bay manufactures and miscellaneous made up 30% of the total. In each example the remaining minor tonnages were distributed over several commodity types.

3. *Outbound Sea Freight*

A total of 2,370,375 tons of sea freight was shipped from Newfoundland in 1976, some 89% of which originated in four major areas as illustrated in Table 4-3. In order of decreasing magnitude the zones were 2, 7, 11/12 and 8, but zone 2 (N.E. Avalon) was by far the more important, exporting 874,776 tons of freight (Figure 4-9). From zone 2 there were 361,158 tons of gasoline and petroleum products exported, 253,151 tons to Quebec, 74,379 tons to Montreal and 33,628 tons to Nova Scotia. There were 230,734 tons of products of mines exported, 140,779 tons of which were destined for Quebec and 89,955 tons for Montreal. The 74,103 tons of manufactures and miscellaneous were shipped to Quebec.

The major sea exports from zone 7 (Stephenville) was 600,248 tons of products of mines, 445,936 tons of which went to the United States and 154,312 tons to Montreal. There were an additional 103,072 tons of manufactures and miscellaneous shipped to the United States.

Of the 247,117 tons of manufactures and miscellaneous commodities shipped from Corner Brook some 239,862 tons were shipped to the United States. A total of 286,685 tons were exported by sea from the Grand Falls/Botwood area composed of 225,328 tons of manufactures and miscellaneous and 55,347 tons of products of mines.The remaining traffic zones had tonnages that varied between 4 and 79,387 tons. St. John's exported 29,341 tons of products of mines to the United States, the Burin Peninsula exported 48,946 tons of the same to Quebec. Port aux Basques exported 52,234 tons of manufactures and miscellaneous products to North Sydney. From zone 16 there were 24,895 tons of products of mines exported by sea to Quebec and 48,942 tons of the same sent to the United States.

Table 4-3 Newfoundland Origins of Outbound Sea Freight—1976

Origin	Tonnage	Zonal Destination	Commodity and Tonnage
Zone 2	874,776	20B (Nova Scotia excluding North Sydney)	Gasoline & Petroleum Products 33,628
		23A (Montreal)	Gasoline & Petroleum Products 74,379
		23B (Quebec excluding Montreal)	Gasoline & Petroleum Products 253,151
		23A (Montreal)	Pdts. of Mines 89,955
		23B (Quebec excluding Montreal)	Pdts. of Mines 140,779
		23B —	Manu. & Misc. 74,103
Zone 7	703,320	23A —	Pdts. of Mines 154,312
		26 (United States)	Pdts. of Mines 445,936
		26 "	Manu. & Misc. 103,072
Zone 11/12	286,685	26 "	Manu. & Misc. 225,328
		26 "	Pdts. of Mines 55,347
Zone 8	247,117	26 "	Manu. & Misc. 239,862
Zone 16	79,387	23B —	Manu. & Misc. 24,895
Zone 6	62,797	20A (North Sydney)	Manu. & Misc. 52,234
Zone 4	56,488	23B —	Pdts. of Mines 48,946
Zone 1	55,469	26 —	Pdts. of Mines 29,341

Mode Utilization: Rail

In 1976 there were some 402,926 tons of freight brought into Newfoundland on the CN railways and 71,832 tons carried out. A total of 395,704 tons were transported between points on the Island for a maximum of 870,704 tons. The figures exclude coastal freight which has been omitted in the following analysis.

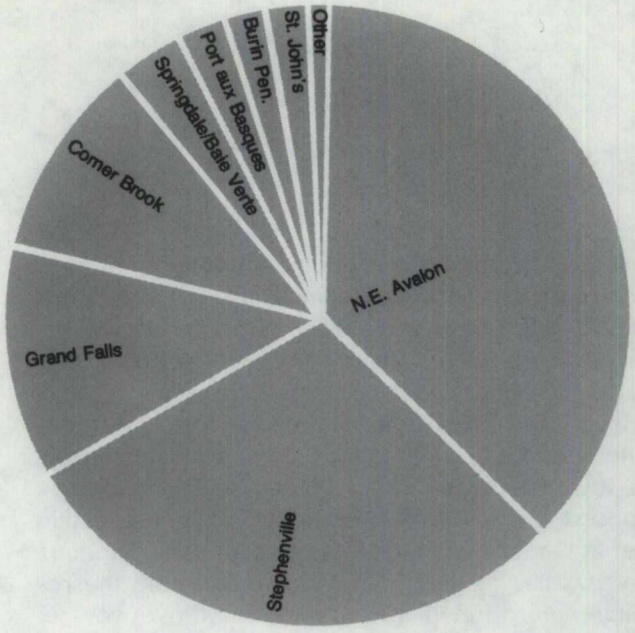
I. *Incoming Rail Freight*

The incoming tonnages and major origins/destinations of these goods are dealt with first. The majority of rail freight incoming to Newfoundland comes from five major areas: Ontario; New Brunswick; Quebec excluding Montreal; Alberta, Manitoba, Saskatchewan and British Columbia; and Nova Scotia excluding North Sydney. These origins are illustrated in Figure 4-10 and account for 335,406 tons of freight, roughly 83% of the total incoming. The bulk of the remaining 17% came from the United States and Montreal.

The major commodity origins and tonnages are detailed in Figure 4-11. The main body of rail freight is of non-Maritime origins with only 35% originating in the Maritimes. The only commodities of importance coming from the Maritime provinces are petroleum products, vehicles and machinery, forest products

Figure 4-9

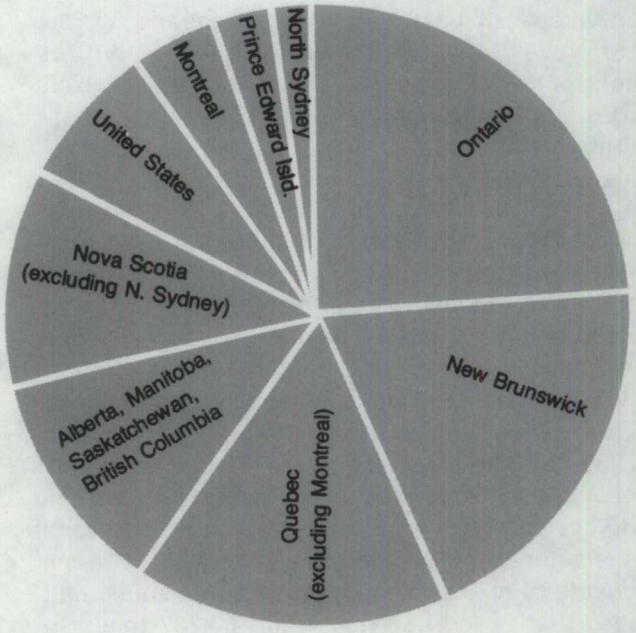
NEWFOUNDLAND ORIGINS OF OUTBOUND SEA FREIGHT — 1976



TRAFFIC ZONE	TONNAGE
N.E. Avalon	874,776
Stephenville	703,320
Grand Falls	286,685
Corner Brook	247,117
Springdale	79,387
Port aux Basques	62,797
Burin Peninsula	56,488
St. John's	55,469
Other	4,336

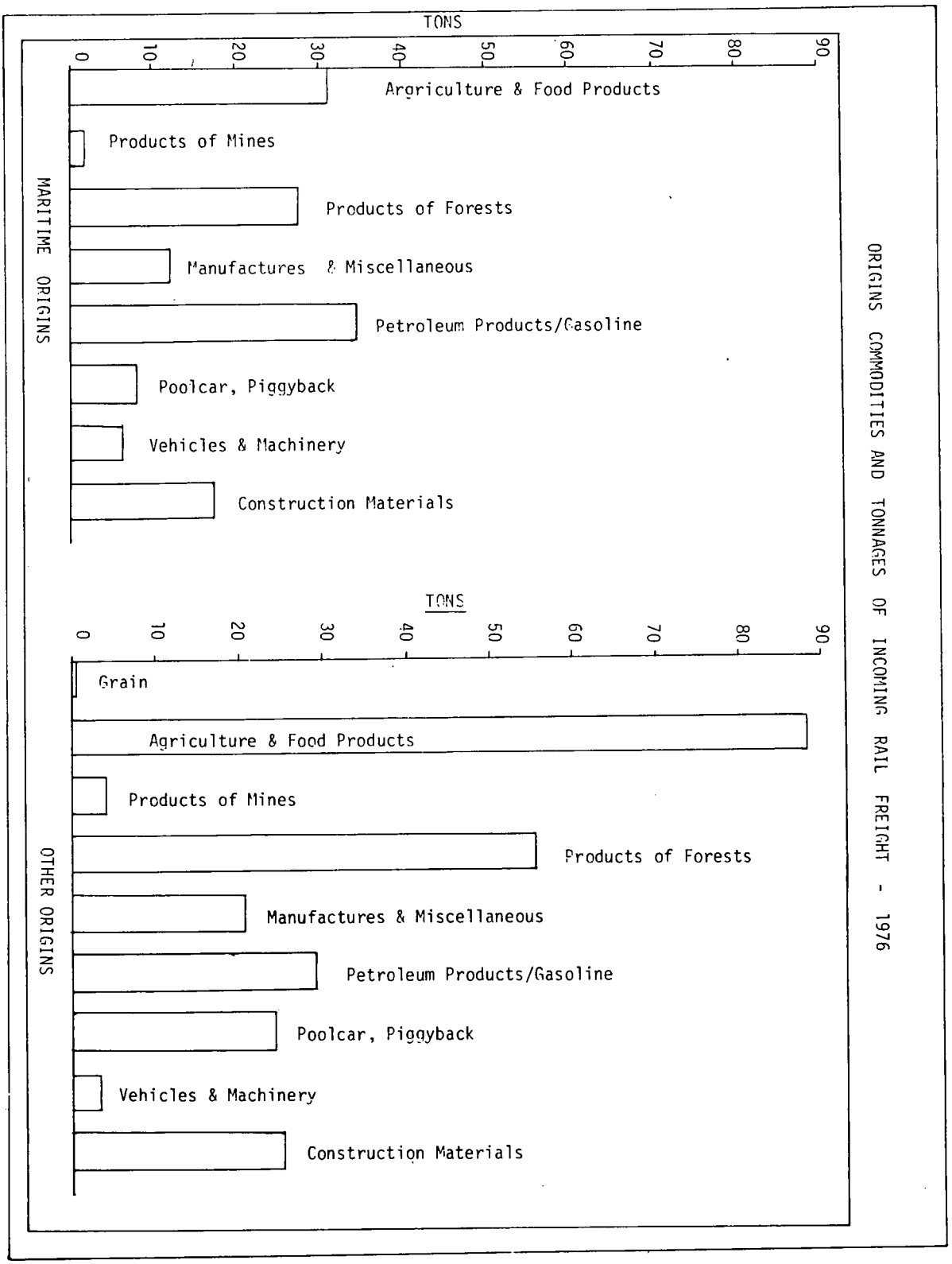
Figure 4-10

ORIGINS OF RAIL FREIGHT INCOMING TO NEWFOUNDLAND BY PERCENTAGE



ORIGINS	TONS
Ontario	95,946
New Brunswick	79,917
Que. (excl. Mtl.)	66,873
Alb., Man., Sas., B.C.	46,455
N.S. (excl. N. Syd.)	46,215
U.S.A.	30,612
Montreal	18,918
Prince Ed. Isld.	12,429
North Sydney	6,218

Figure 4-11


ORIGINS COMMODITIES AND TONNAGES OF INCOMING RAIL FREIGHT - 1976
MARITIME ORIGINS
TONS
0
10
20
30
40
50
60
70
80
90
Agriculture & Food Products
Products of Mines
Products of Forests
Manufactures & Miscellaneous
Petroleum Products/Gasoline
Poolcar, Piggyback
Vehicles & Machinery
Construction Materials
OTHER ORIGINS
TONS
0
10
20
30
40
50
60
70
80
90
Grain
Agriculture & Food Products
Products of Mines
Products of Forests
Manufactures & Miscellaneous
Petroleum Products/Gasoline
Poolcar, Piggyback
Vehicles & Machinery
Construction Materials

and construction materials. Of these, petroleum and forest products loom largest. Agriculture/food products at 30,900 tons were imported from Maritime origins in volumes comparable to those of petroleum and forest products.

Grain was imported from non-Maritime origins but at 200 tons, the amount was insignificant. The major imports from non-Maritime origins were agriculture/food products at 88,600 tons and forest products at 55,800 tons (see Figure 4-11). Generally, 65% of rail freight was of non-Maritime origin, the major commodities being agriculture/food and forest products. The most important items from the Maritimes were petroleum and forest produce.

The major destinations of incoming rail freight were zone 1 (St. John's), zone 8 (Corner Brook), zones 11 and 12 (Grand Falls) and zone 2 (Conception Bay). Together these zones account for 80% of all incoming rail freight and individually for 44.4%, 13%, 10.9% and 10.8% in respective order. The remaining 20% was distributed between Gander, Port aux Basques, Stephenville, Clarenville, Gambo and other minor destinations (see Figure 4-12).

In terms of commodity volumes, for each of these four zones, agriculture and food products appear as the largest rail import commodity in each zone. Forest products rank second in all but zones 11/12 where it is displaced by fuels and chemicals. The remaining breakdowns by commodity type are detailed in Table 4-4.

Table 4-4 Rail Commodity Breakdown by Major Destination—1976

	TRAFFIC ZONE DESTINATION			
COMMODITY CLASSIFICATION	1	2	8	11/12
Forest Products	40,175	10,031	8,906	5,596
20 Ores, Minerals, Metals	2,102	246	365	1,946
30 Vehicles & Machinery	2,611	100	2,589	1,867
31 Mfg. Products & Miscellaneous	18,347	788	3,592	6,797
40 Construction Basic Materials	12,741	5,305	5,083	3,802
50 Fuels & Chemicals	17,876	9,690	7,609	7,533
60 Agriculture & Food Products	53,955	15,516	17,698	10,869
65 Grain	145	45	—	—
70 Poolcar, Piggyback & Misc.	21,723	401	4,221	3,198

St. John's utilized rail to a greater degree than did the other major zones because of its larger population and role as a point of distribution for other areas on the Island.

2. *Intra-Rail Freight*

There were approximately 395,704 tons of freight transported within the Province by rail in 1976, the majority of which originated in three major zones—13, 8 and 10. These three zones accounted for roughly 69% of all rail freight moved between intra zones. Figure 4-13, graphically illustrates the major zones of origin. Gander, Corner Brook and Millertown Jct. respectively are the centres for the more important zones and Grand Falls the centre for the fourth-ranked zones 11 and 12, which originated only 10% of total rail freight. The remaining 21% originated mainly in zones 15, 6, 7 and 1 with less than 10% coming from other zones.

About 51% of intra freight was shipped to zone 8 (Corner Brook) with 19% going to zones 11 and 12 (Grand Falls) and 15% going to zone 7 (Stephenville) for a total of 85%. The distribution of the remaining 15% is detailed in Figure 4-14. In 1976, 191,584 tons of rail freight entered Corner Brook, far in excess of tonnages entering other zones. This is in comparison to 72,270 tons entering zones 11 and 12, 57,715 entering zone 7 and 27,418 entering zone 1.

Of the 191,000 tons of freight going into Corner Brook, 187,587 tons are composed of forest products, 134,197 tons of which came from zone 13 (Gander). Two other zones, Grand Falls (24,750 tons) and Port aux Basques (16,785 tons) contributed significantly to this large tonnage. The remaining tonnages of rail freight were obviously very small totalling 3937 tons, of which 3736 tons were agriculture and food products from St. John's. Table 4-5 details the intra-rail commodity breakdowns.

Table 4-5 Zonal Destinations of Intra-Rail Freight—1976

COMMODITY	1	2	3	6	7	8	9	10	11/12	13	14	15
Forest Products	161	146	129	1,015	56,241	187,587	32	—	72	360	—	601
Ores, Minerals, Metals	38	40	9	—	115	—	6	192	66,033	12	—	—
Vehicles & Machinery	—	—	—	44	—	24	—	—	93	23	—	—
Mfg. Products & Misc.	1,732	20	32	168	2	196	—	—	303	7	42	42
Const. Basic Materials	25,179	9,512	170	4,115	1,010	41	—	100	1,327	1,992	1,274	2,337
Fuels & Chemicals	83	20	—	1,824	15	—	—	—	8,902	7,273	32	5
Agriculture & Food Pdts.	205	12	82	614	332	3,736	210	20	540	15	—	—
Grain	—	—	—	—	—	—	—	—	—	—	—	—
Poolcar, Piggybk. & Misc.	20	8	81	—	—	—	—	—	21	21	21	19
TOTAL	27,418	9,758	503	7,780	57,715	191,584	248	312	77,291	9,703	1,369	3,004

Figure 4-12

DESTINATION OF INBOUND RAIL FREIGHT TO NEWFOUNDLAND BY PERCENTAGE 1976

TRAFFIC ZONE	CENTER OF ZONE	TONNAGE
1	St. John's	191,351.
8	Corner Brook	50,126
11/12	Grand Falls	41,608
2	N.E. Avalon	42,122
15	Gander	19,726
6	Port aux Basques	16,403
7	Stephenville	13,544
14	Clarenville	13,185
13	Gambo	10,215
Other		6,797

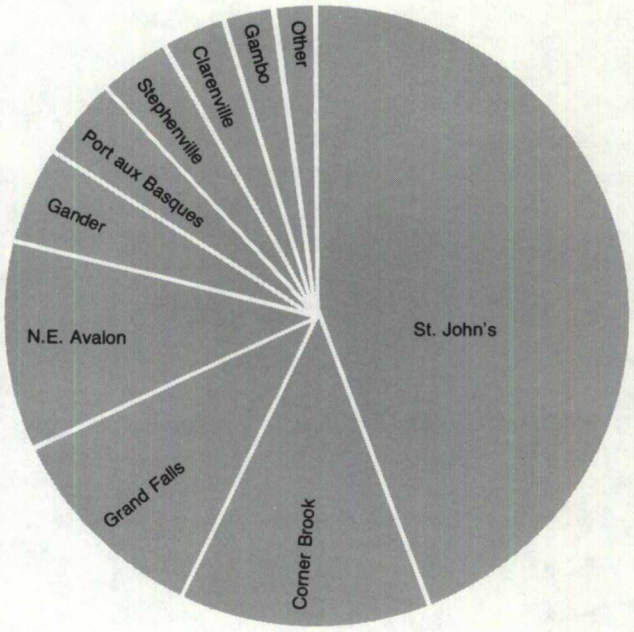


Figure 4-13

MAJOR ORIGINS OF INTRA-RAIL FREIGHT

ZONE	CENTER OF ZONE	TONS
13	Gambo	140,501
8	Corner Brook	103,978
10	Millertown	66,085
11/12	Grand Falls	44,664
15	Gander	31,400
6	Port aux Basques	29,478
7	Stephenville	14,318
1	St. John's	12,601
Other		8,924

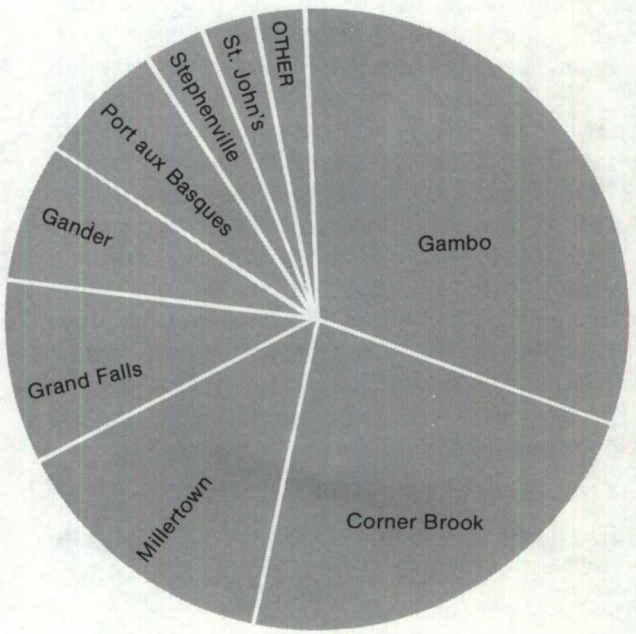
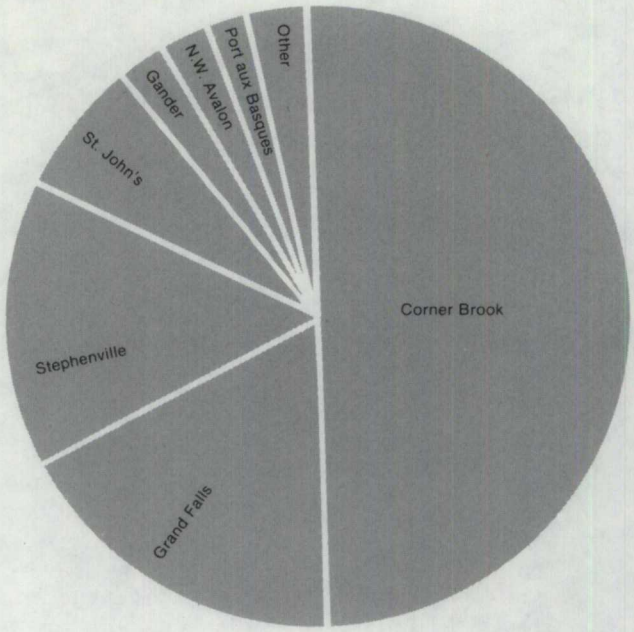


FIGURE 4-14

DESTINATION OF INTRA-RAIL FREIGHT IN NEWFOUNDLAND BY PERCENTAGE



TRAFFIC ZONE	CENTER OF ZONE	TONNAGE
1	St. John's	27,418
2	N.W. Avalon	9,758
6	Port aux Basques	7,841
7	Stephenville	57,715
8	Corner Brook	191,584
11/12	Grand Falls	72,270
13	Gander	10,223

3. *Outbound Rail Freight*

The outbound rail tonnages in 1976 amounted to 71,832 tons in comparison to the larger volumes brought into and transported within the Island. There was only one significantly large export of rail freight from zone 8 (Corner Brook) consisting of 37,757 tons of forest products shipped to the United States. Outbound rail shipments from other traffic zones were relatively low, usually under 5000 tons, although zone 1 and zone 7 exceed this amount. From zone 7 (Stephenville) there were 1892 tons of forest products shipped to zone 23B (Quebec, excluding Montreal) and 1916 tons of the same sent to Ontario. From zone 1 (St. John's), the major rail export commodity was agriculture and food products, 1597 tons of which was transported to zone 23B. Other than this, there were no significant quantities of rail freight exported from Newfoundland in 1976. The percentage origins are detailed in Figure 4-15 but destination and commodity breakdowns have been omitted for outbound rail freight due to the relatively low volumes.

Mode Utilization: Air Passengers—1976

In 1976 there was a total of 629,968 passengers carried by Newfoundland-associated airlines.

1. *Intra*

In 1976 there were 152,647 passengers carried between points within the Island of Newfoundland. This figure represents 24% of all air traffic associated with the Province. Table 4-6 details the major intra-provincial air transfers which account for the origins of 91.9% of passengers and 93.1% of destinations. Of the origins, zone 1. (St. John's), was the most important with 34% of the traffic; followed by zone 13 (Gander), with 17.8%; zone 9 (Deer Lake), with 15.8%; zone 18 (Goose Bay), with 12.9%; and zone 19 (Wabush), with 11.7%. There were 16,320 passengers from zone 1 disembarked in Deer Lake and 17,480 in Gander.

The major destinations ranked the same as the origins and as can be seen from Table 4-6, the percentages were very similar. The passengers landing at St. John's came mainly from Deer Lake and Gander.

2. *Incoming*

Fully 232,561 passengers or 37% of the total Newfoundland-associated air passengers came from extra-provincial origins in 1976. The three major origins were Ontario, Nova Scotia (excluding North Sydney), and Montreal. Together these accounted for 74.1% of incoming traffic. The incoming traffic is detailed in Table 4-7. The major destinations of passengers were St. John's, Gander and Wabush.

In percentage terms, St. John's received 55.9%, Wabush, 16.3% and Gander, 10.7%.

3. *Outbound*

In 1976, outbound passenger traffic comprised the largest portion of Newfoundland air travel with some

Table 4-6 Origin-Destination of Intra-Provincial Air Passengers—1976

Zones

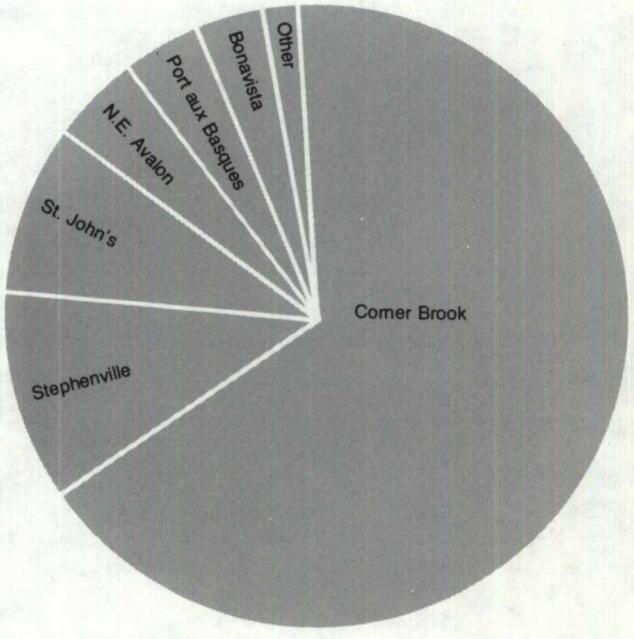
O/D	1	5	7	9	13	15	17	18	19	TOTAL
1	—	—	5,500	16,320	17,480	—	40	5,430	7,460	52,230
5	—	16	—	—	86	—	—	—	—	102
7	5,920	—	—	—	640	—	—	740	930	8,230
9	17,430	—	—	—	900	—	240	2,069	3,530	24,169
13	17,320	64	540	830	278	523	558	2,958	4,250	27,321
15	—	—	—	—	528	—	—	—	—	528
17	40	—	—	230	540	—	—	1,453	10	2,273
18	5,480	—	620	2,244	2,553	—	1,509	5,578	1,820	19,804
19	7,410	—	680	3,580	4,110	—	30	1,980	200	17,990
TOTAL	53,600	80	7,340	23,204	27,115	523	2,377	20,208	18,200	152,647
%	35.1			15.2	17.7			13.2	11.9	91.9 93.1

Table 4-7 Origin-Destination of Incoming Air Passengers—1976

O/D	1	5	7	9	13	15	17	18	19	TOTAL
20A	3,600	—	580	1,490	820	—	—	90	150	6,730
20B	36,720	—	3,880	5,210	6,110	—	—	1,010	400	53,340
21	9,410	—	1,010	1,150	1,970	—	—	480	210	14,230
22	1,840	—	80	380	500	—	—	60	10	2,870
23A	20,850	—	3,530	2,400	3,860	—	—	4,640	12,630	47,910
23B	1,220	—	100	80	240	—	—	110	22,840	24,590
24	48,730	—	7,820	1,900	10,140	—	—	980	1,590	71,170
25	7,860	—	990	490	1,310	—	—	910	160	11,721
TOTAL	130,230	—	17,990	13,100	24,950	—	21	8,280	37,990	232,561

FIGURE 4-15

MAJOR ORIGINS OF OUT-BOUND RAIL FREIGHT 1976



TRAFFIC ZONE	CENTER OF ZONE	TONNAGE
8	Corner Brook	40,272
7	Stephenville	6,627
1	St. John's	5,262
2	N.E. Avalon	2,738
6	Port aux Basques	2,405
14	Bonavista	2,062
Other		1,001

244,760 individuals, or 39% of the total. The three main origins of outgoing passengers were St. John's, Wabush and Gander, which boarded 137,660, 36,500 and 28,340 people respectively.

Ontario received 51,320 of the St. John's passengers, while 27,960 were destined for Nova Scotia, excluding North Sydney. Another 22,240 were offloaded at Montreal. Most of the passengers coming from Wabush went to Quebec, more specifically, 21,020 went to Quebec (excluding Montreal) and 12,660 went to Montreal. Ontario received 12,000 passengers from Gander.

The major destinations of outbound travellers were Ontario, Nova Scotia and Montreal, which received 77,770, 56,030 and 48,960 persons respectively. Fully 51,320 of the Ontario-bound passengers originated their flights in St. John's as did 37,960 passengers destined for Nova Scotia. Details of outbound traffic are given in Table 4-8.

In summary, it is apparent that the majority of air passengers comes from and goes to St. John's, while the largest transfers in Labrador were between Wabush and Montreal. Outbound and inbound passengers comprise 76% of all air traffic. The major intra-transfers were between St. John's, Gander and Deer Lake.

Mode Utilization: Air Freight—1976

A total of 10,702.5 tons of freight was transported by air in Newfoundland in 1976, 79% of which was incoming, 10.9% outbound and 9.9% intra-provincial.

1. *Intra*

In 1976, 1063.8 tons of freight were moved within the Province, most of which (548 tons) was carried from St. John's. Zones 18 (Goose Bay) and 19 (Wabush-Churchill Falls) were the sources of 119.1 and 119.2 tons respectively. Table 4-9 indicates that 268.4 tons went from St. John's to Wabush-Churchill Falls, while 43 tons went from Goose Bay to St. John's and 45.8 tons were flown between Wabush-Churchill Falls.

In terms of destination, zones 18 (Goose Bay) and 19 (Wabush-Churchill Falls) were the largest, receiving 428.2 tons and 259.1 tons each, for a total of 64.6%. Fully 263.4 tons of freight went from St. John's to Goose Bay and another 111.6 tons went to zone 19.

2. *Outbound*

In 1976, 1176.7 tons of freight were flown out of the Province. The major zone of origin was zone 1 (St. John's), which exported 823.1 tons of freight, while Goose Bay originated 123.8 tons for a total of 80.4%. Montreal received 208.6 tons from St. John's, the remainder being distributed over a number of destinations as Table 4-10 indicates.

From Goose Bay, 58.6 tons of air freight went to Montreal, while another 52.3 tons went to New Brunswick. Only 65.3 tons went from Stephenville to Montreal.

Table 4-8 Origin-Destination of Outbound Air Passengers—1976

O/D	20A	20B	21	22	23A	23B	24	25	26	27	TOTAL
1	3,280	37,960	10,190	1,450	22,240	1,900	51,320	9,350	—	—	137,660
5	—	—	—	—	—	—	—	—	—	—	—
7	580	4,070	1,120	50	3,340	110	8,600	1,240	—	—	19,200
9	1,510	5,700	1,190	300	2,310	110	2,730	710	—	—	14,560
13	760	6,810	2,260	440	3,900	250	12,000	1,910	—	10	28,340
15	—	—	—	—	—	—	—	—	—	—	—
17	—	10	—	—	—	—	—	—	—	—	10
18	270	1,010	830	110	4,420	90	1,370	400	—	—	8,500
19	90	470	240	10	12,660	21,020	1,750	260	—	—	36,500
TOTAL	6,460	56,030	15,830	2,360	48,960	23,480	77,770	13,890	—	—	248,760

Table 4-9 Origin-Destination of Intra-Provincial Air Freight—1976

O/D	1	7	9	13	17	18	19	TOTAL
1	—	27.7	56.6	88.6	.1	263.4	111.6	548.0
7	7.1	—	—	.8	—	9.5	12.2	29.6
9	18.5	—	—	3.6	.1	41.0	39.3	102.5
13	25.6	.9	7.3	—	.3	33.1	17.4	84.6
17	—	—	.2	.2	—	60.4	—	60.8
18	43.0	—	20.9	22.4	—	—	32.8	119.1
19	24.0	3.0	11.8	13.8	—	20.8	45.8	119.2
TOTAL	118.2	31.6	96.8	129.4	.5	428.2	259.1	1064.8

Montreal was the largest destination, with 371.2 tons incoming, 208.6 tons of which came from St. John's. Ontario received 331.5 tons of freight from Newfoundland, 281 tons which came from St. John's.

3. *Incoming*

A total of 8462 tons of freight was shipped into the Province in 1976, 83% of which came from three major sources as detailed in Table 4-11. These zones, 21 (New Brunswick), 23A (Montreal), and 24 (Ontario), each shipped over 2000 tons of freight to Newfoundland. Zone 1 received 4340.5 tons or 51.2% of total incoming freight, 1751.6 tons from Montreal and 1593.7 tons from Ontario. Zone 18 (Goose Bay) received 2077 tons of which 1669.3 tons came from New Brunswick. Together, zones 1 and 18 accounted for 75.8% of incoming freight.

Mode Utilization: Trucking Industry—1976

Although statistics regarding the volumes of freight moving into and out of the Province by truck are relatively easy to obtain, due to the fact that such are compiled by both CN Marine as part of the Gulf Ferry report and the Provincial Department of Transportation at its weight scales at Cape Ray. Other data pertaining to origin and destination points as well as cargo composition are virtually impossible to obtain, except through a major survey, as the trucking industry is exceptionally lax in the statistics it records and maintains.

The Commission first thought that a major roadside interview program carried out in 1976, jointly by the Atlantic Provinces' Departments of Transportation, would be the first start of a significant data bank on the trucking industry. However, a close examination of this data revealed it to be inadequate for the Commission's purposes.

After some examination of weight scale records, as well as data from a number of other sources, the Commission was able to establish a statistical profile of the industry. This showed that although there has been an exceptionally high rate of growth in recent years for the interprovincial freight, and that in 1976 280,000 tons of cargo were moved to the Province from mainland Canada and United States origins, this volume was relatively insignificant compared with the 7.8 million tons moved on an intra basis. Other statistics pertaining to intra movements, although not included in this report, are to be submitted as supporting documents at a later date.

Mode Utilization: Bus—1976

In 1976, the CN Roadcruiser Service recorded a total of 193,183 passengers utilizing the intra-provincial bus system. As is to be expected, the bulk of the passengers came from five major zones which are

Table 4-10 Origin-Destination of Outbound Air Freight—1976

O/D	20A	20B	21	22	23A	23B	24	25	26	27	TOTAL
1	8.0	90.3	49.3	1.6	208.6	4.1	281.0	57.6	80.8	41.8	823.1
7	.1	3.0	16.5	—	65.3	.3	20.8	4.7	3.9	1.6	116.2
9	.6	6.0	3.2	.4	10.1	—	—	—	—	—	22.3
13	.9	4.2	7.9	.1	28.6	1.2	29.7	6.5	5.2	4.9	89.2
17	—	—	—	—	—	—	—	—	—	—	—
18	1.2	11.2	52.3	.4	58.6	.1	—	—	—	—	123.8
19	1.3	.3	.1	.4	—	—	—	—	—	—	2.1
TOTAL	14.1	115.0	120.3	2.9	371.2	5.7	331.5	68.8	89.9	48.3	1176.7

Table 4-11 Origin-Destination of Incoming Air Freight—1976

O/D	1	7	9	13	17	18	19	TOTAL
20A	9.8	.9	12.0	.9	—	.3	—	23.9
20B	337.7	47.7	28.6	45.3	—	195.6	4.4	659.3
21	288.5	96.4	23.8	102.6	.1	1669.3	12.7	2193.4
22	3.5	.4	.9	.8	—	.2	.3	6.1
23A	1751.6	259.2	20.1	249.4	—	211.5	322.2	2814.0
23B	27.1	8.2	—	2.0	—	.1	183.0	220.4
24	1593.7	262.7	—	227.0	—	—	—	2083.4
25	99.2	18.3	—	22.0	—	—	—	139.5
26	145.3	39.9	—	32.1	—	—	—	217.3
27	84.1	7.6	—	13.7	—	—	—	105.4
TOTAL	4340.5	741.3	85.1	695.0	.1	2077.0	522.6	8462.0

detailed in Figure 4-12. These major zones are: 1 (St. John's), 11 and 12 (Grand Falls), 8 (Corner Brook), 13 (Gambo/Gander) and 6 (Port aux Basques). These five zones accounted for 72% of the total, while zone 1 was the origin for 39,074 or 20%. The remaining 28% came from zones 7 (Stephenville), 14 (Bonavista), 2 (Whitbourne), 16 (Springdale) and 9 (Deer Lake).

Table 4-12 Road Cruiser Passengers

1973	1974	1975	1976
163,583	178,540	193,730	193,183

The majority of the travellers from zone 1 were destined for four main areas which are as follows: 9943 to zone 13, 8637 to zones 11 and 12 and 4003 to zone 2. The largest exodus of passengers from zones 11 and 12 consisted of some 9073 persons destined for zone 1. Zone 8 originated 26,103 passengers, 4091 of which went to zone 1, 3658 to zones 11 and 12 and 3589 to zone 7. Fully 23,436 passengers exited from zone 13 with major transfers of 8437 to zone 1, 3380 to zone 13 and 3034 to zones 11 and 12. The smallest major zone originated 20,905 passengers of which 7937 were destined for zone 8 and 4790 for zone 7.

The major destinations and volumes were as follows: zone 1, 38,255; zone 26, 691; zone 8, 23,948; and zone 6, 23,158. Together these zones accounted for 58% of the total passengers, while zone 13 received 12.7% and zone 7, 10%. The remaining 20% was distributed over the other four traffic zones. Figure 4-16 illustrates the zone to zone bus passenger transfers.

This diagram graphically illustrates the major bus passenger flows between zones and we can discern a strong preference for Central-to-Avalon routes and Corner Brook-to-Port aux Basques travel. Although it must be noted that in both instances, the flows are two way.

There are, of course, many other origin destination pairs involved, but the areas mentioned above contribute the highest individual totals.

In terms of trip length, Figure 4-17 indicates that roughly 90% of all trips were under 350 miles in length and 50% were under 150 miles. The cumulative frequency curve for November compares favourably with the July 30-August 19, 1976 curve, leading to the conclusion that trip length structures are comparable year round and vary mainly in magnitude. Figure 4-18 reinforces this statement and further emphasizes that the 101-150 mile trip length was the most heavily used although the 0-50, 51-100 and 201-250 trip lengths were heavily trafficked. Above 301-350 miles the frequency of trips was very low indeed.

Figure 4-19 is a monthly record of the 1976 bus passenger totals. It is apparent that there are two significant peaks in bus traffic, the smaller around March and April, in the vicinity of 19,927 persons and the larger in July and August totalling roughly 22,126 individuals. It should be cautioned that these figures do not include holders of CN passes. After August there was a gradual drop off until an upswing occurred in January when some 16,378 passengers used the service.

In the summary, it is apparent that the heaviest usage of the Roadcruiser service was on trips of less than 350 miles and that they were concentrated mainly in the routes running to and from the east and west coasts to Central Newfoundland. The peak periods of travel were in July/August, March/April and to a lesser degree, January. Historically, usage of the bus facility has increased since 1973, as Table 4-12 indicates, although there was a trend towards stability in 1976.

Mode Utilization: Gulf Ferry Service

1. *Passenger Traffic*

Passenger traffic crossing the Cabot Strait can be broken down into two categories, incoming to Newfoundland and outgoing. Between 1973 and 1975 passenger traffic demonstrated steady increases with a small drop in 1976. The outgoing figures followed the same trends with 140,930 passengers in 1976 compared to 121,149 in 1973 as detailed in Table 4-13.

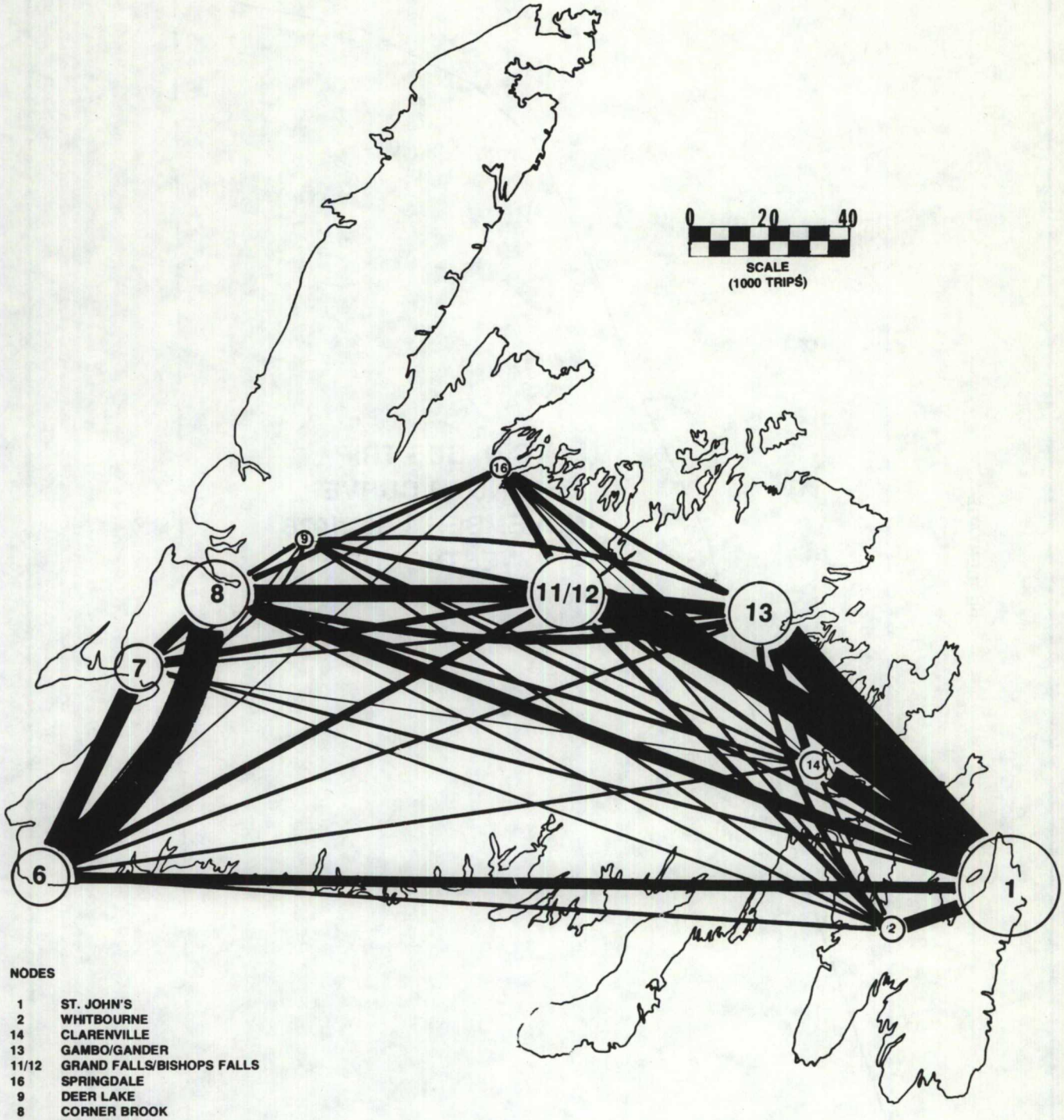
Table 4-13 Gulf Passenger Traffic

Year	Port Aux Basques to North Sydney	North Sydney to Port Aux Basques	Total
1973	121,149	127,578	248,727
1974	133,081	144,614	277,695
1975	141,704	152,994	294,698
1976	140,930	148,981	289,913

The Argentia ferry service runs for only five months from June to October and handled roughly 13% of the total 1976 passenger traffic. The overall total on the Argentia service was 41,769 of which 21,230 were outgoing from the Province, the reverse of the Port aux Basques situation which saw more incoming traffic. It should be noted that the figures for single direction crossings in 1976 from Argentia were for three months only (see Table 4-14).

Figure 4-16

1976 CN BUS PASSENGER TRIPS IN NFLD.



NODES

1	ST. JOHN'S
2	WHITBOURNE
14	CLARENVILLE
13	GAMBO/GANDER
11/12	GRAND FALLS/BISHOPS FALLS
16	SPRINGDALE
9	DEER LAKE
8	CORNER BROOK
7	STEPHENVILLE
6	PORT AUX BASQUES

SOURCE: CN — ST. JOHN'S

Figure 4-17

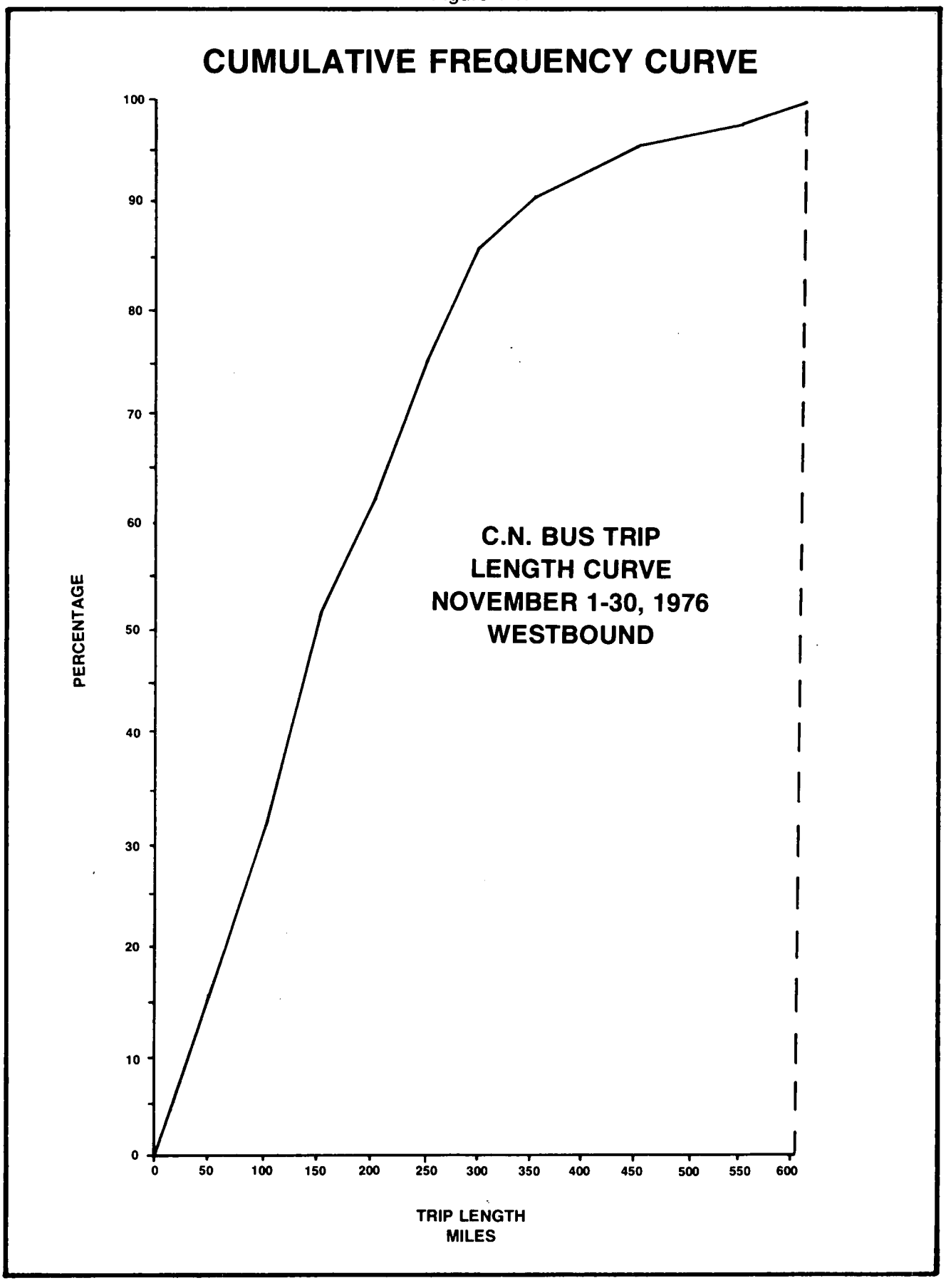

CUMULATIVE FREQUENCY CURVE
C.N. BUS TRIP
LENGTH CURVE
NOVEMBER 1-30, 1976
WESTBOUND
PERCENTAGE
100
90
80
70
60
50
40
30
20
10
0
0
50
100
150
200
250
300
350
400
450
500
550
600
TRIP LENGTH
MILES

Figure 4-18

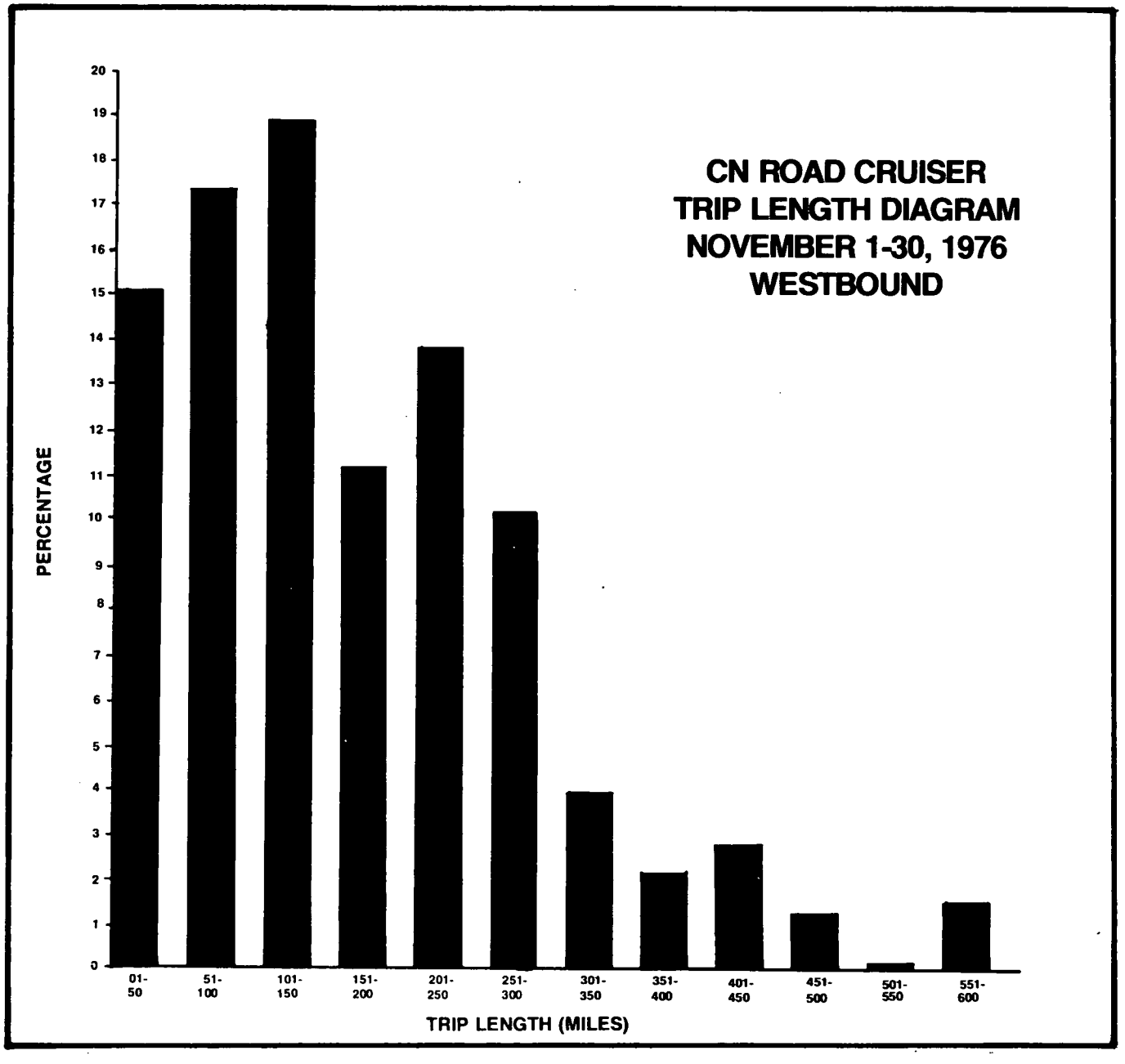
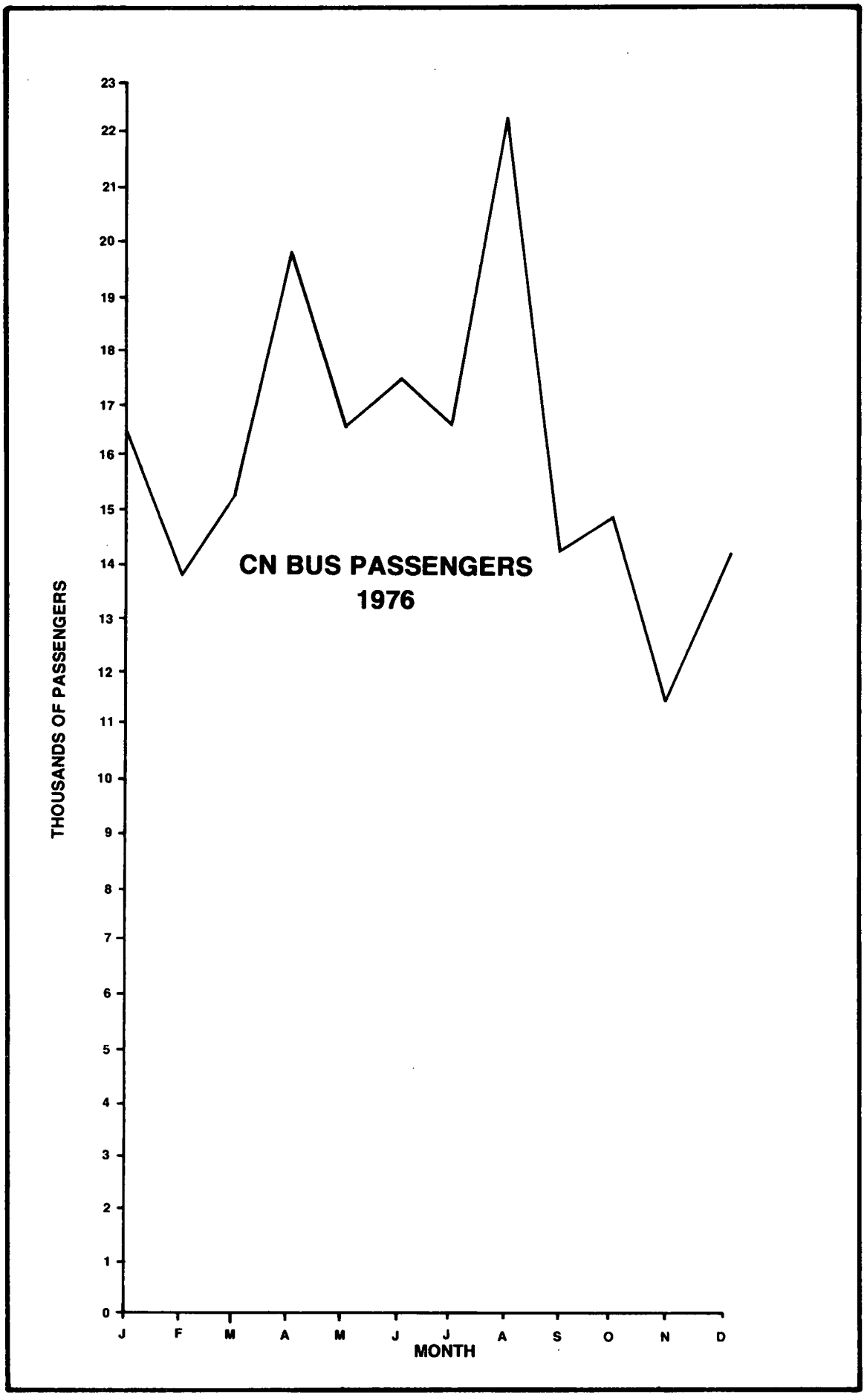

CN ROAD CRUISER
TRIP LENGTH DIAGRAM
NOVEMBER 1-30, 1976
WESTBOUND
PERCENTAGE
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
01-50
51-100
101-150
151-200
201-250
251-300
301-350
351-400
401-450
451-500
501-550
551-600
TRIP LENGTH (MILES)

Figure 4-19


CN BUS PASSENGERS
1976
THOUSANDS OF PASSENGERS
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
J
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M
A
M
J
J
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S
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N
D
MONTH

Table 4-14 Argentia Passenger Traffic

Year	Argentia to North Sydney	North Sydney to Argentia	Total
1973	12,404	10,462	22,866
1974	17,009	13,024	30,033
1975	26,088	20,811	46,899
1976	20,230	16,310	41,769

In terms of overall trends there was a peak in 1975 and the 1976 figures indicate a slight decline of about 5000 passengers. Argentia's share of total passenger traffic has increased steadily from 8.4% in 1973 to 14% in 1976.

2. *Passenger Related Vehicles (PRV's)*

Table 4-15 indicates that PRV traffic on the west coast ferry service increased steadily until 1975. In 1976 a slight decline occurred, consistent with trends in traffic as a whole.

Table 4-15 Passenger Related Vehicles (Port Aux Basques)

Year	Port Aux Basques to North Sydney	North Sydney to Port Aux Basques	Total
1973	31,469	34,408	65,877
1974	35,350	39,477	74,827
1975	36,780	41,002	77,782
1976	35,178	38,359	73,537

There were slightly more PRV's incoming to the Island than were leaving. The Argentia figures in Table 4-16 indicate growth in traffic on that service, at least until 1976. The 1976 figures are for 3 months only with the exception of the total for that year and historically there were more PRV's leaving Argentia than entering.

Table 4-16 Passenger Related Vehicles (Argentia)

Year	Argentia to North Sydney	North Sydney to Argentia	Total
1973	3,298	2,998	6,296
1974	4,353	3,372	7,725
1975	6,320	5,142	11,462
1976	4,955 (3 mos. only)	3,985 (3 mos. only)	13,839

3. *Rail Freight*

In 1976 the west coast ferry service handled roughly 392,214 tons of rail freight from the mainland as illustrated by Table 4-17.

This figure represented a reduction in tonnage from 1973. The outgoing tonnages also decreased from 72,504 tons in 1973 to 62,880 tons in 1976. The total figures exhibit the same trend of decline although there were some gains in 1974 and 1975. As the statistics indicate, there was considerably more rail freight imported than exported. The ferry service carried 15,027 rail cars in 1976 compared to 18,893 in 1975 as Table 4-18 indicates.

Table 4-17 Rail Freight

Year	North Sydney to Port Aux Basques	Port Aux Basques to North Sydney	Total
1973	409,115	72,504	481,619
1974	472,431	92,904	565,335
1975	486,431	84,635	571,068
1976	392,211	62,880	455,094

Table 4-18 Number of Rail Cars

Year	Number Cars Carried
1973	15,902
1974	18,972
1975	18,893
1976	15,027

4. *Trucking*

The incoming and outgoing tonnage of truck freight entering the Province on the Gulf ferry service between 1973 and 1976 are illustrated in Table 4-19.

Table 4-19 Estimated Tonnage by Truck to and from Newfoundland

Year	Tonnage from Nfld.	Tonnage to Nfld.	Total
1973	49,464	122,295	171,759
1974	55,379	133,274	188,653
1975	96,590	201,000	297,590
1976	136,028	238,340	374,369

The trend towards increase is very pronounced in both incoming and outgoing tonnages and the general upswing is evident in the totals. The numbers and types of trucks carried on the ferry service are detailed in Table 4-20 which indicates that although the overall truck traffic is growing, it is a result of a sharp rise in the usage of semi-trailers on the Province's highways.

Table 4-20

Year	No. of Straight Trucks	No. of Semi Trucks	Total
1973	2,941	6,049	8,990
1974	2,492	6,753	9,245
1975	2,883	10,635	13,518
1976	2,779	14,468	17,247

Chapter V

An Evaluation of the Newfoundland Transportation System

Introduction

Previous sections of this report have outlined in some detail the extent and type of transport services available in this Province and the degree to which each is being used at present. This section provides an evaluation of the transport system and draws conclusions as to its ability to meet the demands placed upon it.

The criteria used in assessing the various components can be divided into four general groups. These are:

a) Comparison of physical facilities with accepted industry norms and/or standards of other provinces.

b) Cost characteristics, including public support and fare structures.

c) Service characteristics, including such items as travel time, comfort, safety, transit time, loss/damage and reliability.

d) Social and economic impacts, such as the impact on industrial output, and the impact on the tourist industry, etc.

In subsequent paragraphs each mode of transport is discussed in light of some or all of the above. Finally, the total system as a unit is reviewed and the degree to which it is meeting the transport objectives of this Province is assessed.

An Assessment of CN Rail Operations

1. *Adequacy of Fixed Plant*

The ability of any railway operation to provide a high level of service and compete successfully with other modes and carriers for a share of the freight and passenger market is largely determined by the type and condition of the fixed plant over which the service is operated. In the case of Newfoundland, it is well known that the fixed plant consists of a narrow gauge line (3'6" between rails) compared with the standard gauge (4'8½") on the mainland. Narrow gauge in itself, however, is not sufficient cause to bring about either a poor service or an economic failure, although it is a popular belief in this Province that replacement of our narrow gauge with one of a standard gauge would cure all the railway's ills. There are other factors associated with the physical plant beyond the gauge question which have serious adverse effects on the CN rail service in this Province. These are: 1) the geometric design characteristics, 2) load carrying abilities of the line and 3) interface problems at the Gulf.

The rail line as originally constructed in addition to being narrow gauge, was not built to very exacting standards of geometric design. Curves are generally sharper and without proper easement spirals and grades are generally steeper than on most North American rail lines. For comparison, Table 5-1 shows the geometric standards of two Maritime rail lines along with the Newfoundland line. As can be seen, the Newfoundland line has more frequent and more severe curves, steeper grades and has less load carrying ability than the other lines. These characteristics have a particular adverse effect on the operation of the railway and hence on the quality of service it can deliver to the customers. For instance, as a result of the excessive curvature, operating speeds are severely constrained. In Newfoundland there are 309 miles of track where speeds are restricted to 30 mph or less as compared with normal operating speeds of 50 mph found on most North American lines. The immediate impacts of these are, (a)

Table 5-1 Geometric Design Standards of Some Atlantic Area Railroads

	Newfoundland	Intercolonial Railway (N.B.—N.S.)	Kensington Subdivision Representative onLines of P.E.I.
Gauge	Narrow	Standard	Standard
Track Gauge	3'6"	4'8½"	4'8½"
Curves	0°–15° Simple curves. No easement spirals. Over 1,700 curves on main line between St. John's & Port aux Basques. Distance 547 miles. 30% curved track or 213 miles.	0°–7° Curves with spirals 98% of curves under 3°. 414 curves between Campbellton, N.B. and Halifax, N.S. A distance of 375 miles, i.e., 29% curved track or 109 miles.	1°-0° to 9°-0°. 116 curves in a distance of 84 miles, or 19% of curved track.
Grades	Approximately 55% of main track has 1% to 3% grades.	13% or 47.75 miles has 1% to 1.2%. Balance less than 1%.	37% or 31.06 miles at 1% to 1.2%. Balance less than 1%.
Overhead Clearance	22'6"	22'6"	22'6" 6'0" from gauge.
Side Clearance	6' from gauge.	6' from gauge.	
Car Capacity	142,000 lbs. (allowable)	263,000 lbs.	Varies from 142,000 lbs. to 220,000 lbs.

increased travel time and hence user dissatisfaction, (b) high operational costs and hence higher user charges.

The poor geometric alignment acting in combination with the narrow gauge produces another detrimental effect not normally found elsewhere in Canada, in that it limits the range and type of equipment which may be used on the Newfoundland line. For instance, because of the danger of overturning on the sharp curves, most piggyback services, which are common on mainland lines, are not available in this Province.

The effect of the frequent and long sustained steep grades is to restrict the train size. Since greater locomotive effort is required to haul similar sized trains in Newfoundland as compared with the mainland, the number of cars and the total payload per train is somewhat less than that found in other provinces. Again, this is manifested in higher operating costs to the railway.

The adequacy of the fixed plant is further constrained by the low load carrying capabilities of the line, which is restricted to 142,000 lbs. compared with a minimum of 220,000 lbs. on most other mainland lines. This, of course, restricts the payload of each car. For instance, the average load per car on the mainland is in excess of 40 tons whereas in Newfoundland it is approximately 25 tons. Although there is some evidence to indicate that the Newfoundland consumer would not utilize the larger carload lots if these were available, i.e., the size of the business in Newfoundland is such that it is generally more suited to small shipments, there are some commodities which could certainly be shipped in larger amounts and hence lower costs to the operators, e.g., cement, pulpwood, steel, petroleum. The weight restrictions on the Newfoundland line is limiting the competiveness of CN for these commodities.

Finally, the attribute which has the most serious detrimental effect on the rail operation in Newfoundland, although connected with the fixed plant, is not confined to the line in Newfoundland. This is the interface problem associated with moving mainland cars across the Gulf and changing the trucks or transferring the freight so that they can be accommodated on the Newfoundland line.

The existence of the Gulf is a fact of life and although the process of truck to truck transfer has been streamlined and now has the capability to handle 80% of all incoming railcars, there will, because of reasons outside the control of CN, always be at least 20% which must go through the car to car transfer process. For instance, CP and US Rail companies will not permit their equipment to be processed through truck to truck. Even with the high ratio of truck to truck transfers, delays to the freight transport are an inherent part of the system. Under optimal conditions, it takes 15 minutes to process a car through truck to truck transfer. For a ferry load of 40 cars this means a ten hour delay under the most ideal conditions. Since it is not economical to run a train consisting of only 40 cars, a further delay must be encountered while waiting for a second ferry to unload and the necessary car transfer completed. Thus, because of the Gulf interface a 1 to 2 day delay is by its very nature built into the rail operation, and as such, adds to user dissatisfaction and reduces the railway's ability to compete with other modes which do not experience the same delay.

In spite of the built-in weakness of the railway, the Commission could find no evidence to substantiate the charge that the railway was deliberately down-

grading the plant with the view to eventual closure. On the contrary, there was evidence that the railway is being maintained in a reasonable manner and adequate for the traffic offering. Over the period 1950-1977 there have been substantial programs of replacement of the light 70 lb. rail with the heavier 85 or 100 lb. rail, as well as tie replacement, reballasting of track, and bridge improvement. An example of the expenditures for track and ties can be seen in Table 5-2.

Table 5-2 Capital Expenditures—Rail—Ties 1971-1976

Year	Cost Rail	Cost Ties	Total
	($)	($)	($)
1971	554,600	283,900	838,500
1972	679,400	427,300	1,106,700
1973	404,200	496,500	900,700
1974	890,000	622,500	1,512,500
1975	1,659,100	589,700	2,248,800
1976	—	724,000	724,000
1977	224,000	919,700	1,143,700

While there is no industry-wide set of standards which would allow a meaningful appraisal or comparison of rail lines or sections of lines, it is generally recognized that the track and ties should be maintained to at least a normalized condition. That is, the remaining life in these facilities should be 50% of its total useful life. To this end, CN has more than met its commitment as the yearly maintenance programs keeps the line above the normalized condition.

This, of course, does not give any indication as to the appropriateness of the physical plant in relation to the function to be performed. However, a rating system used by CN to rate all of its rail lines in Canada indicates that the line is adequate for the volume of traffic to be accommodated. It might be noted that this was also the opinion expressed by the authors of the Trans Newfoundland Corridor Transportation Study (1974).

While there is some evidence to indicate that the rail line is not being downgraded and is, in fact, being reasonably well maintained, there is also evidence to show that virtually nothing has been done by CN since 1949 to improve on the substandard rail line which they inherited at that time. Indeed, except for some subgrade widening and the above noted maintenance, the line today is very similar to when it was originally constructed. The winding, narrow gauge facility is out of step with most North American lines and, as such, a severe handicap to an efficient rail operation in this Province.

Short of complete rebuilding with a standard gauge line, there is very little which can be done with the present railway which would improve it, where from a service standpoint, the service offered would be competitive with other modes. Even if the railway were reconstructed, the existence of the Gulf and the problems inherent in getting rail cars across within a reasonable amount of time and within reasonable cost would still cause the railway in this Province to be a substandard service when compared with other modes.

2. *Adequacy of Carload Freight Services*

The assessment of the service quality as provided by CN is a most difficult task as there is really no objective measurement technique which would ensure a sound evaluation. Certain characteristics can be compared with operations elsewhere and the differences noted. This, however, will not indicate whether the service is satisfactory, for some areas might have a greater or lesser dependence on that service and as a result will have differing viewpoints as to quality. The Commission has chosen to evaluate the service quality from two aspects. Firstly, the views of the users as determined through a detailed opinion poll have been analyzed and discussed, and secondly, those service characteristics for which a measurable quantity can be identified, i.e., transit time, dependability, loss and damage, etc., have been observed and differences in these over recent years noted to ascertain if these are improving or becoming worse.

a) *User Opinion*

The opinion poll completed by the Commission consisted of a sample of over 1,000 households scattered throughout the Province, plus a detailed interview with 65 of the larger industrial and business concerns which, for various reasons, did not make a presentation at the public hearings. In addition, the evidence of the many organizations and business establishments which made representation at the public hearings was analyzed. Since, however, the carload freight service affects primarily the business and industrial community directly, the opinions discussed are mainly those of this sector.

As far as rail services are concerned, there is widespread dissatisfaction with the carload service as supplied by CN. The major points of concern identified were:

(i) excessive transit times;
(ii) poor reliability due to highly variable transit times;
(iii) unavailability of special equipment, e.g., reefer cars during peak seasons;
(iv) difficulty in tracing damages;
(v) high incident of damage;
(vi) lack of access to management;
(vii) lack of door-to-door service; and
(viii) high cost of service.

The Commission did not have the time to investigate all of the complaints mentioned but it is satisfied that as far as the shippers are concerned, the perceived problems are real and have been the prime reason for the dramatic shift from rail to other modes of transport in recent years. Table 5-3 indicates the extent of that shift. Of the 65 companies interviewed, 29 have changed from rail as a mode of transport to some other mode in recent years. Also, in that time no company has been attracted to rail from some other mode.

Table 5-3 Number of Companies Which Changed Mode of Transport in Recent Years.

		TO			
		Road	Rail	Air	Sea
F	Road				2
R	Rail	25			4
O	Air				
M	Sea	8		2	

The most frequently mentioned area of dissatisfaction was the railway's inability to deliver goods within a reasonable time frame on a consistent basis. The average time of 20 days experienced by rail users compared most unfavourably with only six days as experienced by the highway users. In spite of this, some users indicated that if the transit time were consistent, company activities might be arranged to accommodate the rail schedules. However, it was pointed out that rail transit times were very rarely consistent with one company reporting as long as 40 days for a shipment from the mainland to this Province.

b) *Transit Times*

As already indicated, the transit times as stated by the users of the railway were generally excessive compared with other modes. In spite of this, however, there is an indication that there is a significant improvement in this aspect of CN's operation. Table 5-4 gives sample transit times as selected at random from the CN files. These are significantly lower than those reported in the Corridor Study. As the process of getting rail cars across the Gulf and transferred to the narrow gauge line accounts for a significant portion of the total transit time, the lower density of rail traffic in 1976 with the attendant reduction in Gulf congestion can be safely assumed to account for this improvement. Certainly constraints on Gulf and transfer capacities do interject additional waiting times either at Port aux Basques or North Sydney. This tends to indicate that as the demand for rail services increases, the longer the transit times become due to the Gulf capacity constraints. This is supported by the number of rail cars backlogged at the terminal yards. In 1974, when rail traffic was at its peak, at times as many as 800 cars were backlogged at North Sydney. In 1977 when rail traffic was only 60% of the 1974 level, virtually no backlogs were experienced.

While the Commission notes the rather large discrepancy between customer reported transit times and those from CN files, no attempt has been made to reconcile the two. The perceived transit time, however, whether real or not is the one which the customer uses to decide choice of mode. Therefore the ones quoted by the users might reflect their experience which has led them to change from CN to some other mode.

c) *Reliability*

Although the perceived, and indeed experienced, reliability characteristics of the railway have been poor, there is some indication that as the traffic demands decrease, the reliability increases even though the frequency of service might not be as great. The data given in Table 5-4 (standard deviations) is a measure of how close the average transit time represents all of those actually encountered. While there is

Table 5-4 CN Rail Transit Times For Mainland to Newfoundland

I. Transit times from mainland to arrival at Port aux Basques:

	Perishable (days)			Non-Perishable		
From	Average	ST Deviation	Sample Size	Average	ST Deviation	Sample Size
Halifax/Moncton	2.2	.4	4	2.9	.9	57
Montreal	4.6	.7	2	6.0	2.9	65
Toronto	4.3	.4	38	6.0	1.6	126
Prairie Region	6.4	.5	5	9.4	1.9	26
Mountain Region	8.7	1.6	6	14.3	3.0	28

II. Transit times at Port aux Basques:
It takes an average of one day from arrival at Port aux Basques until departure by train.

III. Normal service time from departure at Port aux Basques to placement at customer's siding:

Coner Brook:	.5 days
Grand Falls:	.7 days
St. John's:	1.5 days

no indication as to how often and to what extent some shipments experience long delays, the data does show that there is a reasonable probability that most shipments are being transported within the average times stated, and on a consistent basis.

It should be noted, however, that while in most cases the reliability and dependability of transit times in general leave room for improvement, there seems to be general agreement that in the case of perishable goods, CN makes a concerted effort to move the goods as quickly as possible. Again, the data in Table 5-4 bears this out.

d) *Loss and Damage Claims*

Service characteristics, as they relate to loss and damage claims, are extremely difficult to evaluate because the records maintained by CN often do not separate between carload, express, coastal and intermodal traffic. The Corridor Study attempted to assess the loss and damage claims on carload traffic by reviewing the files of a sample of shipments. The basic conclusion was that although car to car transfer accounted for only 63% of cars sampled, it accounted for over 90% of the claims paid. In light of the fact that in the the car to car transfer process the freight is physically man-handled, whereas in the truck to truck process, it is not, it is reasonable to assume that car to car transfer still accounts for a majority of the damage claims today.

Data supplied to the Commission by CN for all freight services indicate a marked improvement in both the total number of claims paid and the value of these claims. Table 5-5 shows the CN performance since 1973 for express, coastal, carload and intermodal combined.

Since 1971, CN has introduced numerous improvements such as improved checking, more inspection, use of ro/ro vessels for transport of automobiles, shrink wrap, and collapsible pallets, in an attempt to reduce losses and damages. The figures presented tend to prove that the investments in equipment and methods are worthwhile, although it should be noted that since 1974 the drastic drop in rail freight handled has to some extent reduced the probability for loss and damage.

Table 5-5 Loss and Damage Claims of CN

Year	Number of Claims	Amount
1973	18,092	$1,573,949
1974	18,393	2,124,533
1975	15,149	2,473,925
1976	10,635	1,456,765
1977	projected	1,244,000

e) *Costs and Revenues*

In assessing the cost structure of CN carload freight service, it is necessary to divide the service into three distinct parts; first, the mainland costs associated with Newfoundland freight as it is hauled over mainland lines; secondly, the costs of bringing Newfoundland freight across the Gulf; and thirdly, the costs associated with the haulage of freight within the Province. This latter portion includes freight destined for Island points from mainland origins and freight destined for Island points from Newfoundland origins. With respect to the costs associated with the Gulf movement, it should be noted that there are considerable differences between the costs to CN rail for these movements and the total costs incurred; the difference being a large deficit or subsidy paid by the Federal Government. The extent of that subsidy is discussed in subsequent sections of this report.

It has long been suspected that the CN railway was losing considerable sums of money on its Newfoundland operation. The railway, after being in a profit position during the war years, was losing money at the time of Confederation. The MacPherson Royal Commission Report in 1961 indicated that the losses at that time were running in the neighbourhood of six million dollars annually. Because separate accounts for all aspects of the Newfoundland operation have not been maintained, it has been impossible to determine the exact year by year deficit incurred by the railway. Information presented to the Commission by CN states that after suspecting such losses for some time, the corporation in 1976, took a detailed look at the Newfoundland situation. Using the costing procedures as established by the Canadian Transport Commission and allocating *all* the revenues associated with Newfoundland to the Newfoundland accounts, the railway determined that for 1976 the losses amounted to $14,155,996 on carload freight, and $7,322,991 on express. In addition, approximately $2 million was lost on the Roadcrusier operation, for a total loss by CN of just over $23.5 million.

In arriving at these figures, certain assumptions were made and cost allocations carried out which under normal business costing methods would not be routine. The Commission is convinced, however, that the procedures followed lead to a most conservative estimate of the losses and any relaxation of the cost allocation would not improve the picture but rather make it much worse. Being a scheduled "D" Crown Corporation, CN is not compensated by the Federal Government for these losses but rather must recover them from the operations in other parts of the system. This situation has put considerable burden on the Newfoundland segment of the operation to at least break even. Since the above figures reflect only the rail cost to CN and not the total costs incurred in moving rail freight one must next examine the other component, namely the Gulf related rail costs, to ascertain what the true costs of servicing this Province by rail are.

The principal problem in determining the total rail costs on the Gulf lies in the fact that while the Gulf service caters to passengers, passenger related vehicles, a variety of trucks, plus rail, there are no separate accounts for each service. Determination of the costs associated with each requires that some allocation method be adopted whereby the cost incurred is estimated. The Commission has chosen to do this on a usable space basis, measured in terms of auto equivalents, and after following this process, has determined that the operating deficit attributed to rail freight amounted to 28.28 million dollars in 1976. This does not include any capital costs and, when added to the shortfall experienced by the railway, gives a total loss on railway operations to be approximately $42.5 million (for 1976). When capital costs are included, the loss approaches $50 million annually.

In addition to the magnitude of the current year loss and the indication that losses have been a feature of the carriage of railway freight for sometime, the Commission was concerned as to (1) whether the losses have consistently been of the same order of magnitude, (2) if there are any components of the system which are clearly more costly than others and (3) who should meet the losses in future years if it is deemed that the railway should continue in its present state.

Because of the non-availability of detailed cost data for previous years, it is not possible to determine a time series of losses associated with rail. The limited data available does indicate, however, that substantial losses have been incurred for some time. For instance, the loss attributed to rail on the Gulf ferries for 1974, the peak year for rail freight traffic in the last decade, was considerably more than the year under study (1976).

In spite of the apparent continued losses on the Newfoundland operation, not all aspects of the service are equally inefficient in the economic sense and it would be totally erroneous to discard the whole system without a detailed examination of its parts.

Traffic on the Newfoundland system can be classed into two groups: interprovincial, i.e., traffic either originating or destined for mainland centres; and intra-provincial, i.e., traffic moving wholly within the Island. CN revenues as shown in Table 5-6 indicate that the 1976 intra-traffic accounted for $3.2 million or approximately 10% of the total Newfoundland associated revenues, while mainland traffic accounts for the remaining $32.9 million. While the cost data presented to the Commission by CN does not separate the total costs into "intra" and "inter" on the same basis as that of the revenue data (see Table 5-6) cost allocations carried out by the Commission indicate that for the mainland traffic which is basically high rated, long haul commodities, the revenues generated approach the variable costs. That is, this traffic is nearly meeting the immediately incurred expenses, but is not contributing to the fixed or overhead costs.* Intra-traffic, however, is not coming close to meeting the variable costs asociated with moving the traffic. This has been a basic characteristic of the CN cost structure for some time, which a report completed in 1972, by CN (Moncton) as part of the Newfoundland Mainland Transportation Study showed that while intra-traffic was losing money, inter-traffic was not only contributing to overhead, but making a very small profit.

Table 5-6 CN Revenues, Costs and Deficit for Newfoundland Carload Operation—1976

1. Revenues	
Inbound Traffic	$24.3 million
Outbound Traffic	2.3 million
Local (Intra) Traffic	3.2 million
Intermodal Traffic	1.8 million
Payments from Express	4.4 million
Other Revenue	0.1 million
Total Revenue	$36.1 million
2. Costs	
Newfoundland Costs	$36.2 million
Mainland Costs	12.2 million
Payments to Express	0.3 million
Payments to Marine	1.6 million
Total Costs	$50.3 million
3. Deficit	$14.2 million

Source: Supplementary information provided to the Commission of Inquiry into Newfoundland Transportation, Canadian National Railways, November, 1977.

Considering the above, however, it would be entirely fallacious to assume that in the light of the costs allocations and the rather deplorable picture for the intra-freight movement, the elimination of this service would result in a marked improvement in the interprovincial freight or total Newfoundland service. To remove the intra while retaining the mainland service would merely shift the fixed costs associated with intra-traffic to the mainland traffic because the line and other equipment on the Island would still be required regardless of the origin of the freight.

From the revenue side, unit revenues generated by the Newfoundland traffic are generally good and compare favourably with the remainder of Canada. Table 5-7 indicates the difference between inbound freight to Newfoundland, and the Canadian average as determined through a 1% waybill sample analysis carried out by the Canadian Transport Commission (CTC). It should be noted however, that the Canadian average is strongly influenced by the carriage of grain which moves under a statutory rate well below the average. Although the direct revenues appear good, the three items which adversely affect the profit picture as far as Newfoundland is concerned are; (1) the small

* A very important fact to remember is that $12.2 million costs, identified as mainland costs, do not include any fixed costs.

amount of freight carried, (2) the low payload per car, and (3) the relatively high fixed cost associated with the Newfoundland line. (50% of total costs classed as fixed in Newfoundland as compared with 25% national average.)

Table 5-7 Comparison of Unit Rail Revenues Nfld./Canada

		Nfld. (inbound)	Canada
Rev/ton mile	c	3.65	2.17
Rev/car mile	$	1.04	0.99
Avg haul per ton	Miles	1,551	592
Avg load per car	Tons	28.4	54.3

One of the disturbing aspects of the CN's revenue picture is the extremely small amount attributed to intra-provincial movements. Since the length of haul for these movements is usually short, truck is in a much more advantageous position to compete. At the same time, rail costs are high. If rail rates are increased in an effort to increase revenue, the truck becomes even more competitive and attracts a larger share of the market.

3. *Conclusions and Future Prospects*

The railway in this Province, which has a particularly inadequate fixed plant is constrained by conditions at the Gulf in trying to obtain a share of a transport market which is barely large enough to support one major mode rather than four (Rail, Road, Air & Sea). It also competes against carriers which have inherent advantages over rail, and it finds itself on a spiral for which the prospects for an economical service are extremely dim.

Forgetting for the moment the 14 million dollar loss incurred by the railway (because it might be logically argued that this is an internal matter for CN and it is by far not the only component of the CN system which loses money) if by some mystical means all competing carriers to the railway withdrew, leaving the railway to have all the business, based on past performance, the service would deteriorate as there is insufficient capacity at the Gulf interface to handle the traffic. Unless more ships, larger yards and better handling facilities were installed at the Gulf, delays to goods would be intolerable. To supply facilities of this type would require massive subsidies, perhaps in the neighbourhood of 150 to 200 million dollars annually; hardly a situation which could be encouraged due to the more economical methods of meeting the Province's transport needs.

As to the prospects of recovering the losses which the railway is now incurring, this also looks extremely poor.

Perhaps a more important question to answer is, what is the likelihood of a financial turnaround for CN in the foreseeable future or to what extent would revenues have to improve to enable the railway to at least break even?

The 1972 study, as previously referred to, showed that a 50% increase in interprovincial traffic would enable the service to break even. Since 1972 the cost of materials and labour have increased dramatically and it is now estimated that with the current mix of traffic and the current rate structure, a 100% increase in traffic from the mainland would still not bring the railway to a profitable position.

As earlier shown, CN's revenue is so dependent on the inbound traffic that any major improvement would have to come from this traffic. If inbound traffic doubled and the traffic mix was maintained revenues from inbound traffic would double to $48.6 million and total revenue would increase to $60.4 million. If the inbound traffic doubled, the mainland costs would double to $24.4 million since these are variable costs only. The $36.2 million costs in Newfoundland are both fixed and variable and include fuel and crew costs as well as interest and depreciation charges, but even if one assumed that no additional costs were incurred in Newfoundland and the costs remained at $36.2 million with double the inbound traffic the total costs would now be $62.5 million, producing a deficit of over two million dollars.

If no new freight were attracted to the railway, even if CN were to increase freight rates, the prospects for a viable operation are no better. Ignoring competition for the movement, if the railway could increase the rates on inbound traffic by 50%, inbound revenue would increase to $36.4 million and total revenues to $48.2 million, still less than total costs of $50.3 million which would not change.

In spite of the bleak economic outlook for the railway, there are widely held misconceptions that major improvements to the physical plant would result in better service and hence improve patronage. This, however, is not likely to be the case. As mentioned earlier, the elimination of some of the Gulf interface problems would require a standard gauge line. While this would reduce the time now taken for car transfer, it would not speed up the process of getting the rail cars across the Gulf. Unless the whole railway were to be rebuilt, merely putting a wider gauge on the existing roadbed would not solve the grade and curve problems which now exist. Thus, the only significant changes in the operation through building a standard gauge on the existing bed would be the elimination of the jobs of those workers now involved in the car to car and truck to truck transfer at Port aux Basques and perhaps a saving in transit time of about 10 hours.

As also pointed out earlier, construction of a new standard gauge railway would cost 800 million dollars and while a very fast speed of operation could then be maintained all across the Island, the problems

associated with the Gulf operation would still remain. In light of this, an expenditure of this magnitude does not look appropriate.

The range of improvement alternatives which would see improved services by rail are severely limited and it is unlikely that, given the present growth rate of the provincial economy, large scale investments in the railway or related infrastructure could not be justified.

Assessment of Highway Infrastructure

1. *The Primary System of Trans Canada Highway*

There is no doubt that the Trans Canada Highway forms one of the most vital links in this Province's transportation system. One only needs to observe the virtual explosion of truck traffic and the phenomenal growth in passenger travel since its completion in 1965 to verify that this facility has not only gained widespread acceptance, but has become the backbone of the system. It is perhaps because of this that much concern has been voiced as to its present condition and its apparent deterioration in recent years.

2. *Minimum Standards*

The original Trans Canada Highway Agreement between the Government of Canada and certain provinces established a range of minimum and maximum construction standards. When Newfoundland entered the Agreement in 1951, it was the opinion of the Province that construction of the highway to maximum geometric standards was beyond the financial capability of the Province. Thus 5 foot shoulders were built instead of 10′ and pavement was constructed to 20′ & 22′ instead of a more desirable 24′. In a few instances permission was sought, and eventually granted, to allow the Province to construct to standards below the minimum. For instance, the original standards set maximum allowable grades along the highway at 6%. To achieve this would require very substantial amounts of rock and fill to be moved, which would be reflected in extremely high costs. Therefore, in places where costs would be prohibitive, the Province was permitted to drop below the established standard.

With the passage of time, and as travel demands and traffic volumes increased, it became questionable as to whether the minimum standards as set out in the Agreement were in fact still compatible with the type of traffic to be accommodated. In 1963 the Canadian Good Roads Association, now called the Roads and Transportation Association of Canada, published a set of geometric design standards for Canadian roads and streets which, except for recent changes due to metrication, are still in existence. The set of Roads and Transportation Association of Canada standards which this Province has decided to use in its rebuilding of the Trans Canada Highway are those for an arterial (RAU 60) undivided rural road with a design speed of 60 mph. It should be noted that these standards meet or exceed those minimums established in the original Agreement. An important fact to note is that it is not necessary for all provinces to adhere to the same set of standards, but rather the standards should be consistent with the traffic to be handled.

3. *Evaluation of Trans Canada Highway*

As part of the Trans Newfoundland Corridor Study, an extensive physical survey of the Trans Canada Highway was completed in 1973/74. In addition to comparing the existing road with the geometric design standards for a RAU 60 highway, the roadway was analyzed with regard to physical condition, traffic volumes/capacity, and substandard sections. The Commission has determined that very little, if any, work has been carried out on the Trans Canada Highway since that study, and the deficiencies identified at that time are still present, only in some cases these are even more pronounced. The basic findings of that study were as follows:

a) Passing sight distance is impeded in 144 locations by minor vertical curves.
The recommended minimum passing sight distance is 450 metres at which the passing opportunity is 25%. Passing sight distance of 600 metres provides 100% passing opportunity. By not having sufficient passing sight distances, the safe and efficient operation of motor vehicles is restricted.

b) Truck climbing lanes are too short in length and are lacking completely in some needed areas.
A study on climbing lanes in 1973 by the Department of Transportation and Communications revealed that 25.76 miles (41.46 km) of extra climbing lane would have to be added to the existing climbing lanes to bring them up to Roads and Transportation Association of Canada standards, not including the tapered sections which allow these lanes to merge with main lanes. This would add another 13.0 miles for a total of 38.85 miles. This is over double the 12.23 miles mentioned in the Corridor Study. The difference is due to higher standards used by the Department of Transportation and Communications. In addition, the Corridor Study indicated 71.50 miles (115.06 km) of new climbing lanes are needed. In reality probably more is needed because of the higher standards in use now. No data is available to substantiate the actual length of new lanes required, but since no new construction has taken place in recent years the requirement is at least as much as above.

c) Excessive curvature (greater than Roads and Transportation Association of Canada standards) was found in 403 locations.

Although the maximum allowable rate of curvature by standard for class RAU 60 is 5°, the usual procedure is to design the curve so that a vehicle takes 18 to 24 seconds to negotiate the turn. In this regard, the Corridor Study found 403 curves which were substandard. No curve improvements have been made since the Corridor Study.

d) About 84 miles of the Trans Canada Highway have substandard shoulder width of 3 to 6 feet.

This is a direct consequence of the relaxation of the standards when the road was built. Minimum standard at that time called for five foot shoulders, but the desirable was ten feet. Most provinces built to the ten foot standard. Newfoundland chose five feet for earlier sections of the highway. These substandard shoulders occur from Port Blandford to Northwest River, Terra Nova Park (west boundary) to Middle Brook and from George's Lake to Crabbe's River. These are the sections of the highway which today are giving the most problems.

The only improvement since the Corridor Study has been a short section between Northwest River and Terra Nova Park (east boundary) approximately one mile in length. Research into the effect of shoulder widths has shown that two metres is the critical width of a shoulder. Below this width, higher accident rates occur, and operation and capacity are restricted. In addition to the substandard shoulder width, the above sections also have a 22 foot pavement width (2 - 11′ lanes) instead of the standard 24 foot width. One effect of these substandard elements is to lower the basic capacity of the road by as much as 18%.

e) Aside from speed restrictions in some towns, through which the road passes, there are four curves on the main highway requiring speed restrictions.

Although the Corridor Study indicated four curves requiring speed restrictions or advisory speeds, consultation with the Department revealed there are actually eight. These are shown on the map in Figure 5-1. Since September, 1977, most 40 mph zones have been changed to 60 km/h with the exception from Deer Lake to Pynn's Brook which was raised from 40 mph to 70 km/h. In addition to the speed zones in towns mentioned in the Corridor Study, there are two new speed zones, one at Whitbourne and one at Clarenville.

f) Drainage and slopes are generally good although some areas have problems.

The Commission generally concurs with this but notes that little has been done since to alleviate the existing problems. Of particular concern is the problem of vegetation growth and the resultant restrictions on sight distance. Much of the work done to rectify this has been centered in Central and Western Newfoundland.

g) Passing sight distance is below standard in many areas due to horizontal curvature, vertical curves on long tangents, combinations of horizontal and vertical alignments and excessive vegetation.

The Roads and Transportation Association of Canada manual assumes that passing opportunities may occur where the passing sight distance is greater than 450 metres. A survey in 1976, by the Department of Transportation and Communications, determined the availability of passing opportunity as a percentage of the length of sections of the Trans Canada Highway. This survey was based on analysis of highway plans and drawings rather than on actual on-site investigation. The map in Figure 5-2 shows the percentage of passing opportunity as determined. The effect of passing opportunity on highway capacity is illustrated in Table 5-8. Thus it can be seen that for section (1) Port aux Basques to Crabbe's River, the highway can only reasonably carry 80% of its capacity due to the limited passing opportunities.

Table 5-8 Highway Capacity Versus Passing Opportunity

Passing Opportunity > 450 Meters %	% Attainable Capacity (Level C)
100%	100
80%	93.5
60%	84.7
40%	74.2
20%	62.1
0%	49.2

h) Many of the existing intersections are of substandard design.

The Corridor Study produced a list of 120 Trans Canada Highway intersections examined, of which 57 were considered substandard. However, after reviewing each of the analyses there are certain intersections deemed adequate by the Corridor Study but inadequate by the Commission and vice versa. For instance, many of the Provincial Park intersections were deemed adequate by the Commission because of the relatively low utilization of some parks and the fact that most parks are not functional except in the summer. The map in Figure 5-3 shows the location of intersections, considered substandard. Some improvements have been made in some intersections, in particular at the intersection of the Trans Canada Highway and Route 2 (grade separation), Avondale Access Road, Arnold's Cove Road, Clarenville Access Road (not paved yet), several intersections in Terra Nova Park (of substandard design still), Union Street (Grand Falls—grade separation), Lincoln Road Overpass (Grand Falls), Route 390 to Springdale, Route 430 at Deer Lake (grade separation) and the Burgeo road. There has also been some good revisions of

Figure 5-1

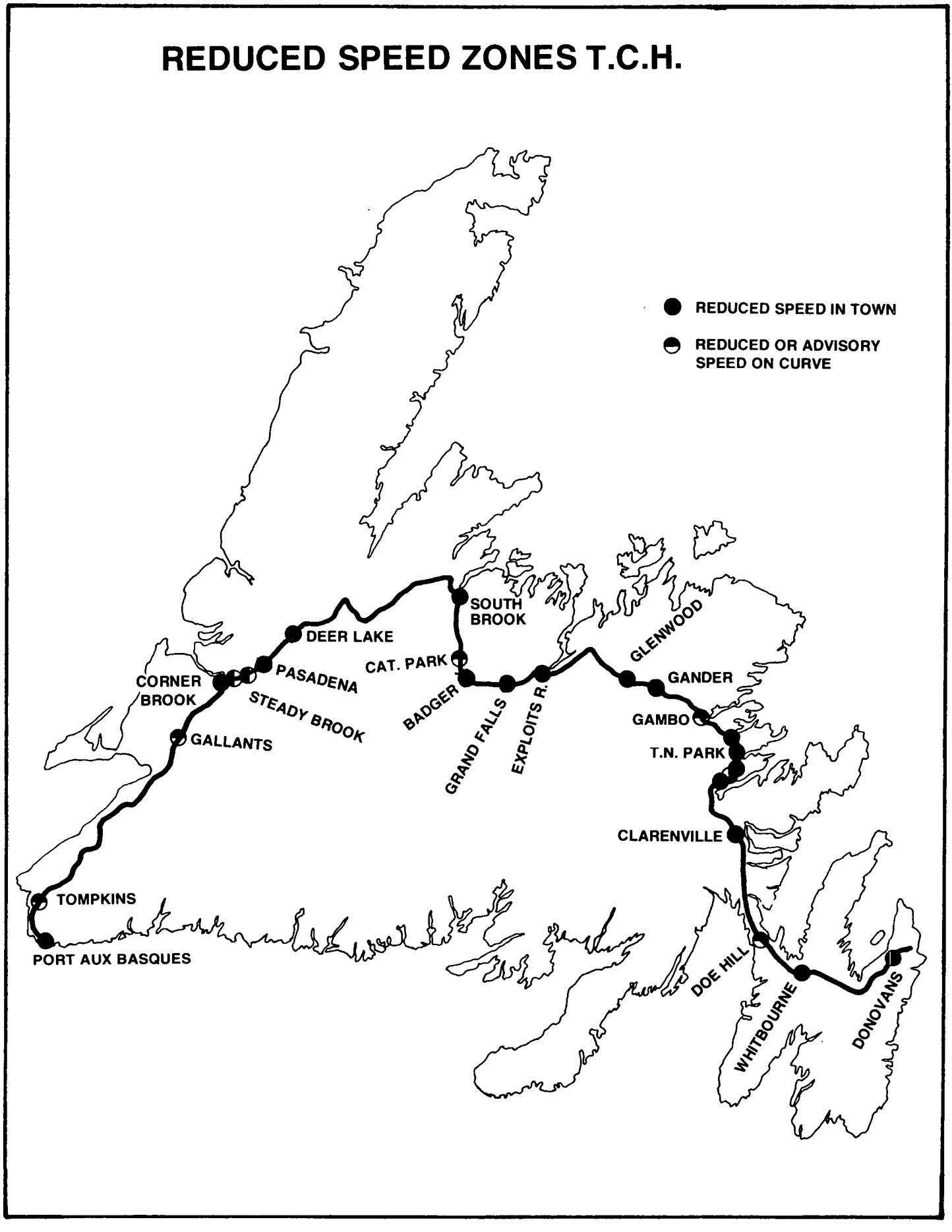
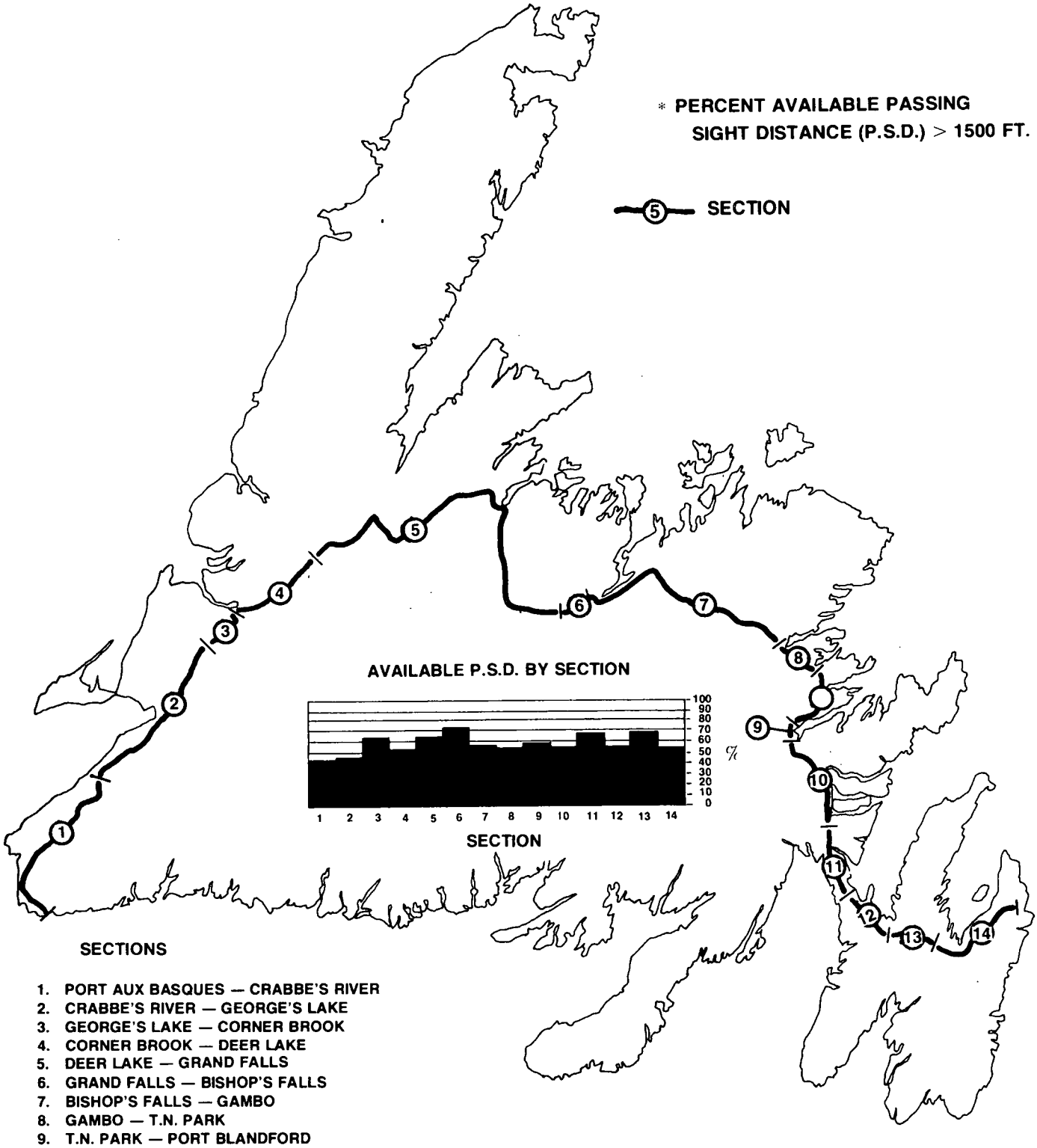

REDUCED SPEED ZONES T.C.H.
REDUCED SPEED IN TOWN
REDUCED OR ADVISORY SPEED ON CURVE
SOUTH BROOK
GLENWOOD
DEER LAKE
CAT. PARK
PASADENA
CORNER BROOK
STEADY BROOK
BADGER
GRAND FALLS
EXPLOITS R.
GANDER
GAMBO
T.N. PARK
GALLANTS
CLARENVILLE
TOMPKINS
PORT AUX BASQUES
DOE HILL
WHITBOURNE
DONOVANS

Figure 5-2

PASSING OPPORTUNITIES* ON SECTIONS OF T.C.H.

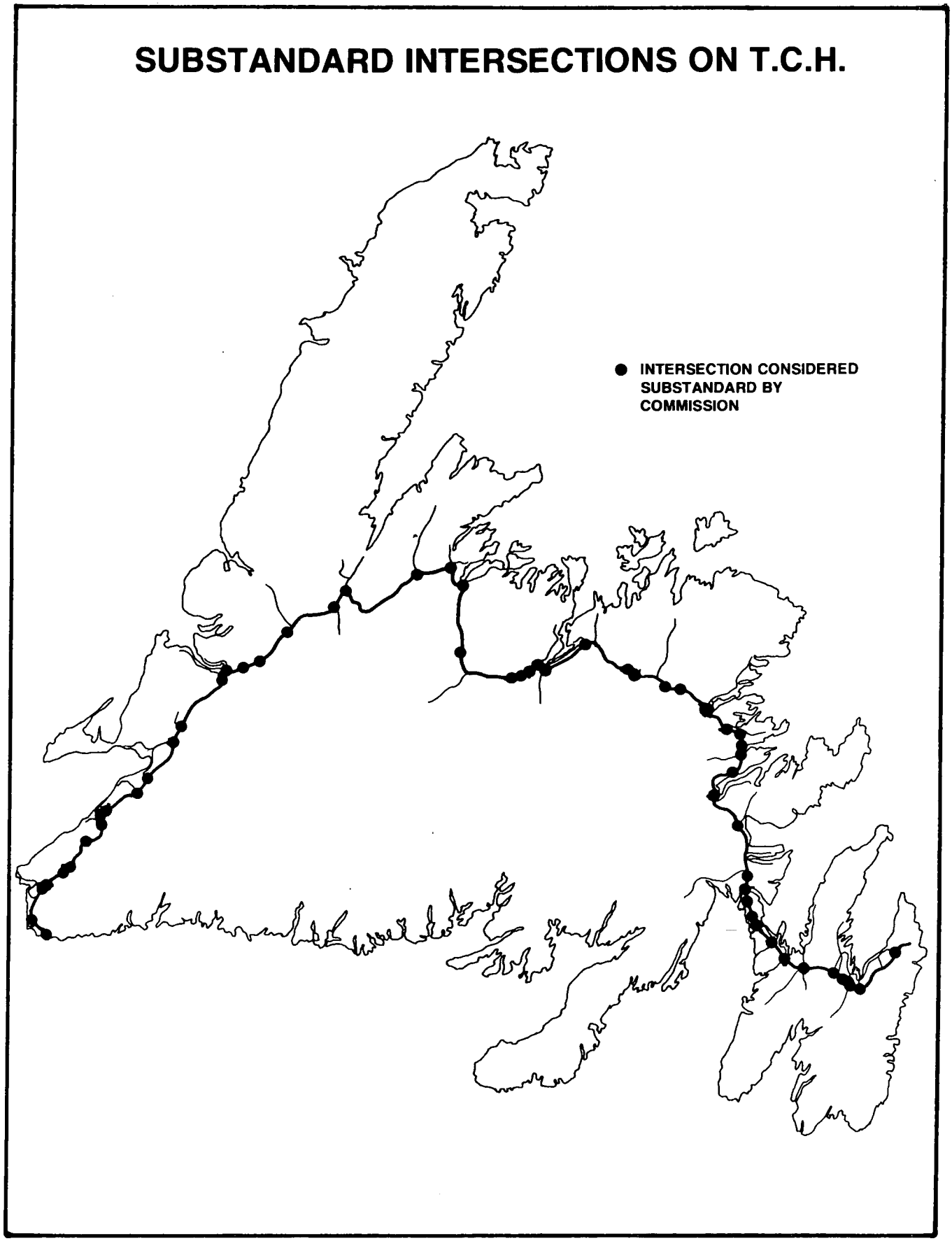


SECTIONS

1. PORT AUX BASQUES — CRABBE'S RIVER
2. CRABBE'S RIVER — GEORGE'S LAKE
3. GEORGE'S LAKE — CORNER BROOK
4. CORNER BROOK — DEER LAKE
5. DEER LAKE — GRAND FALLS
6. GRAND FALLS — BISHOP'S FALLS
7. BISHOP'S FALLS — GAMBO
8. GAMBO — T.N. PARK
9. T.N. PARK — PORT BLANDFORD
10. PORT BLANDFORD — GOOBIES
11. GOOBIES — CHANCE COVE RD.
12. CHANCE COVE RD. — ARGENTIA ACCESS
13. ARGENTIA ACCESS — ROACHE'S LINE
14. ROACHE'S LINE — ST. JOHN'S

SOURCE: DEPT. OF TRANS. & COMM.

Figure 5-3


SUBSTANDARD INTERSECTIONS ON T.C.H.
INTERSECTION CONSIDERED SUBSTANDARD BY COMMISSION

pavement markings at some intersections that now provide longer left turn lanes, but there has simultaneously been some needless erradication of previously good markings. There seems to be little standardization in the design of intersections on the Trans Canada Highway.

i) The roadbed is poor in many areas.

j) Road surface and riding quality are generally good except in areas from Port Blandford to Notre Dame Junction and George's Lake to Crabbe's River.

The Trans Newfoundland Corridor Study made general comments about the roadbed, road surface and riding quality on the Trans Canada Highway and identified in general the sections from Port Blandford to Grand Falls and George's Lake to Crabbe's River (west coast) as being inferior to the rest of the TCH.

Analysis was made by the Commission of data derived from Present Performance Rating surveys by the Department of Transportation & Communications. The Present Performance Rating (PPR) is the opinionated rating of a group of highway officials (usually by a panel of five experienced engineers) as to the present ability of a particular section of highway pavement to serve high volume, high speed mixed traffic. Measurement is made on a scale with a range of 0.0 to 10.0. The rating is obtained by each member following a set of rating rules. New Canadian pavements have PPR values ranging from 8.0 to 9.5 while reconstruction or resurfacing measures are instituted at a level of 4.5 to restore deteriorated surfaces to acceptable quality. The rating is decided to a very large extent on riding quality and is influenced considerably by rutting and to some degree by the amount and appearance of cracking or patching. Ignored are geometric design features, skid resistance, railway crossings, bridge abutments and culvert bumps.

While the ratings supplied to the Commission was generally for the years 1974 and 1975, some sections have not been done since 1967 and 1971. Where these latter sections have been rebuilt or repaved allowance has been made. Figure 5-4 shows the ratings of sections of the Trans Canada Highway as close as could be estimated for the current situation. The higher the column, the worse the rating. The sections which have ratings in the "fair" to "replace" range are as follows:

(i) Long Harbour to Arnold's Cove (43.5 km)

(ii) Gambo to Gander (42.4 km)

(iii) George's Lake to North Branch (118.9 km). (Note one 19 km section rates slightly better than fair.)

k) Guard rail is lacking in areas where it is required.

The Corridor Study indicated that 80,460 ft. (15.23 miles) of guard rail were needed to meet the standards. There has been no improvement in this regard since the Corridor Study.

l) Signing and Pavement Markings are inadequate.

There has been a noticeable improvement in signing on the Trans Canada Highway since the Corridor Study. However, as it is the policy of the Department of Transportation and Communications to manufacture its own signs, and as the present capacity of the sign shop is limited, the shop would have to be enlarged before the signing could be expected to reach a national acceptable quality. Pavement markings (as mentioned in 8) at intersections have been improved in some cases. Only limited use is made of edge lines which are needed in some areas due to fog conditions (e.g., Isthmus of Avalon). The Trans Canada Highway is the first highway to be marked each year. The general procedure is to paint the center-line with the paint truck and follow up the intersection painting with smaller units. However, this intersection painting is sometimes not completed until July or August as the smaller units have to do much of the local road center-line painting and sometimes the truck is out for repairs. This occurred in 1977. Also, the Avalon Peninsula crew has to go to Labrador City area in the summer and this means that no marking is done on the Avalon Peninsula while they are away.

m) Sections from St. John's to Argentia Access Road, Bishops Falls to Grand Falls, and Deer Lake to Corner Brook are carrying traffic in excess of the attainable service volume at Level of Service C, the desirable level for most practical design purposes.

Level of Service is a qualitative measure of the effect of a number of factors which include speed and travel time, interruptions, freedom to maneuver, safety, comfort, convenience and operating costs. There are six levels of service from A to F, as defined in Table 5-9. This table shows for some sections of the highway the volume of traffic normally accommodated at a 'C' Level of Service compared with what is actually being encountered. The result is that the service level is lowered.

The following is a brief description of the Level of Service concept as applicable to highway capacity.

Level of Service "A"—Free flow conditions with low volumes and high speeds.

Level of Service "B"—Stable flow with operating speeds beginning to be restricted somewhat by traffic conditions.

Level of Service "C"—Stable flow but speeds and maneuverability are more closely controlled by the higher volume.

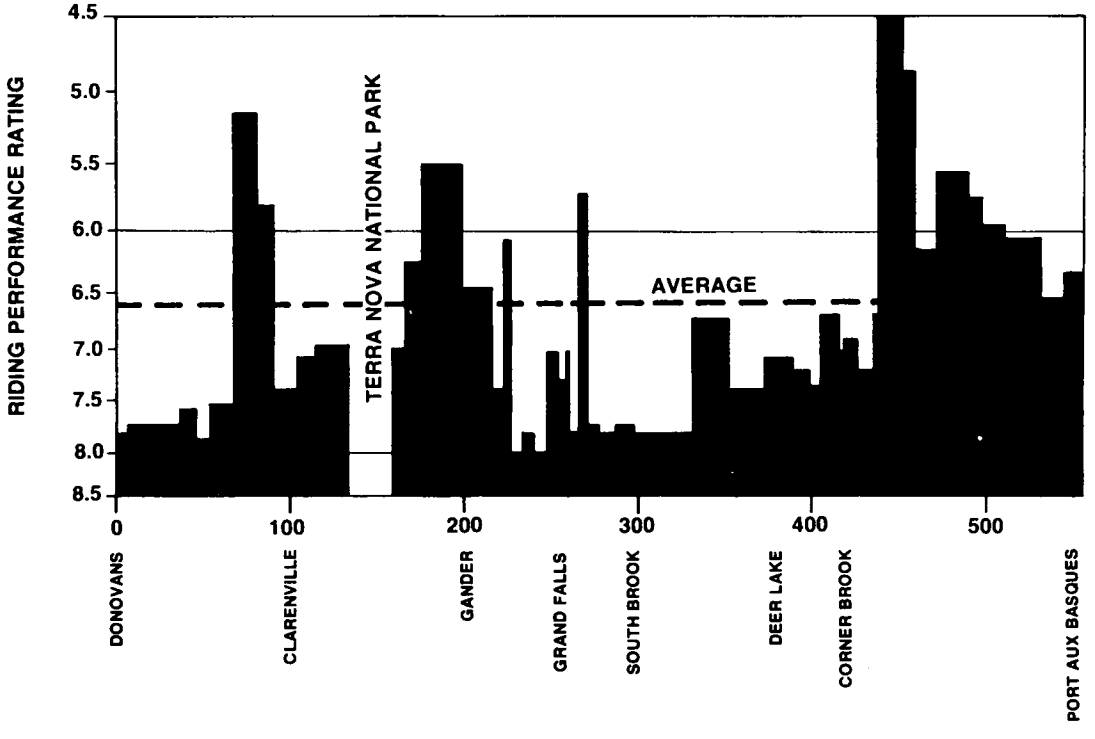
Level of Service "D"—Approaching unstable flow with tolerable operating speeds though considerably affected by changes in operating conditions.

Level of Service "E"—Unstable flow with low operating speeds and possible momentary stoppages.

Figure 5-4

PRESENT PERFORMANCE RATING[1] OF SECTIONS OF TRANS CANADA HIGHWAY IN NEWFOUNDLAND

Rating:		
	0 - 4.5	Replace
	4.5 - 6.0	Fair
	6.0 - 8.0	Good
	8.0 - 10.0	Very Good



(1) THE RATING OF THE PRESENT ABILITY OF A SECTION OF HIGHWAY PAVEMENT TO SERVE HIGH-SPEED, HIGH VOLUME MIXED TRAFFIC. BASED ON OPINION OF EXPERIENCED ENGINEERS AND RATED ON A SCALE FROM 0 TO 10 WITH NEW PAVEMENT RATED FROM 8.0 to 9.5 AND RECONSTRUCTION OR RESURFACING DESIRABLE AT A RATING OF 4.5. A RATING OF 8.5 WAS CHOSEN AS AN ACCEPTABLE STANDARD.

SOURCE: DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

Level of Service "F"—Forced flow at low speeds with short or long stoppages in which both speed and volume can drop to zero.

By 1987 the sections from St. John's to Arnold's Cove Access Road, Bishops Falls interchange to Lincoln Road interchange, Deer Lake interchange to Massey Drive, Corner Brook and from Grand Bay intersection to Port aux Basques will all have volumes in excess of that attainable at Level of Service C.

Since the Corridor Study, very little improvement has been carried out on the Trans Canada Highway, and frost heaving has added further to the deterioration of this highway.

Table 5-9 Actual Traffic Volumes Versus Computed Volumes for 'C' Level of Service

Section	Computed Service Volume (Level C)	Actual Volumes	Present Level of Service
St. John's—Donovans	682-v.p.h.	1,988	E
Donovans—Foxtrap Access	682-v.p.h.	1,157	D
Foxtrap Access—Holyrood Access	682-v.p.h.	984	C-D
Holyrood Access—Roache's Line	682-v.p.h.	843	C-D
Roache's Line—Argentia Access	769-v.p.h.	671	B-C
Bishops Falls Center—Union St. (G. Falls)	917-v.p.h.	827	C
Pasadena—Riverside Drive (Corner Brook)	718-v.p.h.	703	C
Riverside Drive—Massey Drive	718-v.p.h.	862	C-D

4. *Adequacy of Trans Canada Highway*

As a primary highway on which great dependence is placed for the movement of goods and people, the Trans Canada Highway, because of its many deficiencies, is grossly inadequate. The opinion poll carried out on behalf of the Commission indicated that reconstruction and upgrading of this highway is held as a high priority item by a vast majority of Newfoundland residents. Also, upgrading of the highway was one of the major concerns of people who presented briefs at the Formal Hearings of the Commission. The major impacts of the Trans Canada Highway deficiencies, i.e., broken pavement, pot holes, frost heaves and substandard geometric design, are attributable factors to low comfort levels, higher accident rates, lower operating speeds, higher operating costs, excessive damage to cargo and excessive maintenance costs. Additional costs are also incurred as cargo has to be more securely packed. These problems prevent the trucking industry from performing to its full potential and the general public is forced to incur costs in excess of what is normal for other parts of the nation.

5. *Comparison with Trans Canada Highway in Other Provinces*

Considering that in Newfoundland there is no highway alternative to the Trans Canada Highway, one would expect that this prime and indeed, only, transprovincial highway would be on a par with the primary roads in other provinces. Such, however, is not the case. Except for Prince Edward Island, which has severe soil problems connected with highway construction, the Trans Canada Highway through Nova Scotia and New Brunswick is superior both in alignment, cross section and general condition than that in Newfoundland. Higher operating speeds, smaller grades and curves, use of fully paved shoulders and higher allowable truck loadings, all indicate that the Trans Canada Highway in these provinces was built to a higher standard than in Newfoundland.

6. *Secondary Road System*

Generally speaking, the highway system (other than the Trans Canada Highway) has been in a state of evolution, with many of the collector roads only recently upgraded, or in the process of being upgraded, to an acceptable standard. Moreover, in most cases, the standard being provided is perfectly adequate for the traffic at present and in the foreseeable future. There are, however, several highways, built some time ago, that are now overtaxed due to their role being altered from rural highways to almost what can be called town roads, and with negligible improvement done to them. Due to their nature, these roads have not been built to the same standard as the Trans Canada Highway, i.e., they have narrow pavement, lower horizontal and vertical alignment standards, narrower shoulders and more accesses onto them. As a result, their capacity to carry traffic is lower than the Trans Canada Highway.

An examination of the highway system (other than Trans Canada Highway) has been made to determine what highways are presently substandard with regard to geometrics and capacity. Since the analysis of geometrics is a considerable task, the method of analysis is to use data supplied in the "Task Force on Transportation and Communications" report of 1974 and updated where necessary.

There are two classifications of highway considered, the rural collector road and the rural local road. The rural collector road collects traffic from local roads and feeds it to arterials or distributes it from arterials to locals. They have a land service function of equal importance to their traffic service function in that they directly serve the adjacent properties. Rural local roads provide land access, allowing vehicles to reach the frontage of properties and generally have low traffic volumes. Collector or local roads that are currently in process of being upgraded, e.g., Northern Peninsula Highway, North East Coast

loop road and Southern Shore Highway, will not be considered further except where traffic columns may indicate need for improvement.

7. Adequacy of Existing Collector Road System

As mentioned before, the rural collector road collects traffic from local roads and feeds it to arterials or vice versa and has a land service function of equal importance to their traffic service function. The current design standard used by the Department of Transportation and Communications calls for a 70 km/h cross section and a minimum of 70 km/h alignment. It is not practical to give a detailed breakdown of each section of a road which may be substandard. However, the following list shows that major sections of the collector road system are substandard due to geometrics and/or capacity. It is interesting to note that two collector roads, Topsail Highway (Route 60) and Conception Bay Highway (Route 70) have, by the nature of development along them, become more of an urban road and are presently operating at low levels of service.

a) Inadequate Sections

1) Route 10—Kilbride to Goulds
2) Route 20—St. John's to Torbay
3) Route 40—St. John's to Portugal Cove
4) Route 60—St. John's to Foxtrap
5) Route 70—Trans Canada Highway to Carbonear
6) Route 340—Trans Canada Highway to Lewisporte
7) Route 450—Trans Canada Highway to Port au Port
8) Route 230—Clarenville to Lethbridge
9) Route 360—Junction Route 361 to Harbour Breton
10) Route 31—Witless Bay Line
11) Route 432—Junction Route 430 to Main Brook
12) Route 433—Junction Route 432 to Englee
13) Route 520—Quebec Border to Red Bay

Sections 9, 10, 11, 12 and 13 presently have gravel surfaces, but should be at least brought up to the geometric standard (which does not necessarily means asphalt paving). There are also numerous other sections of collector roads which are substandard, but which can be remedied by a continuing upgrading program. It should be noted that it is much easier to provide proper alignment on the roads and widen cross-sections later as required than to try to alleviate alignment problems caused by poor design in the first place. Studies have shown that accident rates substantially increase on gradients greater than three percent and on curves less than 300 metres radius. It is sufficient to say that the utmost care should be taken in the design of roads.

One interesting point is the lack of provision of truck climbing lanes on collector roads. Only two lanes exist, one on the Argentia Access Road (Route 100) and one on the Burin Peninsula Highway (Route 210). In general, truck-climbing lanes should be provided where the effect of slow moving trucks is to bring the level of service below the desired minimum. (For example, on a 2% grade of any length, the effect of one truck is equivalent to two automobiles but on a 7% grade, 6 km long, the effect is equivalent to 107 automobiles. It would thus take only five or six heavy trucks in one hour to reduce the level of service to an unacceptable level.) There are several collector highways in Newfoundland that warrant truck-climbing lanes. For example, the Northern Peninsula Highway (Route 430) through Gros Morne Park and the Harbour Breton Highway (Route 360) and near Harbour Breton.

8. Adequacy of the Local Road System

A study of the local roads on the Island revealed that all the existing two-lane local roads will have adequate capacity to handle the traffic demand in the next ten years. Many local roads are of substandard design, but due to the continuing program of upgrading these roads, there are no foreseeable problem areas. The Province of New Brunswick has found that on low volume roads the highest type of pavement that can be economically justified are seal coats or surface treatments. Seal coating existing asphalt surfaces costs approximately $7,000 per mile as compared to $25,000 for 1½" of asphalt. Also, surface treating gravel roads costs approximately $20,000 per mile versus $60,000 per mile for an asphalt surface. A mile of surface treatment remains good for about four to seven years and as a rule New Brunswick seal coats surface treated roads every five years at a cost of $7,000 per mile. Of the 5950 miles of dust-free roads in New Brunswick, almost 64% are seal coated or surface treated. In 1977 the Newfoundland Department of Transportation and Communications placed between 20 and 25 miles of seal coats in two areas, Route 350 (Botwood Highway) and Route 440 (Summerside) with the coating on Route 350 a failure and on Route 440 a relative success. Costs averaged $11,000 per mile, probably due to the short distances used. The Department is anticipating laying 100 miles of seal coat in 1978. No surface treatment of gravel roads is planned in 1978.

9. New Roads Under Construction

There are, at present, two new roads under construction. These are the Burgeo road and the Monkstown road, both of which link isolated communities to the Province's highway system. Both will have gravel surfaces for the time being, with the possibility of some of the Burgeo road being paved later.

10. *Labrador Highway System*

As mentioned in a previous section, the Labrador highway system is virtually non-existent. There is no interconnection between Labrador City/Wabush ad Goose Bay, nor Goose Bay and the south coast of Labrador. There is no connection to other mainland highway systems. Although all sections of the existing highways are able to accommodate the traffic offering, they do possess substandard sections.

The 45 mile gravel road from Red Bay to the Quebec border must be completely upgraded due to sub-standard geometrics. Sometimes, during the winter, it is closed for lengthy periods of time because it cannot be cleared and kept open.

The 160 "tote" road from Goose Bay to Churchill Falls is "use at your own risk" road that is impassable at some periods of the year.

The 114 mile road from Churcill Falls to Esker is a gravel surface all-weather road used for the transportation of goods from the Esker railstop to Churchill Falls. It is kept open year round.

The paved highway from Wabush through Labrador City to the Quebec border has only been finished in the last two years, but there has been a need for upgrading the Wabush to Labrador City portion, particularly at the bridge crossing.

The question of the Trans Labrador Highway has been the subject of a study carried out for the Provincial Government in 1975. It was concluded that the proposed highway was economically feasible with a direct cost-benefit ratio of approximately 3 to 1 and that, if constructed, it would become part of an important national traffic network. It was also concluded that detail work commence immediately and construction begin when the highway location was decided.

11. *Public Opinion of Highway System*

In addition to the review of previous studies, discussions with provincial government officials and its own research, the Commission had a detailed public opinion poll taken whereby the Newfoundland resident had an opportunity to express his opinion on a wide range of transport related topics. The questionnaire was distributed to 1300 households in the Province from which approximately 1000 were returned. It is not surprising that keen interest was shown with regard to the questions concerning highways. The principle points are outlined here:

a) For journeys of 30 miles or more, approximately 95% are highway related trips, i.e., either by bus or car.

b) 73.8% of the respondents felt that highway conditions in the Province were either fair or poor.

c) The Trans Canada Highway should be upgraded, repaired, widened or rebuilt as a four lane facility.

d) Secondary roads should be upgraded and paved.

e) Amenities such as paved shoulders, lighted intersections, divided highways and more highway signs were not considered of major importance on secondary roads.

12. *Community Access*

The Trans Newfoundland Corridor Study indicated that in 1974, 65% of the population of the Island lived within a 60 minutes drive of the Trans Canada Highway. The study further states that while there is no proof that good community access to the Trans Canada Highway results in more material well-being, such as income, there is evidence to indicate that communities with good access to Trans Canada Highway travel much more frequently than those without. There is, however, good evidence to show that communities served by road to the main highway network have better access to health care services, education facilities, job opportunities and cultural facilities.

Within this Province, there are several areas which, at present, are either not serviced by road or serviced in such a manner that the true value of the road system cannot be realized. For instance, the area of Bay D'Espoir, although connected to the Province's highway network by a reasonably good road to Bishops Falls, lacks a direct connection with the Avalon and Burin Peninsulas. Because of this, business and cultural links between these areas are inhibited. The principal problem of road accessibility lies, however, with the communities along the southwest coast between Bay D'Espoir and Rose Blanche, the east side of the Great Northern Peninsula and all of Labrador. The absence of roads in these areas places the residents at a distinct disadvantage when compared to other communities which have good highway connections.

13. *Conclusions*

While there have been very substantial road building projects carried out in this Province over the last two decades, the extent of good quality paved highways is far less in this Province than in the others. The Trans Canada Highway, although adequate when first constructed, is now in a deplorable condition and requires immediate upgrading if the emerging trucking industry is not to be seriously damaged. The secondary trunk roads are in need of massive upgrading to provide good community access and allow for a least cost method of goods transport.

Assessment of Trucking Industry

1. *Evolution of Industry*

The trucking industry more than any other mode of transport has been in the process of evolution in this Province and perhaps has not even yet arrived at a stabilized state. The industry as a whole has been

fragmented, with many small firms entering and leaving the business on a routine basis. This of course has meant that reliability and dependability were low and in fact, it has been difficult to provide service at all to many parts of the Province.

This rather unstable state cannot be placed totally on the shoulders of the carriers in the industry, as many influences rest fully outside the scope of the major participants. For instance, the retardation and generally poor development of the interprovincial trucking industry has been due at various times, within the last decade, to one or a combination of, 1) the inability to carry large size trucks on the Gulf ferries, 2) the lack of a completed Trans Canada Highway, 3) the impediment to truck travel on the Gulf after vessels with truck capacities were put into service, i.e., waiting times and high fares, 4) a rapid deterioration of the Trans Canada Highway soon after it was officially completed. From the intra-provincial standpoint, the lack of good, if not totally unsuitable roads giving rise to high maintenance and operating costs, plus the sparse and scattered populations resulting in the carriage of small payloads, has hindered the rapid development of a good intra-trucking service.

In spite of the above noted drawbacks, some degree of rationalization and stability can be noted. Table 5-10 gives some fleet comparisons for both the intra and extra provincial operations for the years 1972 and 1976.

Table 5-10 Vehicle Fleet Profile for Trucking Industry 1972-1976

	Extra Provincial		Intra Provincial	
	1972	1976	1974	1976
No. of companies	80	140	479	344
No. straight trucks	135	77	1042	490
No. tractors	189	635	84	476
Ratio Tractors/ Driving Units	58.3%	89%	9.9%	49.3%

As far as the extra-provincial fleet is concerned, considerable overall growth both in the number of companies operating and the number of pieces of equipment registered is evident. The most dramatic change, however, has taken place with respect to the intra-provincial fleet, which has seen a shift from 479 companies operating with mainly straight trucks to 344 companies operating with considerably larger equipment.

An important point to note is that the above figures represent only the public or for hire carriers. Since many business concerns in the Province maintain private trucking fleets for the purpose of pick up and delivery of goods for customer convenience, the intra-fleet is actually much larger than shown. The extent of private trucking is not fully known as there is no regulatory agency which maintains records of these; however, from discussions with personnel of the Public Utilities Board, it is suspected that it is extensive.

With the evolution of the industry, has come some measure of maturity and at least some of the problems identified in the Trans Newfoundland Corridor Transportation Study, e.g., the degree of interlining has increased dramatically over that of 1974 thus indicating a better degree of co-operation between truckers. Indeed the trucking industry has gained widespread acceptance throughout the whole Province.

2. *Adequacy of Service*

The growth of trucking as a mode for interprovincial goods movement has been far in excess of the annual growth of total freight moving into and out of the Province. This would indicate that, compared with other modes, truck is offering a service which meets the needs of the user better than the other modes. A survey of user opinion carried out by representatives of the Commission indicated that most users were satisfied with the truck service being offered. The characteristics most frequently identified with favour were:

1) efficiency
2) door to door deliveries
3) reduced handling leading to reduced loss and damage
4) good transit times

Although there is a good deal of acceptance of the trucking industry, the industry is far from being without fault. Poor frequency and lack of regular scheduled service to the less populated areas of the Province are two of the frequently mentioned complaints. While service in the corridor is generally good for full truck load shipments, less than truck load lots and all off-corridor service leave from for improvement.

The main problems with interprovincial shipments, particularly for less than truck load shipments, are the poor roads leading to many of these communities as well as the high costs incurred in trying to service these. Many of the smaller local firms which service the intra-provincial trade have, for the purposes of business security, committed virtually all of their capacity to servicing one or two firms in a particular community. Others wishing to obtain trucking service can do so only when excess space is available. Since the trucking companies involved are generally small with perhaps only one moderate sized truck each, the servicing of regular customers is the only way the operator can obtain any measure of business security. Failing to provide this service could seriously jeopardize his whole existence.

The problem is further aggravated because there are virtually no central warehouses to which a potential customer might send small shipments for delivery to final destination. This constrains the degree of interlining which might otherwise take place and also prevents many truckers from obtaining access to consolidated loads. If central warehouses were available, shippers could be better serviced and the larger trucking firms could avoid unnecessary costs through effective interlining and the smaller trucking companies could have access to larger payloads which, in turn, would give rise to industry stability.

The interprovincial part of the industry, although showing signs of more stability than the intra-provincial division, in that larger companies with larger equipment inventory generally operate between the provinces, has one aspect which is disturbing and potentially dangerous. Of the 140 companies licensed by the Public Utilities Board to operate interprovincially, *none* has chosen to operate under a scheduled license service. Although many of these companies do, in fact, offer a regularly scheduled service, it is done as matter of choice by the trucking company and not as a condition of license. Since this is the case, and since a large majority of these are out of the Province companies, any change in the company's operation at the mainland office could result in a drastic change in the operation in Newfoundland. The company concerned would still be operating within the terms and conditions of its license. As a result, while there may be a considerable degree of confidence expressed by some users of the trucking industry with respect to schedules and a continuity of service, the possibility does exist for considerable instability. As an analogous situation, one might imagine the chaos which would be experienced if the major airlines operated on a load-and-go basis rather than on predetermined schedules.

3. *Industry Growth*

Since 1974, the rate of growth in the interprovincial trucking industry has been phenomenal. There are indications now that the prospects for long-haul truck movements are not quite as good as previous years primarily because of the high cost of fuel. However, the industry in this Province has essentially captured the carriage of certain commodities, such as refrigerated cargo. In view of the relatively high portion of back-haul commodities available to the trucking industry, it will be unlikely that the industry will be easily displaced from those commodities.

One of the major contributions of the whole trucking industry in recent years has been as a service to the operation and development of the fishing industry. The use of trucks for pick-up of product from point of landing for delivery to final processing sites has become universally accepted for both the salt and fresh fish industries. Since many of the landing points are located in areas remote from the primary highway system, the problems of truck service are considerably hightened by lack of a good all weather road system. The restrictions placed on the trucking companies by equipment limitations, e.g., on some roads it is virtually impossible to operate tractor trailers, and load limits add significantly to the cost of the finished product.

As far as export is concerned, the trucking industry now carries a vast majority of fish products from this Province (estimated to be 136,000 tons in 1976)—all in temperature controlled vehicles. Except for the peak catching season when the demand for refrigerated trucks exceeds the supply, the trucking industry appears to meet the specifications and wishes of the fishing industry better than any other mode and a measure of mutual satisfaction is evident. There is even some evidence that if there were major changes in the interprovincial trucking services which saw a reduction in reefer capacity, severe damage to the fishing industry would result. Of prime concern in this regard are: 1) the condition of the highways which plays a vital role in the areas serviced, 2) the allowable payloads and hence the transport cost of the finished product and 3) the possibility of disruption of service on the Gulf due to labour problems. It appears that the fishing industry is highly sensitive to transportation cost changes; and if any of the above should result, the whole industry would be adversely affected by Gulf problems and since the capacity and marketing management is not now in place in the marine mode, no other surface mode is in a position to step in should trucking problems arise. Air service, while holding much promise for the future, is not fully developed for large scale fish export and is at present too costly to be of immediate value.

4. *Effect of Highway Conditions and Regulations*

Until the present, there has been a considerable difference in allowable gross vehicle loads and axle weights permitted on our highways and those of other provinces. In nearly all cases, lower limits are applicable in this Province. This has prevented truckers from utilizing maximum capacity of their vehicle which, in turn, has contributed to higher costs on the Newfoundland operation. With the completion of the proposed upgrading program of the Trans Canada Highway, this situation is due to change as, by mutual agreement, there will be uniform load limits in existence in all of the Atlantic Provinces.

A major concern expressed by the truckers, in addition to the above, was the variance between weights carried as determined by scales in different parts of the Province. Truckers claim they can load up and be weighed at origin and be within the legal limit, but usually one of the remaining scales will consistently show the loads to be in excess of those allowable. This makes the trucker overly cautious and

often, to be sure that he will comply with the regulations, he will not take the maximum load. Within the trucking industry, there is a strong feeling that the regulations are not being properly applied. Claims such as these are difficult to resolve. In discussions with personnel of the Department of Transportation and Communications it was learned that the scales are calibrated and checked on a routine basis so that there is very little room for error. Personal judgments of the weighscale staff might account for discrepancies.

5. *Costs and Freight Rates*

The intra-provincial trucking business is largely privately owned with the owners as operators or hired personnel acting as drivers. On the interprovincial scene, however, the trend has been towards broker drivers, that is drivers who own the truck portion of a tractor trailer combination and who deliver the trailer and contents for a contract price, usually on a per mile rate basis.

The general absence of organized unions in the trucking industry, with the accompanying lower labour costs, has served to keep the operating costs of most trucking firms in the Atlantic area well below that of central Canada, although this is not the only reason for the cost differentials. Comparative figures for the carriage of dry freight can be seen in Table 5-11.

Table 5-11 Truck Operating Costs*—1976

Type of Truck	Cost per Truck Mile (¢) Ontario	Quebec	Maritimes	Nfld.
2 Axle (Sample—15,000 miles)	195.7	176.1	129.1	130.5
5 Axle (Sample—150,000 miles)	109.2	109.7	89.4	90.8

* Transport Canada, *Operating Costs of Trucks in Canada, 1976*

In spite of the lower operating costs, there is widespread opinion among the users of the trucking industry within the Province that the rates being charged are excessive. Spot checks of tariffs of the rail, sea and truck modes carried out by the Commission staff indicate that for most items, while truck had the highest rates for the long distance journeys, on shorter distances the truck was the more competitive. The rank order rating of quoted rates for some commodities being moved between mainland origins and Newfoundland destinations can be seen in Table 5-12.

The prime determinants of the rate structure in this Province are, however, not as much the costs of operation as the existence of competition and the availability of back-haul traffic.

For the more populated centres of the Province, competition for intra-provincial traffic is good and is reflected in the rate structure. For the remote areas, in addition to lack of competition, maintenance costs are usually high and as a result, rates are generally high. On interprovincial traffic there is still an imbalance between incoming and outgoing freight though less for truck than other modes. As a result, inbound rates have to be set to cover the costs of hauling empty returns. The main beneficiary of this rate structure has been the fishing industry which has been able to capitalize on what would ordinarily be the return of empty trucks. At the same time, the ability to recapture some of its costs through back-haul has enabled the trucking industry to maintain rates which, although for some commodities are high, are somewhat realistic. The absence of back-haul would undoubtedly price trucking, if not out of the market, to such a level that only the highest valued products could be justifiably transported by this mode.

The extension of the freight rate subsidy by the Atlantic Region Freight Assistance Act (ARFAA) to trucking has been, where applicable, a very valuable aid in making trucking more competitive with rail. Since the subsidies apply only to public carriers and not to private ones, there has been some pressure placed on the private carriers to go public in order to qualify for subsidy. The proposed changes in the whole subsidy program, while providing more competition to the trucking industry, are not likely to have any major adverse affect on the trucking position. Rail will be largely unaffected.

6. *Impact of Industry Composition*

The trucking industry, which in this Province was slow to develop, is a highly regulated but very loosely knit industry. Competition between carriers, while growing rapidly, is not nearly as fierce as that in other provinces, and it is relatively easy for a trucking firm to obtain a license to operate within the Province. The rather amorphous structure of the industry has some major impacts, some of which have already been mentioned. Firstly, since all companies operate independently, interlining of freight is a problem. This is of particular concern to communities remote from the Trans Canada Highway corridor and without rail or coastal boat connection. Secondly, there is no formal method whereby industry-wide planning can be accomplished. For instance, industry-wide statistics are not maintained, and unless a particular trucking firm of its own initiative elects to build central warehousing, it will be difficult for any other body to do so and have it operate effectively. Thirdly, although there have been some attempts at uniform rate setting through the Atlantic Provinces Tariff Bureau, currently there is no formal mechanism within the industry to permit rate review. As a result, it is possible to have widely varying rates throughout the Province. Fourthly, the industry is not uniform throughout the Province from a service standpoint. In areas where business is good, service is relatively good. In areas

Table 5-12 Rank Order of Tariff Rates (Low to High) O-D Pairs

	Montreal				Moncton				Port aux Basques			
Lumber	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony
Rail	2	2	1	1	1	1	1	1	1	2	same	1
Water	1	1	2	2								
Truck	3	3	3	3	2	2	2	2	2	1	same	2
Furniture	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony
Rail	3	3	3	3	1	1	1	2	2	2	2	2
Water	1	1	2	1								
Truck	2	2	1	2	2	2	2	1	1	1	1	1
Bakery Goods	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony
Rail	2	3	3	3	2	2	2	2	2	2	2	2
Water	1	1	1	1								
Truck	3	2	2	2	2	1	1	1	1	1	1	1
Potato Chips	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony	St. John's	Corner Brook	Lewisporte	St. Anthony
Rail	2	2	2	2	1	1	1	2	2	2	2	2
Water	3	3	3	3								
Truck	1	1	1	1	2	2	2	1	1	1	1	1

where volumes are low, service is often poor. There is, at present, no organization which attempts to ensure that a reasonable quality of service is available. The Public Utilities Board attempts to enforce the regulations for which it is responsible, but it is clear that there are no formal regulations which would ensure good service. For instance, the Public Utilities Board cannot ensure that all the interprovincial carriers which now have licenses for unscheduled services, operate scheduled services, and while enforcement of the existing regulations by the Public Utilities Board helps, it is through the good graces of the trucking firms that this Province has scheduled services.

Assessment of Trans Island Bus Service

1. *General Standard of Service*

The conclusions made regarding the quality of service offered by the CN Roadcruiser Service depend on whether the standards for comparison are typical intercity buses, as operated elsewhere, or transcontinental trains, as operated in other provinces of Canada. The Commission feels that inasmuch as the Roadcruiser is serving as a substitute for the rail passenger service, any comparison of the service should be made with a train operation rather than with a typical intercity bus operation.

The typical items to consider when evaluating any service of this nature are:

1) Schedules and frequency of service
2) On-time performance
3) Fare structure
4) Comfort
5) Courtesy and efficiency of staff

a) *Schedules and Frequency of Service*

A detailed evaluation of the service, completed as part of the Trans Newfoundland Corridor Transporta-

tion Study (1974), concluded that there were significant deficiencies in both the routes served and the scheduling and frequency of services. It was demonstrated in the study that the schedules and routes centered around the ferry operation at Port aux Basques. The express service offered at that time was geared primarily to transport passengers from St. John's, Gander, Clarenville, Grand Falls and Corner Brook to Port aux Basques in time to make ferry connections. An analysis of travel habits, however, revealed that most demands were for trips centered around three separate corridors—eastern, including St. John's to Clarenville; central, including Grand Falls to Gander; and western, from Deer Lake to Port aux Basques. Since 1974, the schedules have been changed with the daily express runs eliminated and more frequent service provided to communities along the corridor.

An opinion survey completed by the Commission indicated that there is moderate approval of the existing routes and frequency of service, although 11.4% of those polled indicated that existing frequencies were poor.

b) *On-Time Performance*

One of the most aggravating aspects of any passenger service, as far as the users are concerned, is missed connections and excessive waiting times imposed due to poor on-time performances of equipment. The 1974 study showed that 25% of all departure times and 67% of all arrival times of CN buses were unacceptable. (Acceptable being defined as being within 15 minutes of schedule time.) Information presented to the Commission concerning 1976-77 schedules indicate that there has been some improvement in this area. There was a period last year, however, after legal speed limits were reduced from 60 mph to 90 km/h, when CN found it very difficult to meet published schedules. New schedules in line with the new operating speed has now overcome this.

c) *Fare Structure*

The Roadcruiser service in this Province, unlike most rail passenger service in Canada, is not directly subsidized by the Federal Government. As such, the CN Railway picks up the deficit, which in 1976 amounted to $1,479,900 (excluding pass passengers). The service then finds itself in a unique but by no means enviable position, whereby it is supposed to be a rail substitute but yet is not eligible for rail subsidies. There is, therefore, obvious pressure to minimize costs which is usually done at the expense of service, and at the same time, effort to extract a fare as high as possible from the user.

In 1976, the total cost of running the Roadcrusier service was $3,355,800 of which $560,900 was attributed to carrying pass passengers free of charge. The revenues generated amounted to $1,315,000 which resulted in a loss of $2,040,800. The loss attributable to revenue passengers was $1,479,900. Through a new fare tariff essentially amounting to a 15% fare increase, this deficit was expected to be reduced to $1,036,200 for 1977.

It should be noted that a major factor contributing to this deficit is the high cost of maintaining the buses. In 1977, the maintenance costs per vehicle mile were 42.5¢, down from the 51.7¢ figure recorded in 1976. Roadcruiser officials indicated that the latter figure reflects significant overhaul of the buses used in the operation. For comparison purposes, information from Statistics Canada shows that in 1974, the average maintenance and garage costs for 19 establishments across Canada was 18.0¢ per vehicle mile. More recent figures for MacKenzie Bus Lines of Bridgewater, Nova Scotia indicate that 1975 maintenance of buses and equipment costs were 25.3¢ per vehicle mile, increasing to 28.5¢ per vehicle mile in 1976.

Several factors could account for the higher maintenance costs, but the major reasons are:

(i) The equipment is now nearing the end of its useful life with the newest buses four years old and the oldest, ten. (The economic life of most buses is considered to be eight.)

(ii) It was anticipated that higher maintenance costs would be experienced because of the nature of these buses.

(iii) The poor state of certain sections of the Trans Canada Highway.

Compared with other intercity bus services, the CN fare structure has always been low. The new tariff will now bring the fares more in line, certainly with the major bus lines operating in the other Maritime Provinces. However, inasmuch as the Roadcruiser service is a train replacement in Newfoundland, comparisons should be made with train costs and revenues rather than purely bus services.

Table 5-13 gives financial and traffic information for train lines in other Maritime Provinces which have come under abandonment review and for which a subsidy is now paid under Section 260 and 261 of The Railway Act. The Roadcruiser service is the most economically efficient of the five depicted. It is ironic that all of the above rail services have been judged essential and as such, 80% of the approved loss is met by subsidy from Canadian Transport Commission. Since the Roadcruiser is the only trans-island public passenger service available (other than air), it is reasonable to assume that it, too, is essential. If the same fiscal concessions were to apply to the bus, CN would then be able to provide far superior buses with passenger comfort in mind, a greatly improved en

Table 5-13 Cost/Revenues Comparison for Rail Passenger Services in the Maritimes and CN Bus in Newfoundland

Service	1976 Loss	Cost Per Pass. Mile	Rev. Per Pass. Mile	Loss Per Pass. Mile
	$	¢	¢	¢
Montreal/Sydney/Halifax	29,504,150	20.46	5.94	14.52
Sydney/Truro/Halifax	1,570,399	25.71	5.20	20.50
Moncton/Saint John	1,427,960	35.87	5.57	30.31
Montreal/Saint John	3,617,160	46.40	8.75	37.65
CN Roadcruiser	1,479,900	7.6	3.4	4.2

route service, and at the same time, there would not be any noticeable increase in fares.

d) *Comfort*

The Prevost bus, which accounts for 21 of the present fleet of 22 buses, is far from being a suitable piece of equipment for an intercity bus service, let alone a substitute for a modern train. This type of bus is generally used by suburban type bus operators for journeys of 20-30 miles. Indeed, the Commission could not find any intercity bus service in Canada which has a fleet comprised of this type of bus and was unable to find a satisfactory explanation as to why these buses were selected for the Newfoundland service. This type of equipment, while somewhat attractive and lower in price than most other Canadian-made coaches, does not possess the comfort features necessary for long distance travel, does not have suitable heating/air conditioning equipment, and the lavatories are not conducive to long haul operations.

For the long trip market and as a substitute for a modern train service, the present bus system is grossly deficient. From a comfort standpoint, the cramped seating on the present bus, for journeys over 200 miles, makes for a high measure of discomfort (50% of trips 150 miles). For journeys of 560 miles, as in the case of passengers moving from St. John's to Port aux Basques, the trip is almost unbearable.

e) *Courtesy and Efficiency of Staff*

It was the widespread opinion of the users, who responded to the opinion survey, that the staff were courteous and helpful at all times. In fact, only 6.2% of those questioned responded with a negative comment in this regard.

It should be noted also that the Roadcruiser service has an excellent safety record when one considers these buses are logging almost 2 million miles per year.

The company and staff should, therefore, be complimented for their performance in these two areas.

2. *Passenger Volumes*

Since the Roadcruiser service was inaugurated, the annual number of passengers has increased from 168,739 in 1969, to 240,734 in 1976. Approximately 20% of these passengers are passholders.

An analysis of traffic statistics for two months (July and November, 1976) showed the distance travelled by most passengers was less than 300 miles with the percentage travelling over 300 miles very small (21% July, 13% November).

3. *Express Packages*

The Commission noted that the revenues derived from express packages were extremely low, whereas many intercity bus companies derive a major share of their revenue from this source. One of the stated reasons for this is that luggage and package space on the buses is very small, which leaves very little room for anything except passenger associated packages. This, of course, illustrates the unsuitability of the buses.

4. *Co-ordination With Off-Corridor Services*

As already noted, the CN Roadcruiser schedules are centered on making connections with the Gulf ferries at Port aux Basques. As a result, little if any effort is made to co-ordinate with the other twelve privately operated bus services in the Province. Indeed, there appears to be little effort to co-ordinate with any other carrier or mode. For instance, the CN bus from Deer Lake to Port aux Basques departs Deer Lake five minutes before the arrival of the EPA flight.

Part of the problem in lack of carrier co-ordination may stem from the split jurisdiction for the bus services in Newfoundland, with the privately owned buses accountable to the Public Utilities Board while CN is under the guidance of the Canadian Transport Commission (CTC). Co-ordination of schedules would be made simpler if all answered to the same agency. Whatever the reason, Newfoundland is perhaps the only province in Canada where a potential traveller cannot obtain, from a common depot, information as to fares and schedules on all carriers in the Province and indeed, the rest of the country. In the absence of any formal structure to establish this, CN, the largest bus operation, and one which is certainly not new to the passenger business, should have assumed the role.

Table 5-14 Evaluation of CN Bus Stations

Location	Station	Facilities Available						Facility Rating
		Tickets	Waiting Room	Washroom	Confectionary	Restaurant	Parking	
St. John's	CN Terminal	X	X	X	—	—	X	2
Holyrood Jct.	Blue Fin	X	X	X	X	X	X	1
Whitbourne Jct.	Moorland Motel	X	X	X	X	X	X	1
Arnold's Cove Jct.	Tanker Inn	X	X	X	X	X	X	1
Come By Chance	Gilbert's Store	X	—	—	X	—	—	3
Goobies	Cam Services	X	X	X	X	X	X	1
Clarenville	Holiday Inn	X	X	X	X	X	X	1
Port Blandford	Blackmore Restaurant	X	X	X	X	X	X	1
Glovertown Jct.	Rickett's Restaurant	X	X	X	X	X	X	1
Gambo	CN Rail Station	X	X	X	—	—	X	2
Gander	Air Terminal	X	X	X	X	X	X	1
Glenwood	CN Rail Station	X	X	X	—	—	X	2
Lewisporte Jct.	Traveller's Comfort	X	X	X	X	X	X	1
Norris Arm	White's Store (F).	—	—	—	—	X	—	3
Bishops Falls	CN Rail Station	X	X	X	—	—	X	2
Grand Falls	CN Rail Station	X	X	X	—	—	X	2
Badger	CN Rail Station	X	X	X	—	—	X	2
South Brook	Irving Station (F)	X	—	X	X	—	X	2
Springdale Jct.	Butt's Esso Stn.	X	—	X	X	—	X	2
Baie Verte Jct.	Gene's Irving Stn.	X	X	X	X	X	X	1
Hampden Jct.	On The Road (F)	—	—	—	—	—	—	3
Deer Lake	CN Rail Station	X	X	X	—	—	X	2
Pasadena	Valley Variety Groc. (F)	X	—	X	X	—	X	2
Corner Brook	CN Roadcruiser Depot	X	X	X	X	X	X	1
Stephenville Xing	CN Rail Station	X	X	X	—	—	X	2
Stephenville	Air Terminal	X	X	X	X	X	X	1
St. George's	CN Rail Station	X	X	X	—	—	X	2
Flat Bay Jct.	Golden Eagle (F)	—	—	X	X	X	X	2
Robinson's Jct.	Gillam's Esso	X	X	X	X	X	X	2
St. Fintan's	CN Rail Station	X	X	X	—	—	X	2
	Chaffey's Service Stn. (F)	—	—	—	—	—	X	3
South Branch	On the Road (F)	—	—	—	—	—	X	3
Doyles	CN Rail Station	X	X	X	—	—	X	2
Port aux Basques	CN Rail Station	X	X	X	—	—	X	2

(F) Flag Stop
X Facility

Facility Rating – 1 Adequate facilities
2 Fair facilities
3 Inadequate facilities

5. *Depot/Stations*

The depots and station stops used by the CN Roadcruiser fleet are similar to those found on most other intercity bus services in Canada. The abandoned railroad buildings, service stations, motel/hotels, and highway flag stops used are typical. The service provided at these vary from just a convenience drop-off point to full range with ticket sales and restaurant facilities. Table 5-14 gives a detailed description of all stops and indicates the major deficiencies.

While many of the former CN rail stations offer a measure of convenience in that they are located in, or close to, the communities served, the buildings are small, old and dingy. Certainly not what one would associate with a modern passenger service and in no way approaching what one finds at air terminal buildings.

The highway flag stops, while they provide some convenience to travellers, who would otherwise have to travel long distances to the permanent depots, are not a satisfactory substitute for such buildings. Although CN now has issued orders to its drivers not to leave patrons unattended at these points, this does not obviate the need for depots. Of particular concern is the stop at the junction of the Hampden Highway and the Trans Canada Highway.

6. *Private Bus and Taxi Service*

Service off the corridor to various areas within Newfoundland is provided by twelve private bus companies, which in most cases operate a daily return service. In addition, several taxi operators provide transportation services, primarily from the smaller coastal communities to the larger centres of a specific region.

The private bus companies have to be licensed by the Public Utilities Board, whose main consideration in granting a license is frequency of service, fares and capacity of equipment rather than standard of service. Consequently, one will find a great variation in the standards of service provided by the different bus companies.

7. *Conclusion*

The CN Roadcruiser Service is being operated with old, unsuitable, totally inadequate equipment. The bus is satisfactory for short distance travel, but for long trips is unacceptable as a replacement for the train. From a level of service standpoint and in light of the concessions made to train travel in other provinces, CN fares are, far above what is reasonable. The Commission does not suggest that the cost incurred by the operators should be recovered from other company funds, rather, if substantial funds are required to meet operating costs, they should come from the same source as those for other train passenger services in Canada.

The depots and station stops of the Roadcruiser are inadequate and major changes are required to make the buildings more attractive, as well as to offer a full range of services.

Co-ordination with other ground passenger services is essential. In the absence of a government agency to ensure this, responsibility for it should be made part of CN's license to operate.

Assessment of Gulf Ferry Operation

1. *Adequacy of Equipment—Vessels*

Although there are two different types of vessels being operated on the Gulf; the passenger/truck type and the rail/truck type, there are three distinct services performed. These are 1) the carriage of passengers and passenger related vehicles, 2) the carriage of commercial trucks, and 3) the carriage of rail cars. These ferries provide the major Island surface link with the mainland and may be viewed, at least from a functional standpoint, as continuations of the Trans Canada Highway and the CN main rail line. Indeed, as far as the railway is concerned, the Terms of Union between this Province and the rest of Canada stipulate that the Gulf be considered as part of the railway. The users, however, particularly those associated with highway travel look upon the ferry service as something more. Since the distance traversed is slightly more than one hundred miles, and quite time consuming, the crossing of the Gulf is often looked upon as a mini-cruise wherein the full range of en route services is expected. The adequacy of equipment is then judged by the users on the basis of the ability to supply these services rather than on the ability to meet the pure transport function.

From an economic viewpoint the use of roll on/roll off (ro/ro) vessels for a trip of the length experienced on the Gulf is not a particularly rewarding venture. Usually ro/ro vessels perform well on short trips where large volumes can be moved between two points in the shortest time span. On long trips costs are usually much higher than those which could reasonably be recovered through fares. Regardless of the economics, if the ferries are to function as highway and railway substitutes, provision must be made for the carriage of these vehicles. From a physical feasibility viewpoint then, ro/ro equipment appears to be well suited to the job.

The first modern vessel used on the Gulf to serve ro/ro functions was the *'M.V. William Carson'*. While this was a market improvement over previous equipment, the ability to accommodate large trucks was restricted and there was no provision for rail car accommodation. These two problems have since been overcome with the use of stern-loading ferries which can accommodate the full range both of highway vehicles and rail cars, with perhaps the only exception being the tri-level rail carrier which is in normal use on most mainland rail lines, but cannot be carried on the North Sydney-Port aux Basques rail car ferries.

Although the vessels are intended to serve the function of a land connection between Nova Scotia and Newfoundland, because of safety reasons, passengers are not permitted inside the vehicle during the sea voyage in the same manner that passengers are carried on land. These vessels then, of necessity, must have incorporated into them, provisions for passenger accommodations commensurate with a trip of that duration. As vessels used for daytime crossings, the passenger accommodations provided by the current fleet appear adequate. Certainly there is every indication that with present auto occupancy ratios, and even under the most severe demand, the vessels will reach maximum vehicular capacity before reaching maximum passenger seating capacity. This means that, under normal circumstances, all travelling passengers will be able to find seats on the vessels. As vessels used for night time journeys, however, the present fleet, and particularly the Nautica type vessels, are grossly inadequate. Table 5-15 shows the sleeping and seating capacities of the vessels available for use on the Gulf in 1977. Except for the *'Ambrose Shea'* and the *'Marine Cruiser'*, the other vessels have only token sleeping capacities, a situation which should preclude them from night service.

Table 5-15 North Sydney to Port aux Basques/Argentia Service—Passenger Sleeping and Seating Capacity

Vessel Name	Capacity	
	Sleeping	Seating
M.V. Ambrose Shea	260	405
M.V. Marine Cruiser	154	344
M.V. Marine Atlantica	68-88*	820
M.V. Marine Nautica	68-88*	820
M.V. Stena Nordica	88	712

* sleeping capacity in the summer
SOURCE: CN Marine, Moncton

Since the *'Shea'* and *'Cruiser'* are normally used on the Argentia service, and thus not fully available

for the Gulf, there is very little suitable equipment available for night journeys on the Gulf. On the other hand, the highest demand for travel during the peak season, June to September, is for night journeys. Since CN accepts passengers for night crossings in numbers far in excess of the available number of berths, passengers attempt to find makeshift accommodations on tables, benches, floors and any other place where a person can lie down. This, of course, is most uncomfortable and leads to considerable dissatisfaction with the service.

Of course, since the vessels are entirely unsuitable for night journeys, CN could be somewhat justified in not offering that service, or at least offering a service for only the number of passengers which might be accommodated in berths. However, since the journey time is so long (approaching 7 hours) the ability to travel at night on the vessel and to start the land journey in the early morning, minimizes lost time to travellers and is thus a characteristic which appeals to a large number of people, particularly truck drivers. This explains the reason for the high demand for night journeys.

The major problem associated with vessel adequacy lies not so much with the suitablility of the vessels for use on the service as with the number of vessels and the available capacity to meet the travel demands placed upon them. Rail car traffic has been steadily declining since 1974 and as a result there is adequate capacity in the present fleet, although the removal of the *'Sir Robert Bond'* could, at certain times, place some strain on the remaining ferry if rail traffic in 1978 maintains its 1977 level. Truck traffic, on the other hand, has been steadily increasing and is likely to continue to do so. The ability of the present fleet to handle truck traffic is sufficient for approximately nine months of the year, but during the peak tourist season long waiting times are experienced by truckers.

The demand for passenger space and passenger related vehicle space is seasonal with a very low volume of travel during the late fall, winter, and early spring seasons but a very pronounced peak during the summer period. During peak period in 1976, CN estimates that the Port aux Basques/North Sydney service operated at 80 per cent capacity while the Argentia service operated at 85 per cent capacity. There is some question as to what capacity figure was being used in these estimates, i.e., car deck capacity or passenger seating capacity. An analysis done by the Commission on the traffic situation, as taken from the ships' sailing reports indicates that during July and August, 1976, while for some sailings there was some excess space available, the service, in general, was operating at maximum car deck capacity. The full impact of this kind of situation is difficult to assess; however, it generally means excessive waiting time for some travellers. This is a prime area of discontent with truckers as they feel they receive low priority when space is being sold, and as a result have to incur extraordinarily long waiting times. (This problem is explored in a later section of this report.) However, with the accelerated turnaround time (except for the truck problem), statistics indicate sufficient capacity to meet present demands. If the forecast growth is realized, more capacity will be required by 1980.

2. *Adequacy of Terminals*

In recent years, there have been some serious terminal deficiencies with respect to capacity to handle vessels, to transfer rail freight and to provide passenger services at Port aux Basques. Although the reduction in rail traffic has served to minimize these, many problems associated with both passenger and vehicles still remain and are likely to continue until the present expansion and upgrading programmes are complete.

The lack of docking space for the stern-loading ferries and inadequate parking facilities for passengers' cars and trucks have served to constrain efficient operation. The construction program underway will help to alleviate this.

The Commission notes, however, the rather deplorable state of the passenger waiting facilities, particularly at Port aux Basques. The dull, dreary, somewhat dirty building, with outdated food facilities does very little to enhance the journeys taken from this terminal. Even at North Sydney where the building is relatively new, it is noted that it is small with only minimal food and other services. In light of the fact that during the peak period of the year in excess of one thousand people, per day, are served by these facilities, it would appear that the building, particularly with respect to the services mentioned, is totally inadequate. When it is considered that, as a rule, travellers are expected to check-in at least two hours before departure time, it is almost inconceivable in this era to think that an operating company would not provide suitable services for travellers. One can only note, with astonishment, the drastic difference between these marine passenger facilities and air terminal buildings. Although both are, in fact, provided by MOT, the former has very inadequate facilities compared with air terminals which offer a full range of services, from newsstands and magazines to bar and restaurant facilities.

A most disheartening aspect of these terminals lies in the fact that they are located at the boundary between the two provinces concerned. Visitors to this Province must surely gaze in amazement at the scene which faces them. In contrast to the Nova Scotia-New Brunswick border which is beautifully landscaped and in highly pleasant surroundings, the Newfoundland-

Nova Scotia gateway appears to be more like a prison.

3. *Costs and Subsidies*

The Gulf Services are the most costly element in the Newfoundland transportation system and since the revenues generated account for only a small portion of the total costs, large subsidies are required from the Ministry of Transport. Up until 1977, CN operated these services, using MOT-owned or leased vessels, according to schedules and fare structures established in conjunction with MOT. The difference between operating costs and the revenues collected was met by funds provided by MOT. This system is due to change shortly when the proposed contract system between MOT and CN Marine Corporation is finally agreed upon.

Since 1959, and up to 1975, there have been dramatic, if not alarming, increases in the yearly subsidy requirements of the Gulf operations. Figure 5-7 gives an indication of the rate of growth in the subsidy paid. One very important point to note is that these do not include capital costs associated with either vessels or terminals.

Figures 5-5 and 5-6 respectively indicate the volumes of carload freight and passenger related vehicles carried during the same time. It is quite clear that the situation becomes worse as the activity increases and that the carriage of rail freight has a particularly detrimental effect on subsidy requirements. Note should be taken as to the decrease in operating subsidy as rail traffic decreased for the period from 1974 to 1976. This may be explained by virtue of the fact that the terminal facilities for handling rail cars, i.e., the truck to truck and car to car operations, are included not as costs on the books of the railway, but rather on the accounts of the Gulf Services. The effect of the standard to narrow gauge transfer costs may be seen if the Nova Scotia-Newfoundland ferries are compared with the New Brunswick-Prince Edward Island ferries. Since the traffic make-up is largely the same in both cases, i.e., both services carry passengers, trucks, cars and railcars, and although the P.E.I. service carries substantially more, the only significant operation characteristic lies in the fact that because P.E.I. has a standard gauge railway and, as such, transfer facilities are not required on that service. This is then reflected in the lower terminal costs. For instance, the total terminal cost for the Gulf in 1976 amounted to $18,981,020 whereas the total for the CN operation on P.E.I. was only $3,172,576.

Data acquired by the Commission indicated some significant differences in the cost of moving rail cars, passenger cars, and trucks across the Gulf. These are given in Table 5-16.

Table 5-16 Unit Costs and Revenues for Traffic Carried on Gulf

	Unit Costs Including Capital & Operations	Average Revenue	% Cost Recovery
Rail Car	$832	45	5
Auto	82	18	22
Tractor Trailers	494	82	17
Passenger	18	6	33

Since the costs arrived at above have been established from an allocation process rather than an accounting process, some question might arise as to their validity. The Commission does not purport to believe the accuracy of these figures to be 100% correct. However, the Commission does, after a great deal of cross referencing, believe the rank order and order of magnitude of these figures to be correct and truly indicate that Gulf Services do in fact require an abnormal amount of expenditure of public funds.

This is not to say, however, that the service is not needed or that it should be cut back or discontinued. The Commission is not convinced that the service is run efficiently but rather believes that only through neglect on the part of both CN and MOT could the annual subsidy requirement rise to such magnitudes as experienced in recent years.

4. *Service Characteristics and User Opinion*

In assessing the quality and level of service provided by the Gulf vessels, it is essential that the role of these, as perceived by the general public, be identified. For the commercial trucker, the role of the ferry service is to move the highway vehicle across the Gulf as quickly as possible, without incurring long waiting times and at a fare level which is consistent with the same land distance costs. For passenger travel, which from trip statistics shows to be mainly tourist or vacation travel, the expectations include in addition to those already noted by the truckers, such enroute services as meals, sleeping, bar facilities and some entertainment. Tables 5-17 and 5-18 give a resume of the responses to the already noted opinion poll with respect to ferry services.

5. *Schedules and Frequency*

The Commission recognizes the most difficult task facing the operators of the Gulf Service in trying to provide a schedule and frequency of service which matches closely the transport demands. The abnormally high demand peaks during the summer season, as compared with the relative low usage during the remainder of the year, means that equipment and manpower geared to these peaks is redundant at other times.

Figure 5-5

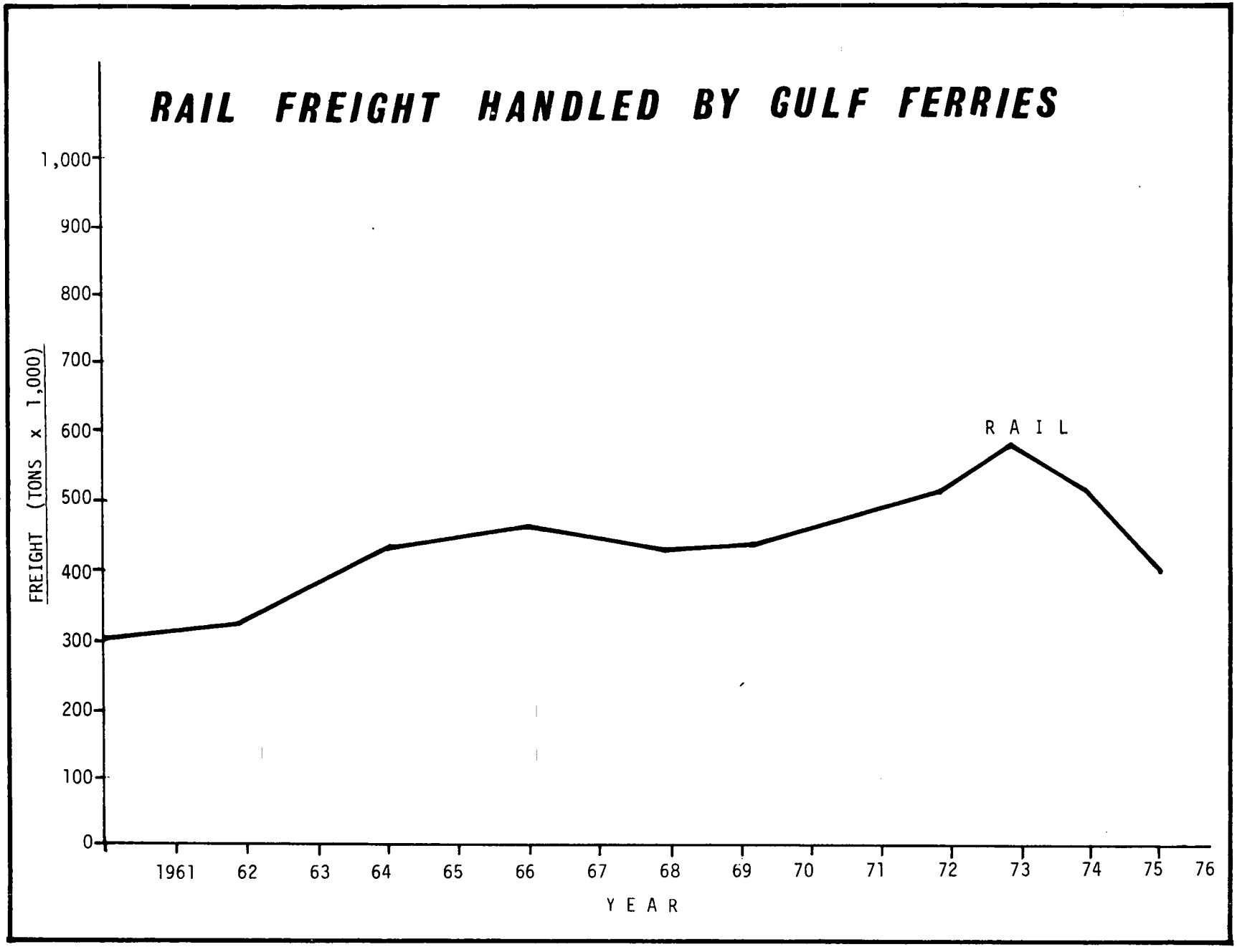
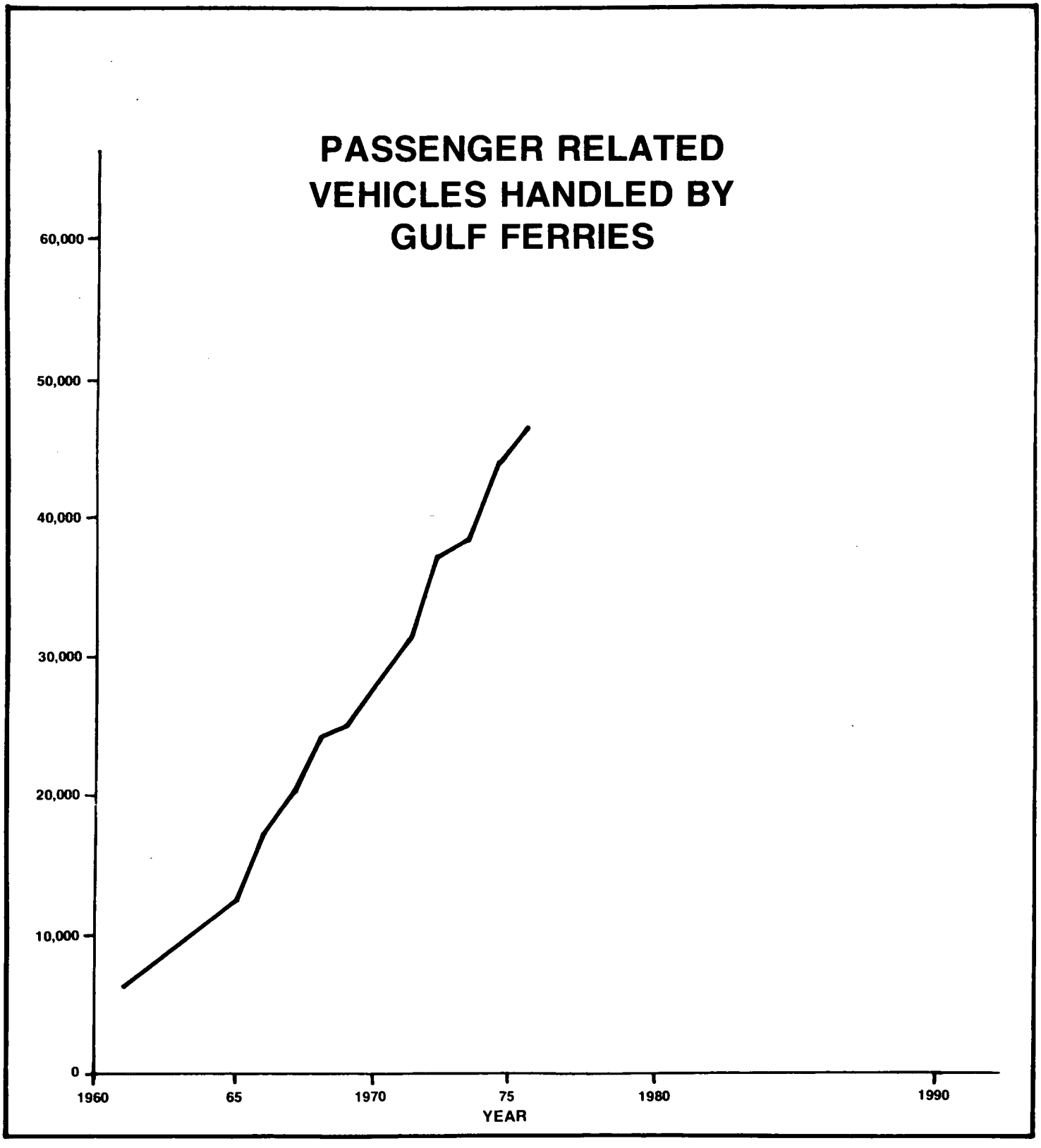

RAIL FREIGHT HANDLED BY GULF FERRIES
FREIGHT (TONS x 1,000)
1,000
900
800
700
600
500
400
300
200
100
0
RAIL
1961
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
YEAR

Figure 5-6


PASSENGER RELATED
VEHICLES HANDLED BY
GULF FERRIES
60,000
50,000
40,000
30,000
20,000
10,000
0
1960
65
1970
75
1980
1990
YEAR

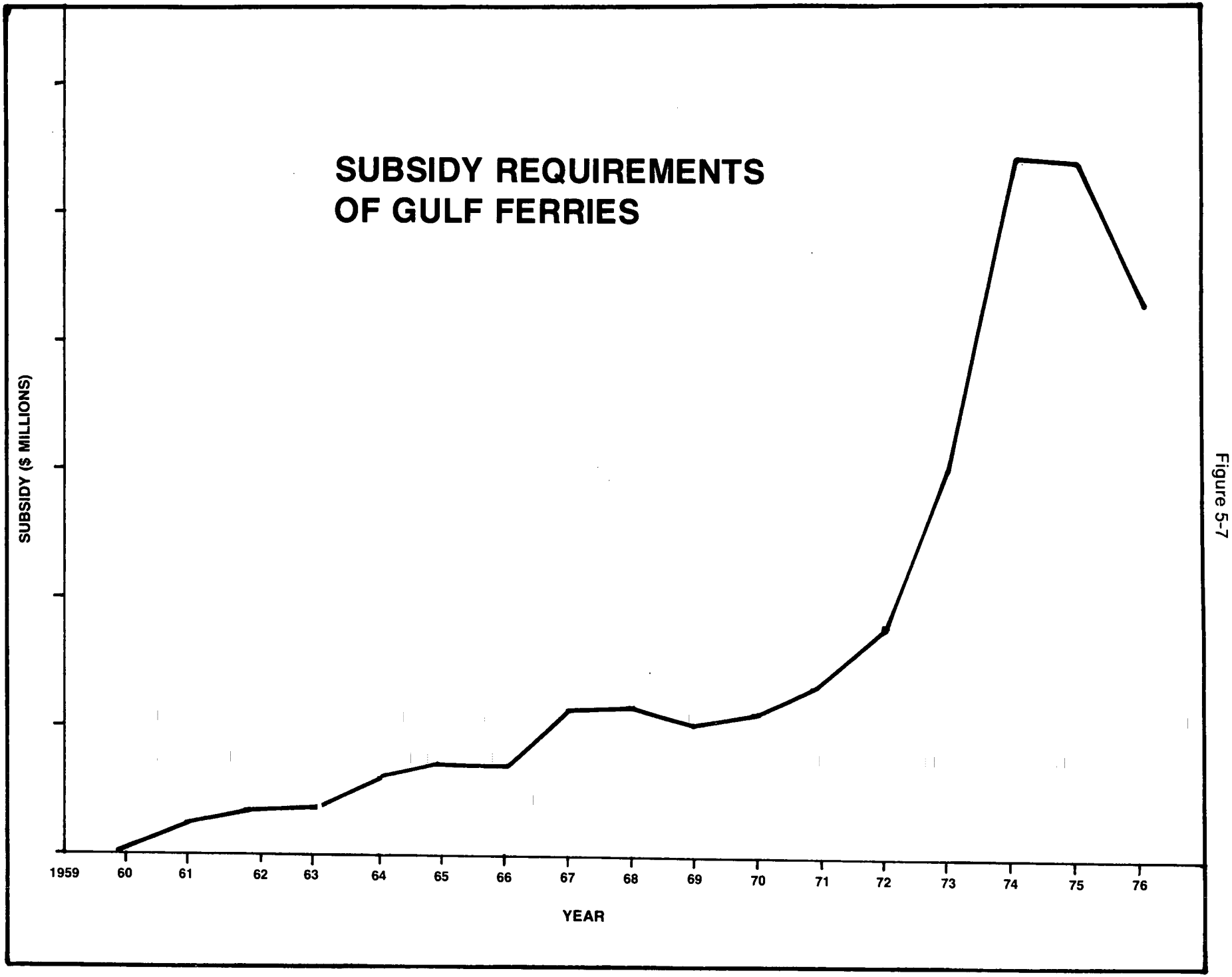

SUBSIDY REQUIREMENTS
OF GULF FERRIES
SUBSIDY ($ MILLIONS)
1959
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
YEAR

Figure 5-7

In spite of the obvious problems, it appears that CN makes every attempt to maximize utilization of equipment during peak seasons. Fast turn-around giving more frequent sailings, and accommodation of tractor trailers on both the passenger and rail ferries are just some of these.

As far as passenger and passenger related vehicles are concerned, the major discontent lies with the number of night sailings available. For travellers moving on the Gulf, the ability to sleep during the crossing and to get off the boat the next day, prepared for a full day's drive, is not only a maximization of time utilization, but at today's rates, a very convenient hotel.

Table 5-17 Opinions of Ferry Service to Nova Scotia

	Excellent	Good	Fair	Poor
	%	%	%	%
Comfort (n=439)	15.3	41.7	28.9	14.1
Efficiency of operation (n=413)	11.6	55.9	25.9	6.5
Number of crossings per day (n=387)	9.0	58.7	28.4	3.9
Reservation system (n=407)	13.5	44.5	25.8	16.2
Fares (n=417)	5.3	27.6	45.3	21.8
Waiting time (n=405)	5.2	27.9	41.0	25.9
Departure and arrival times (n=415)	11.3	49.9	32.8	6.0
Courtesy of staff (n=424)	26.4	52.8	17.5	3.3
Food Service (n=425)	18.8	42.1	27.1	12.0

Table 5-18 Responses to Opinion Poll Regarding Gulf Ferry Operation
What Do You Particularly Dislike About the Ferry Service?

Comments:	No.	%
1. Shortage of cabins—sleeping facilities cabin is terrible	56	42.4
2. Fares too expensive	19	14.4
3. Long waits to get on and off	21	15.9
4. Overcrowded	22	16.7
5. Long boring trip—nothing for children to do. Need movies, etc.	11	8.3
6. Reservation service poor. Reservations should be made and tickets purchased in advance	11	8.3
7. Fares for cabins too expensive	5	3.8
8. Poor food services	7	5.3
9. People without cabins are noisy all night	2	1.5
10. Departure delays not told to passengers in time	1	*
11. Boat arrivals and bus departures should be closer together	2	1.5
12. Cabins and washrooms small and sometimes dirty	6	4.5
13. No help with luggage	2	1.5
14. Poor management	1	*
15. Should use Argentia year round	1	*
16. Staff sometimes drink on duty	1	*
17. People who "know someone" can get cabins without reservations	1	*
18. Shortage of staff	2	1.5

* Less than 1%

As can be seen from Table 5-18, a shortage of sleeping facilities was judged to be the most disliked characteristic of the service.

From the truckers' viewpoint, the service is too infrequent, resulting in costly delays at either side of the Gulf. In an attempt to provide as much service as possible, to all groups concerned, while at the same time minimizing costs, CN elects to move a mixture of trucks and passenger vehicles on the passenger ferries, and trucks plus rail cars on the rail car ferries. CN looks upon this process as a very flexible one which offers the trucking industry the best possible chance of being moved across the Gulf. It is claimed by CN that preference is sometimes given to trucks over rail cars. The truckers, however, see this arrangement as one in which, at least in the peak season, there is fierce competition with other demands for space and one in which they see themselves as being losers.

There is no doubt that the trucking industry incurs long waiting times, as much as 24 hours, during the peak season. With the high level of truck activity between North Sydney and Port aux Basques, there is now some justification for at least one vessel being dedicated to handle truck traffic in the peak season.

6. *Fares and Rates*

With the high amount of subsidy paid in respect to the Gulf Service, it is quite clear that the fares and rates charged to the users are not cost recovering. In spite of this, there is widespread opinion that except for the rates charged to CN rail, for the movement of rail cars, the fares and rates are too high.

Until recently, the rate charged rail cars was a prorated one compared with what the rate would be if the same freight were carried the same distance overland. Compared with the truck charges of $1.50 per foot of length of vehicle, plus a passenger fare for the driver, the rail rate was low. Adding to the disparity was the fact that rail cars returning empty did not have to pay a charge whereas trucks were charged the same amount whether they were full or not. This discriminatory policy, while not of major consequence, placed some pressure on the trucking industry as it tried to compete with rail.

As far as passenger fares and rates for accommodations and vehicles are concerned, the fairness of the charges depends on the standard by which they are measured.

As a typical marine service, the present fare levels are not extremely high, and as shown in Table 5-19, compare favourably with the Bar Harbour/Yarmouth and Yarmouth/Portland service. As a highway substitute and considering there are no discounts for families or groups, they are extremely high. For example, a family of five travelling on a day crossing without sleeping accommodations would pay $41.00* for this one way 100 mile trip. Allowing 25¢ per vehicle mile of travel, a highway journey of the same distance would

* Typical case of vehicle plus three adult and two children fares.

Table 5-19 Fare Comparisons of CN Ferries

Service	Distance In Miles	Passenger Fare	Auto Fare
Yarmouth-Bar Harbour	96	$15.00/Summer 9.00/off season	$35.00/summer (June 30-Sept. 11) 27.00/off season
Yarmouth-Portland	185	28.50	50.00/summer (June 16-Sept. 11) 45.00/off season
New Brunswick-Prince Edward Island	9	.90	3.40 (All year)
Nova Scotia-Port aux Basques	108	6.00 8.00/Peak weekend	18.00 25.00/Peak weekend (July 1-August 28)

cost $25.00. An important point to note, however, is that while alternative services are available at places like Bar Harbour, Yarmouth, etc., the Gulf Service at Port aux Basques/North Sydney is the only service connection with the mainland, and although fare increases have been held to a minimum by MOT, they are still high compared with road costs.

7. *Reservations*

The public opinion survey carried out by the Commission indicates that the present reservation system meets with the approval of the general public (Table 5-17). On the other hand, there was evidence made available to the Commission, by the Provincial Department of Tourism, showing considerable problems with the reservation system. The Department estimates that 30% of those using the Gulf ferries are non-resident tourists. The anticipated growth in the tourist industry in recent years has not materialized, in the opinion of the Department, because of impediments at the Gulf, chief of which is the reservation system. It is argued, by the Department, that local people make multiple bookings on the ferries of which only one is actually used. This results in a high number of "no shows" for which space is eventually sold on a first-come-first-served situation. The new result is that because of the large number of multiple bookings, the reservation lists appear to be consistently full. Tourists are reluctant to come to the Province without confirmed reservations.

The Commission has attempted to investigate this situation and there appears to be some truth to the Department's allegations because, although a check of the reservation system revealed that the system is consistently booked, actual numbers of passengers and vehicles accommodated very rarely were equal to the vessel capacity.

8. *Comfort*

While comfort was considered by most people interviewed to be adequate, much concern was expressed regarding comfort on night sailings. It is a usual practice to sell space on night sailings on the same basis as day sailings even though there is a drastic shortage of both berth and day-nighter accommodation. It is also a practice not to sell reserved space on the day-nighter. As a result, passengers usually lie down wherever they can find sufficient area, often in the most unusual places. Although the crews and staff appear most helpful, the lack of suitable sleeping accommodations is unavoidable and points out, from a comfort aspect, the unsuitability of the vessels for night crossings.

9. *Communications*

CN appears to have a major problem in communicating schedule changes or sailing delays to the travelling public. When vessels are delayed for various reasons it is virtually impossible to obtain from CN personnel the new sailing times. The result is that travellers are forced to wait many hours, either in cars on a parking lot, or in a totally inadequate waiting room. The attitude of CN staff seems to be, "We don't know and it's not our responsibility to find out." Surely, with ship-to-shore radio equipment forecasting technology, and the years of experience behind them that the CN Marine people have, schedules certainly can be changed, modified or reconstructed at a moment's notice and the passengers concerned notified.

In conclusion, the Gulf ferry system must be looked upon as this Province's highway and railway link with the mainland. As such, every effort should be made to emulate, as near as possible, conditions found on the land facilities. In doing this, it must be recognized that the system will never be self-supporting, but if this Province is to have the same degree of accessibility as the other provinces, improvements on the Gulf are warranted.

Assessment of Direct Water Services

1. *Equipment Adequacy*

At the present time, Newfoundland is served by four general cargo carriers providing direct water services between mainland and Newfoundland ports. These are:

a) Newfoundland Steamships Ltd., Montreal to St. John's and Corner Brook, using side-loading vessels.

b) Chimo Steamships Ltd., Montreal to St. John's (container service); Montreal to Goose Bay (conventional general cargo service).

c) Newfoundland Container Lines, Halifax to St. John's, (container service).

d) Chimo Offshore Services Ltd., which ships new automobiles and trucks from Dartmouth, Nova Scotia to St. John's.

Except for the Montreal/Goose Bay run, the others are regularly scheduled, offering weekly or bi-weekly services. The Goose Bay service is an irregular service but with a predetermined number of trips per shipping season.

In addition to the above, several bulk commodities, such as petroleum and mineral products, are moved to the Province from mainland and U.S. points by private carriers.

The common carriers involved in the movement of general cargo offer full carload or container load services, as well as less than container loads and pool car shipments.

The wide range of vessels used on these services, while suitable and adequate for the current level of traffic, does not have the capacity needed to meet the continued growth in the utilization of this mode.

In this regard, Newfoundland Steamships Limited is now in the process of attempting to acquire a larger vessel to increase its fleet capacity, while Chimo have indicated that excess capacity already in the fleet, can be diverted to the present service if required, although the company is also attempting to acquire a new ship.

The major problem associated with these services is not with the vessel's requirements, but rather with the terminal facilities particularly at St. John's.

The finger pier and transit sheds at the west end of the St. John's harbour, which are now being used by Newfoundland Steamships Limited, are being taxed to the fullest. Future expansion of these facilities is mandatory if the shipping industry is to expand. The whole area is confined and constrained by private land holdings which, unless purchased for harbour use, severely limit the range of expansion alternatives.

As far as the container lines are concerned, both are in their infancy and, as such, not carrying as much volume of traffic as Newfoundland Steamships Limited. The terminal facilities at the Harvey piers, currently being used by both, are adequate for the present operation although a large increase in business would result in storage problems at the pier.

In general, the cargo handling facilities in St. John's can be considered as being utilized to their fullest extent at the present, and expansion is urgently needed if more marine movements are to be accommodated.

With respect to Corner Brook, much the same situation applies. There are adequate capacity and handling facilities to meet the current demands. The anticipated increase in vessel capacity, due to come on stream by 1978, can be accommodated reasonably well with present facilities. When the service is running consistently with full loads, however, handling problems will arise. By the early 1980's additional berth space will be required.

2. *Service Characteristics—Schedules and Frequency*

The continued growth in the volume of freight carried by the direct water carriers shows that the service has gained a high degree of public acceptance, and relative to other modes, the service offered meets with consumer expectation.

Although there is a wide range of schedules offered by the marine carriers, varying from one trip every nine days for Chimo Container service, to the bi-weekly frequency of the Newfoundland Steamships Limited, there is general satisfaction with the schedules and frequencies offered. From interviews with users it was determined that transit time and the availability of service is not as important as the consistency of the service. It has been noted by the Commission that the marine service has built a reputation for a high degree of dependability and reliability, with the only exception being the short period of the year when schedules may be disrupted by ice conditions. It is the reliability aspect which accounts greatly for the popularity of the service.

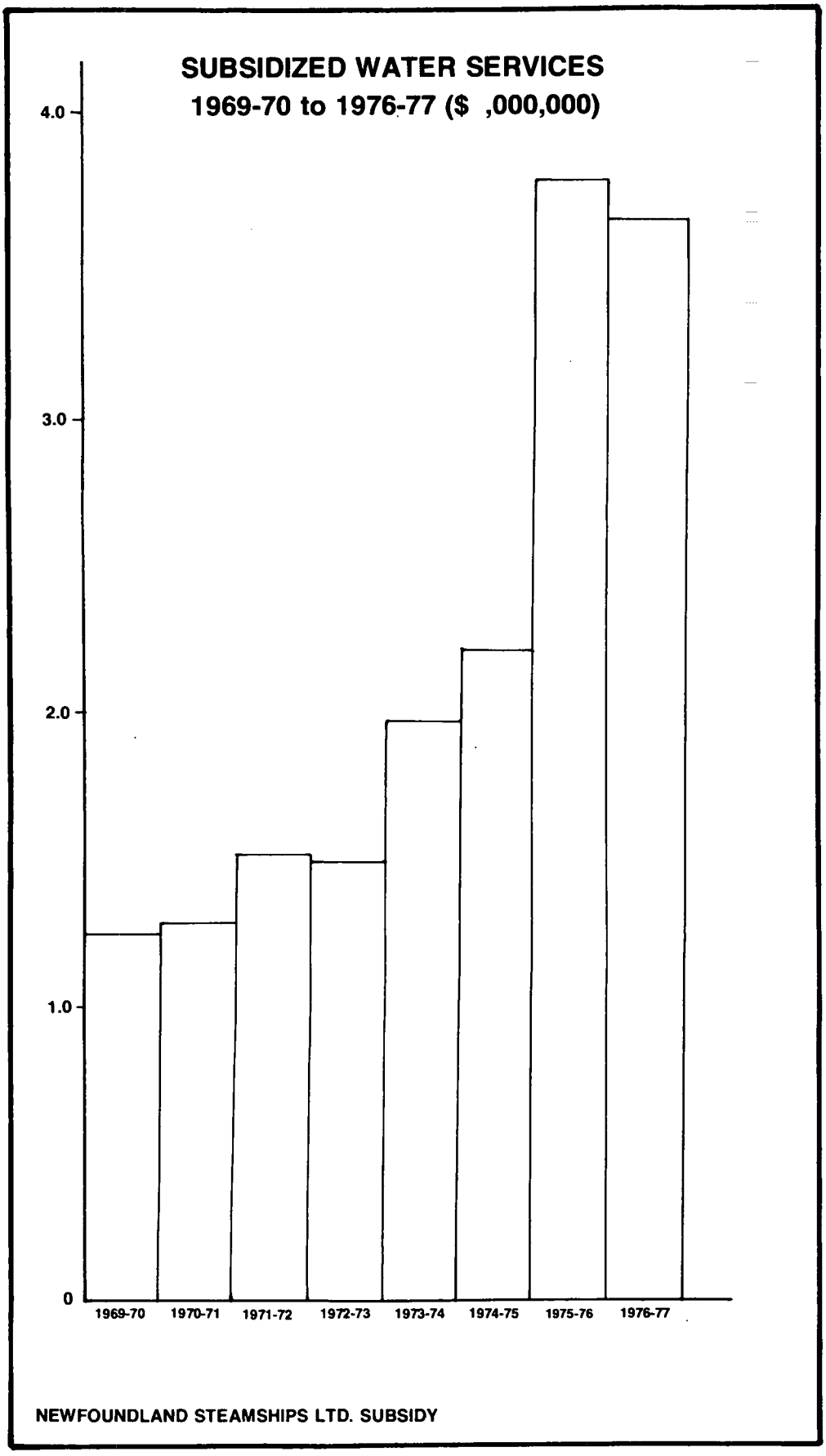
3. *Loss and Damage*

The history of loss and damage claims for the direct marine services shows a wide variance from virtually no claims for the Container services to an exceptionally high incidence of claims for the Newfoundland Steamships services. As far as the Container lines are concerned, the average damage claims per ton compare favourably with other modes which have limited freight handling by the carriers concerned. The Newfoundland Steamships Limited, however, are faced with claims which, at nearly $4.00 per ton, are among the highest of any carrier in the Province. The nature of the service and the limited amount of warehouse and storage space available are prone to a high incidence of damage and loss. Improvements, either just implemented, or in the planning stage, such as more crib and palletized freight, the use of shrinkwrap and the greater use of containers, will undoubtedly reduce the extent of loss and damage.

4. *Cost Characteristics*

The direct water mode is the most cost efficient way of moving general cargo from mainland points to Newfoundland centres. Although the service lacks the door to door aspect of direct trucking, it adapts well with trucking to provide the same service. Even when pickup and delivery charges are considered, it is still the least costly way, in terms of total costs, to move general cargo.

Figure 5-8


SUBSIDIZED WATER SERVICES
1969-70 to 1976-77 ($,000,000)
4.0
3.0
2.0
1.0
0
1969-70
1970-71
1971-72
1972-73
1973-74
1974-75
1975-76
1976-77
NEWFOUNDLAND STEAMSHIPS LTD. SUBSIDY

At present, both Newfoundland Container Lines and Chimo Lines are unsubsidized services although Newfoundland Container Lines is not yet operating at a profit position. Newfoundland Steamships Limited, on the other hand, received, in 1976, a subsidy of $15.64 per ton. The subsidy was necessitated in 1969 when the company pointed out to the Government of Canada that the current levels of traffic and revenue did not permit a profitable operation and the company could not go on indefinitely on a losing basis. The growth in that subsidy and the amount paid per year can be seen in Figure 5-8.

The subsidy paid to Newfoundland Steamships Limited in respect to the Newfoundland service, has, in the past, been the subject of some criticism by both the railway unions and the trucking companies. Recently, Chimo Shipping has also indicated its displeasure at having its competitor receive a subsidy which it does not. In all cases, the chief complaint is that the subsidy gives Newfoundland Steamships Limited an unfair advantage in rate setting and makes it difficult for other modes to compete. Indeed, it has been seriously questioned as to whether Newfoundland Steamships Limited really needs the subsidy at all.

If the equity of the subsidy is to be judged on the amount paid to each carrier, then with the exception of Chimo Shipping and Newfoundland Container Lines, Newfoundland Steamships Limited is the least subsidized service. Subsidies of approximately $60.00 and $40.00 per ton to rail and truck, respectively, for carriage on the Gulf, is far in excess of the $15.64 per ton paid to Newfoundland Steamships Limited.

The fact that neither Chimo nor Newfoundland Container Lines at the present time receives a subsidy, has led the Commission to seriously question the need for such to Newfoundland Steamships Limited. From data supplied by MOT, it would appear that the company does, in fact, require some subsidy. The Commission notes, however, that the corporate structure, of which Newfoundland Steamships Limited is a part, is a highly detailed and complicated one, often with intercompany transactions taking place at arm's length. While an audit of the company's books by the Audit Services Bureau indicates the present subsidy is justified on the basis of present costs, there is still some doubt as to whether the full revenue potential available to the shipping company is being utilized. For instance, it has been determined that pool car rates are lower to Newfoundland than to most other places in the country and by Newfoundland Steamships Limited admission, the carload and commodity rates are generally 5% below those of CN Rail. It might logically be asked if these are made possible by virtue of the present subsidy. Current studies being carried out by MOT should indicate the level of subsidy required.

While the freight rates of Newfoundland Steamships Limited are public because of a condition of subsidy payment (see Figure 5-8), the two container lines do not have a public rate structure. From discussions with the carriers, there is indication that rates are competitive and perhaps higher than the more conventional modes. In the case of Chimo Shipping, revenues generated are claimed to be sufficient to break even, while Newfoundland Container Lines anticipates a substantial loss on its first year of operation, 1977-78.

While Chimo Shipping has been adamant in its contention that it is possible to operate the marine service without subsidy, the company has not, after repeated requests by the Commission, presented their cost figures to either the Commission or MOT to substantiate their argument. On the basis of the performance of Newfoundland Steamships Limited and Newfoundland Container Lines, it is doubtful if any shipping company could operate without subsidy in light of the competition from other modes.

One of the major problems associated with the costs of direct shipping has, in the past, been the limited back-haul available, particularly in light of the freight rate subsidies available to rail and truck, but not to marine. Changes in the MFRA and ARFAA soon to be introduced, will see the subsidy extended to the marine mode as well. This will improve the competitive position of all shipping companies. However, since the destinations for fish, the main back-haul product are in the United States, unless there is a dramatic change in operation and routes, it is unlikely that the present marine carriers could take advantage of much of the back-haul potential. The only present shipping concern which might logically pick up the transport of fish is Newfoundland Container Lines. A modification of routing could see some stop in New England to discharge fish. At present, however, there are no concrete plans for this known to the Commission.

In conclusion, the marine mode offering direct service between this Province and the mainland has a history of good performance. When combined with truck for pickup and delivery, the maximum of flexibility at the lowest possible cost is available to the Newfoundland shipper.

Assessment of Coastal Boat Operation

The coastal boat operation is one of the oldest forms of transport in the Province, having been operated by the Newfoundland Government prior to Confederation and by CN since. For various reasons, the system and services offered have resisted change and many characteristics of the service are, today, the same as they were thirty years ago. This, of course, has led to many inefficiencies. In an attempt to improve the service, but reduce the requirement for

ever increasing subsidy, the coastal boat operation will shortly come under the new Crown agency, CN Marine Corporation.

Prior to 1971, the coastal service suffered greatly from numerous operational deficiencies. A study carried out by MOT over the period 1972-74 was instrumental in identifying the major short-comings of the service, and the changes introduced by CN as a result of that study have resulted in a number of system improvements. Still, however, a large number of problems remains. It is not the intention of the Commission to review in detail those problems existing prior to the Newfoundland Coastal Transportation Study, rather, in subsequent paragraphs current deficiencies are identified and note is made where changes are likely to occur when the system comes fully under the control of CN Marine Corporation.

1. *Equipment Adequacy—Vessels*

There are two basic types of vessels used in the coastal service, (1) fast motor launches, and (2) conventional passenger/freighters. The motor launches, *'Marine Sprinter'* and *'Marine Runner'* are used to service the passenger demand along the south coast from Port aux Basques to Terrenceville. These vessels provide a fast daily return service to all communities in between. Because travel times are relatively short and journeys are accomplished in daylight hours, there are no sleeping accommodations on these vessels. Also, there is no provision for the carriage of freight other than normal passenger baggage and mail.

As vessels operating in a manner much the same as buses or taxis, the equipment is adequate and provides a fairly high level of service. Compared with the former, much slower conventional ships, the present vessels are far superior in meeting the passenger requirements. The only characteristic of major concern is that of passenger comfort enroute. The smaller and faster vessels have a tendency to hit hard on wave crests much the same as small pleasure craft operating on lakes. The results can be a very uncomfortable ride for the passengers, particularly if winds and waves are high.

On the other routes, CN operates small conventional vessels with both passenger and/or freight capabilities. The fleet, which is made up of both MOT-owned and locally chartered vessels, services both the freight demands of the south coast as well as the passenger and freight demands of the northeast coast.

These vessels are much slower than the *'Sprinter'*, and *'Runner'* and serve long routes with many ports of call. This traditional type of vessel is far from adequate under today's passenger and freight demands. They are small, slow, and in many cases either lack sufficient freight capacity, or because of design, are not suited to modern freight handling equipment.

The mixing of freight and passenger services on the same vessels, forcing passengers to incur long delays when freight is being loaded and unloaded; the lack of sufficient sleeping accommodations in light of the long distances travelled, and the time involved; the use of vessels which are not of ice-breaking class, forcing cessation of the service during the ice seasons; and the use of vessels which cannot use modern freight handling equipment, i.e., containers and pallets, which means that all freight is subject to loss and damage; are sufficient indicators of the inadequacy of these vessels.

2. *Equipment Adequacy—Wharves and Terminal Facilities*

One of the major problems facing the operators of the coastal service is the lack of compatible shore facilities to enable proper docking at the various ports of call. In some cases, these are non-existent and passengers or freight must be transferred to small boats in the harbour while the coastal vessel is at anchor. This presents a major safety problem for passengers and an opportunity for damage to freight.

In a number of communities which have wharves, there is no shed or freight protection or storage area, and freight is often left to the elements for long periods of time. Passenger depots are virtually non-existent throughout the whole area served. The ports of call along the Labrador coast are those with the worst deficiencies, as many of these are not permanent settlements but, rather, only summer living areas for fishermen. Most permanent communities have some type of wharf, although there is often a great deal of incompatibility between this and the vessel, giving rise to loading and unloading problems.

3. *Service Characteristics*

While the recommendations of the Newfoundland Coastal Transportation Study brought some very significant improvements to the service, most residents of the area, dependent upon the coastal boat for the only surface mode of transport, feel that the service is still a poor one and in need of major changes. Problems still exist with schedules, routes, delays, damage and losses, claims, and insufficient capacity to meet demand.

4. *Schedules and Routes*

The main problem associated with schedules and routes is generated by the fact that in most cases the same vessels carry both passenger and freight traffic. In addition to increasing travel time, the possibility of direct point to point service of the major centres is precluded by the vessels having to stop at intermediate points to service either passenger or freight requirements. In some cases, not only is this undesir-

able, but is also unwarranted, as some of these intermediate communities are connected to the highway network, and except for taking advantage of the ridiculously low freight rates, the residents would not use the service.

Routes have been designed to service not only intra-community travel, but travel between those small communities and major terminal points on the Island. The major terminal points have developed historical trade connections which today influence the schedules and the routes offered. For instance, Lewisporte is one of the main supply ports for the Labrador service. This service could just as easily be provided and managed at possibly lower costs at St. Anthony, but because of historical trade ties, employment commitments, and infrastructure, it is now difficult to develop a new terminus.

5. *Reservation System*

There appears to be a complete lack of a reasonable reservation system for coastal boat users. For persons living in the more populated centres, reservations can be obtained but the remote communities have no access to CN personnel. Often it is difficult for these people to obtain space on the vessels and if seating space is available, berth space usually is not. The people in the remote areas are particularly disgruntled because quite often the space on the vessels is taken by tourists who booked well in advance through the St. John's office, and as a result enjoy a very inexpensive holiday, since there is no distinction in the fare structure between tourist and non-tourist, and since the service is 94% subsidized.

6. *Loss and Damage*

Although CN could not present the Commission with loss and damage statistics, there are indications that the total amount paid annually by CN, in respect to these, is high.

Firstly, as pointed out earlier, many of the vessels used in the coastal service are small and have no provision for modern freight handling methods. Cribs, pallets and containers cannot be handled, rather freight must be physically stowed into the vessels' holds. When freight is forwarded in a palletized or containerized state it must often be broken down before it is placed in the ships. This gives ample opportunity for pilferage and damage.

Secondly, as also pointed out, at many of the smaller communities, particularly in Labrador, there is no suitable wharf available to the vessel. The unloading from the coastal boat to a small fishing boat again results in damage. In communities where adequate wharf facilities are available, freight is often off-loaded and left on the wharf without the consignee officially receipting same. Again, this leaves considerable room for pilferage.

In most communities that have a wharf, a wharfinger is employed to receive freight and generally be in charge of activities at the wharf. This should at least ensure that the amount and condition of freight as it arrives is accounted for. The individual, however, is employed jointly by MOT, CN and the consignees. The divided loyalities of the position make it difficult for the individual to function properly.

7. *Fares and Rates*

Fares and rates on the coastal boats are ridiculously low, having been established in the 1930's and not increased since. While this represents a major financial contribution to the person living in the remote area who often does not enjoy a high wage level, it presents serious problems to areas which are served by other surface modes of transport.

For instance, in areas served by road, as well as coastal boat, a high proportion of all freight is moved by vessel. Not only is this adding greatly to the yearly subsidy requirements of the whole operation, but the low rate precludes the development of a viable trucking industry. It is estimated that 25% of the freight handled by CN coastal could be moved by alternate surface modes. This is an important point to consider, as the existence of a good trucking industry will become extremely important when the communities concerned are connected to the highway system. It is noted that the low rate structure has already destroyed much of the private shipping trade which, in years gone by, provided a very worthwhile service to nearly all coastal communities. Without the benefit of competition, even though the rates may be low, this usually results in poor service.

Although the low passenger fares are designed to help the people of the remote areas, this is often not the case. Since no distinction is made between natives and tourists, the low fares are an incentive to visitors to see a quaint part of the country at an extremely low price. No statistics are maintained on the native/tourist ratio for users of the system, but complaints from people along the coast indicate that the numbers of visitors using the service in the summertime are substantial.

8. *Capacity of Vessels*

During the spring and fall seasons of the year, available capacity presents very little problem to the users of the coastal boat system. During the summer, however, when local and tourist demands coincide, there is evidence that for certain segments of the routes, particularly in Labrador, demand exceeds available capacity. This is a particularly contentious point with the local people who view, and correctly so, the coastal boat as their only means of surface transport.

9. *Operational Efficiency and Cost Characteristics*

The operational methods and efficiency of the CN Coastal Service has, in the past, been somewhat less than ideal. Rather, the service has grown *ad hoc*, without direction and in response to pressures from politicians, unions and users. Good business practices were seldom followed and as long as MOT was willing to meet all subsidy requirements there was little incentive for CN to be cost effective. This basic disinterest on the part of both CN and MOT has resulted in an ever increasing demand for financial aid coupled with an ever growing service dissatisfaction.

The total cost of providing the coastal service, like that of the Gulf Service, has been increasing at a high rate, particularly in recent years. From a subsidy requirement of $3.7 million in 1959-60, the yearly operating deficit has grown to $23.9 million in 1976-77, (annual deficits can be seen in Figure 5-9) representing an average compounded rate of increase of about 10% per annum. The revenues which are based on fares and tariffs set in the 1930's and not significantly changed since, represent today only a 6% cost recovery factor, down from 12.8% in 1972.

A further analysis of cost data presented to the Commission indicated that the coastal service is by far the most heavily subsidized service available in the Province. The data presented in Table 5-20 gives unit support costs for 1972 and 1976. This increase in terms of current dollars should be noted.

Table 5-20 Comparison of Support Costs for Coastal Boats 1972 and 1976

	1972	1976
Freight ($/Ton)	109	169
Passengers ($/Trip)	84	145

The use of the *'Runner'/'Sprinter'* type vessels, subsequent to the Newfoundland Coastal Transportation Study, has resulted in a considerable improvement in the costs of providing passenger service to the area served. This would indicate that where practical, if for no other reason, the same type vessels should replace the existing conventional types.

Finally, one of the most disturbing aspects of the cost structure of the coastal service lies in the difference in costs between the MOT-owned vessels and the locally chartered vessels. A review of the 1977 budget for coastal operation shows that ships on charter, which represent a major portion of the CN fleet, account for only 14% of the total costs, while CN owned vessel operations cost 39.5%. Although the Commission is aware that the MOT-owned vessels are basically passenger vessels, whereas those chartered are used for the transport of freight and that under normal circumstances the passenger vessels are more costy to operate, the transport of freight on the passenger vessels, as is done by CN, adds to the cost of the operation and only serves to indicate some of the inefficiency of the coastal boat system.

Assessment of Air Service

Newfoundland is served by four levels of air carriers:

1) Air Canada, servicing the long haul routes between major Newfoundland and mainland cities;
2) Eastern Provincial Airways (EPA), a regional service operating on both an intra and interprovincial basis;
3) Several small airlines, providing intercommunity service on the Island and in Labrador; and
4) A variety of charter services.

Although there were a number of areas of dissatisfaction associated with the air service available in this Province, from investigations carried out by the Commission it appears that the industry is well received by the general public and relative to the other transport modes, receives the least number of complaints.

1. *Airports and Airstrips*

The Commission did not conduct exhaustive research into the suitability of the present system of airports in operation in the Province, particularly those used by the national and regional carriers. In general, however, while there is considerable room for improvement with respect to terminal buildings, instrument landing systems, and baggage handling facilities at various centres in the Province, the main airports appear adequate or at least similar to those found in similar sized cities or towns in other parts of the country.

The Commission notes, however, the complete lack of airstrips and facilities available to the third level carriers, particularly in Labrador. This particular problem has been studied and is well documented in the Labrador Area Master Plan and it is not the intention of the Commission to report all the details here. In this connection the announced intention of the Federal Government to construct fourteen such airstrips in Labrador is noted. This should allow year round operations with Twin Otter aircraft.

In addition to the problems of airstrips to serve coastal Labrador, the Commission notes the lack of suitable strips to facilitate air travel to remote points around the island part of the Province. Of particular concern is Fogo Island which, because of severe ice conditions, is routinely without any surface transport for periods of the winter months. Although emergency air service is provided through the use of ski-equipped planes, suitable landing areas are difficult to obtain which restricts the efficiency of the air lift operation. A permanent strip would obviate this problem.

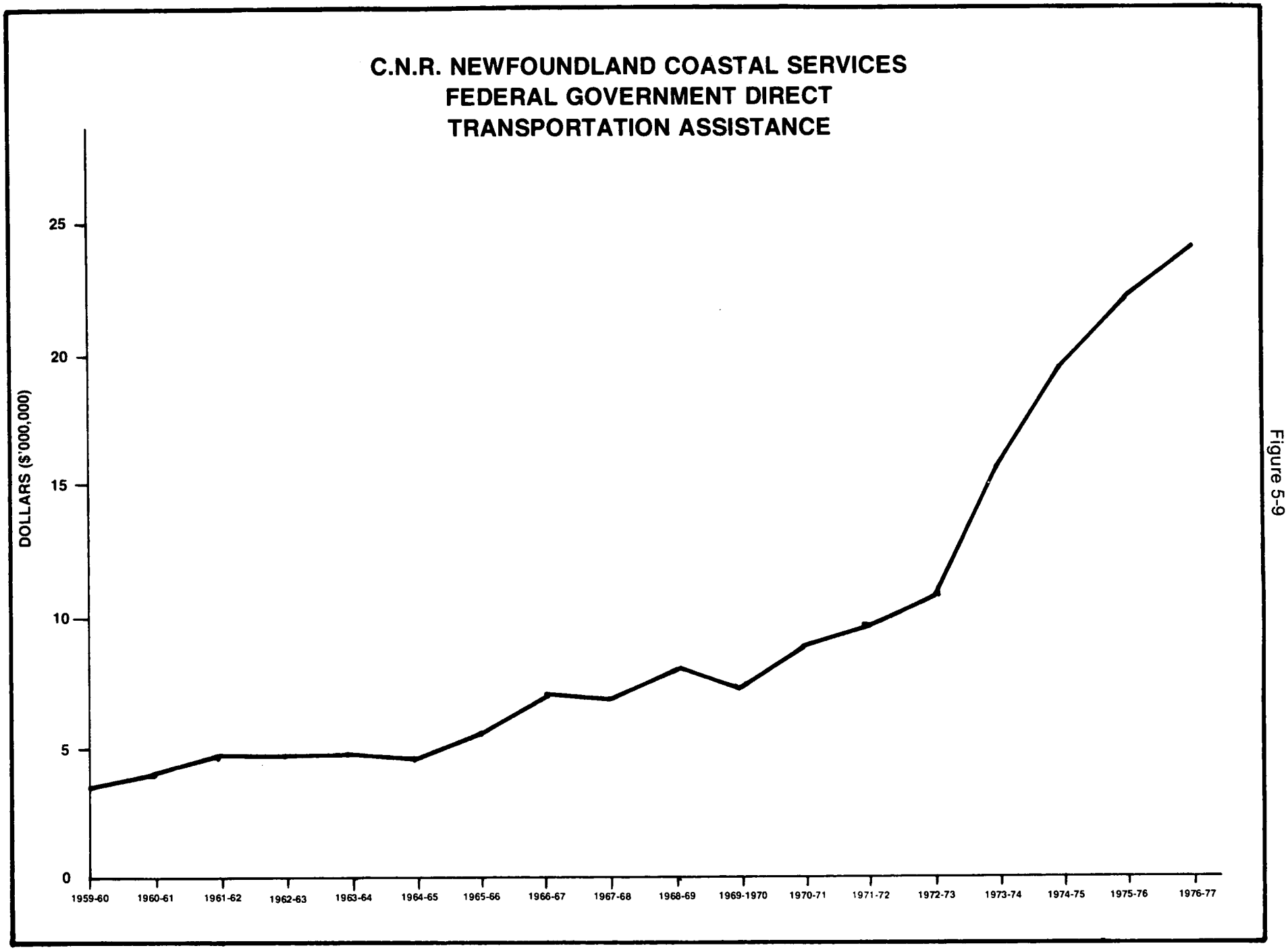

C.N.R. NEWFOUNDLAND COASTAL SERVICES
FEDERAL GOVERNMENT DIRECT
TRANSPORTATION ASSISTANCE
DOLLARS ($'000,000)
25
20
15
10
5
0
1959-60
1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
1967-68
1968-69
1969-1970
1970-71
1971-72
1972-73
1973-74
1974-75
1975-76
1976-77

Figure 5-9

2. *Routes and Schedules*

Air services between major Newfoundland centres and mainland cities are generally adequate. Although routes and flight frequencies of the major scheduled airlines are under periodic review and service changes frequently made, a review of the load factors of both major airlines shows that most routes are well patronized and in general meet with public approval. Throughout the course of the public hearings, there were suggestions of various changes and/or additions to the present schedules. These include:

(a) increase flight frequency to Stephenville from mainland points;

(b) the addition of a new early morning service from Corner Brook to St. John's; and

(c) permission for EPA to carry passengers and cargo from Wabush to Montreal.

As far as points (a) and (b) are concerned, the economics of providing the additional services have been investigated and the projected costs far outweigh the anticipated revenues.

With respect to (c), the Commission notes that this has been a continuing problem for some time. The route is presently serviced by Quebecair, and a licence to EPA would undoubtedly erode the market position of Quebecair. However, in the interest of the public to be serviced, it would appear that there is some justification for such a service.

3. *Fares*

In the opinion poll carried out by the Commission on the adequacy of transport services, fare structure was the only characteristic of the industry for which there was widespread dissatisfaction. There is an overwhelming opinion that fares charged by all the scheduled carriers in the Province are too high and, in fact, unreasonable. While the Commission notes some variance in fare structure, there are, however, some significant indications that the fares charged are not extreme in light of airline operating expense and the degree to which the flights are patronized.

Airline fares are usually based on a formula which takes into account the fixed costs associated with the trip as well as the variable costs associated with the distance travelled. In this regard, the fares charged by Air Canada for travel to and from Newfoundland points are similar to those charged for like distances between mainland centres. Because Air Canada is operating on the long haul route, operating costs are generally lower than those of other airlines which operate on much shorter routes. It is these variables which give rise to an apparent fare differential between the airlines. The Commission could find no evidence to support the claim that the fares were unnecessarily high.

Labrador Airways does, however, receive an operating subsidy of $150,000 annually from the Provincial Government as part of the cost of servicing non-economic routes in Labrador.

From an indirect subsidy point of view, however, there is considerable public support given the air industry. Operating costs of airports (which exceed revenues in Newfoundland) with annual capital costs indicate that a significant sum is spent by the public purse on air transport.

Total System Evaluation

Previous sections of this report have dealt separately with the operations of the many components of the Newfoundland transport system. This section now attempts to examine the inter-relationships of the various modes and to evaluate how the system, as a whole, is serving the needs of this Province. The criteria for evaluation include some which are objective and measurable, as well as those which are purely subjective. In general, they consist of service related, cost related and social consequence related criteria.

1. *Service Related Characteristics of the System*

a) Coverage

One of the fundamental issues to be resolved in assessing the service performed by the system is the extent to which residents of the Province receive transport services and whether coverage is uniform through the Province. The Commission, through its public hearings and research projects, has noted a wide disparity of service available to the various regions of the Province. For instance, in the more populated centres all of the major modes of air, sea, rail and highway are available to some degree for passenger and/or freight services, and because of the relatively high level of activity combined with some market competitiveness are also reasonably priced. However the remote and sparsely populated areas are often served by only one mode and in certain periods of the year receive no service at all.

This type of variance of service availability with size of population is to some degree expected and indeed justified. For example, it would be most difficult and highly expensive to provide northern coastal Labrador with the same type of highway system that is required on the Avalon Peninsula. This is not to say that the residents of the less populated areas of the Province should not expect at least one reliable mode of transport. There are certain minimum acceptable standards which the Commission feels should prevail to ensure that all citizens of the Province have some reasonable form of transport.

At present there are four basic voids in the system where it is felt the system does not provide an acceptable level of transport opportunity. They are:

(i) the remote communities along the southwest coast and northeast coasts including Labrador, served by coastal boat as the only surface mode;

(ii) public passenger transport provided by bus and train services;
(iii) communities on the highway network, but served by coastal boat, but so small in size that economic freight services are an impossibility; and
(iv) Labrador West where the only surface mode of transport is a train service which is in competition with industrial trains.

It has been demonstrated in earlier sections of this report that the Coastal Service, in its present state, is an inefficient and, in some cases, ineffectual method of surface transport. Costs are high, service is slow, and, in general, the level of service is poor. On the northeast coast where Acrtic ice is encountered, the service is at best a six month operation. Admittedly, there is an air service to the area, but the absence of suitable landing strips precludes operation of that service for periods of fall freeze-up and spring break-up. This means that for those periods of the year no form of transport is available to the residents of this area. The air service when available is costly to the user and is not available to most residents. Because of the limited shipping season for the Coastal Service operation and due to the high cost of air freight, supplies must be stockpiled in the fall season in sufficient quantities to carry the residents through the winter.

In addition to the fare structure which is in itself a deterrent to passenger travel, winter time travel is limited because the whole area is void of instrumented airstrips and all flying must be done under visual flight rules. Thus the cost, combined with the uncertainty of flight schedules, limits passenger trips to only those of an essential nature.

The southwest coast, while not facing total disruption of the Coastal Service, as is the case on the northeast, suffers from many of the similar problems due to the inefficient Coastal Service operation.

The immediate impact of the restriction on access to transport is to limit employment opportunity, constrain economic development, limit educational opportunities and add significantly to the cost of living. (The lower freight rates available on the Coastal Service are often offset by the high inventory costs caused by the loss of year round service.) Since the areas concerned are generally economically depressed, the effect of these deficiencies is much more pronounced than it would be otherwise.

The second area of inadequate transport is that of the public service provided by the buses and trains in the Province.

It has already been demonstrated that the corridor bus service operated by CN is an inadequate replacement for a passenger train service. Similarly, passenger train services on the existing branch lines and in Labrador suffer from many of the same inadequacies as the bus service. While the passenger market is reasonably well served for those persons who have access to a private automobile (i.e., riders who have a choice of mode), persons who must rely on public transport (i.e., captives to this mode) are drastically disadvantaged. Since this group consists of principally the poor, the old, the very young and the infirm, it is quite clear that a first class system, based fully on a user pay policy is not practical. To attract riders which now use an alternate mode and who have the economic means to support such a service would require very significant improvements and thus the present facilities are relegated to the status of a poor service for poor people.

The final area of inadequate coverage by the transport system lies with freight services to the remote but highway connected communities. These communities, e.g., in the extreme parts of White Bay, Bonavista Bay, St. Mary's Bay and Placentia Bay are not connected to the Coastal Service and must rely on highway services for delivery of freight. Because of the sparse population and rather low freight demand, trucking firms are either not interested in providing a service, or in cases where licenses are granted, it is usually on an unscheduled basis. The result is severe delays in the movement of freight to these areas. Although centralized warehousing, where freight could be consolidated, would aid in providing more economic payloads for truckers and would help to provide some stability to the regions concerned, the low populations and hence low freight demand is a fact of life and as such freight services and perhaps passenger services as well can only be provided through subsidy programs. However, since the areas served are mainly looked after by the very small trucking entrepreneur it is not likely that he would have the economic means to develop this type of warehousing, or provide subsidy. The initiatives then must fall to the government to ensure that those concerned will have a reasonable chance of receiving at least some regular form of service.

b) Dependability and Reliability

From a user standpoint, dependability and reliability of service are the most important characteristics of a transport system. Certainly, from the user interviews conducted by the Commission, these are the prime determinants in mode selection. Although many improvements to the Newfoundland system have been implemented in recent years, the users are not convinced of any high degree of dependability. As can be seen from earlier sections of this report, transit times vary a great deal between, as well as within, modes. For business concerns which rely on the transport system for movement of large quantities of goods, this has a particular significance, chief of which is the high inventories which must be carried in order to ensure good availability of product. Of the 65

major companies interviewed by the Commission, *all* indicated they carried excess inventory as they felt that transit times, for orders being delivered, vary so much as to render them unreliable. Table 5-21 shows a comparison of inventory turnover between Newfoundland and the national average. In all cases, the turnover rate is less in Newfoundland than elsewhere.

Table 5-21 Comparison of Annual Inventory Turnover

Types of Business	National Ratio	Nfld. Ratio
Wholesale Food	19.4	8.5
Retail Food	17.4	16.0
Retail Furniture	5.3	3.0
Retail Hardware	14.8	13.0
Retail Building Supplies	7.2	5.0

The excess inventory translates into higher costs of warehousing, staffing, interest and overhead which ultimately must be borne by the Newfoundland consumer.

The degree of dependability and reliability is not uniform through the system or throughout the Province. The opinions of those people interviewed by the Commission show that the railway is looked upon as the least reliable, with trucking being the most reliable. Also, reliability varies inversely with remoteness from the populated centres. In other words, the more remote, the less reliable the system becomes. This is particularly aggravating in areas like coastal Labrador which, in addition to unreliability of the service, has a surface link with the rest of the Province for only six months of the year.

From the standpoint of passenger services, reliability is generally good except for delays caused by weather conditions. Severe winds can at times disrupt bus and Gulf ferry operation, ice can halt the Coastal Service, and weather can ground aircraft in Labrador.

Generally, while delays are troublesome because personal schedules are disrupted, the durations are short, compared with those encountered by freight, and as soon as the external forces causing the delays have been removed, operating schedules are resumed.

c) Loss, Damage and Insurance Claims

While a large part of the freight moved to, from and within Newfoundland today moves as full truck loads, car loads or container lots, and while damage and loss experienced on these movements is generally low, there are a number of other areas where damages are high and claims become somewhat of a nightmare for the shipper or consignee. One of the problem areas is that of the Gulf ferries.

Rail traffic moving on the ferries is considered to be as if it were on a continuous rail line and full responsibility for loss and damage is accepted by CN when it has been proven that the losses or damages occurred in transit. Since a large portion of this movement is full carload lots which are sealed at point or origin and not opened until receipted by the consignee, there is little room for complaint to CN. The goods which move through car to car transfer have a relatively high incidence of loss and damage, although more thorough checking by CN supervisory personnel is now improving the situation.

Another problem lies with the movement of trucks and private vehicles on the vessels. Here, the liability of CN Marine for damages, regardless of how they are caused, is limited to that contained in the "Carriage of Goods by Water Act" which at present is $500. Because of this, truckers are reluctant to enter into an arrangement whereby the trailer part of the vehicle only would travel across the Gulf. Although this would demonstrate a significant saving as far as vessel carrying capacity and truck operating costs are concerned, the risk of damage to equipment by CN, combined with the limitation on liability, retards development of this part of the industry.

For goods moving within the Province, the condition of the highways, and the obsolete and inappropriate coastal vessels give rise to a high incidence of loss and damage. This presents major problems to consignees who are depending upon the delivery of goods to meet commitments. While the opportunity to recover costs of loss and damage are relatively good for trucking, the cost of loss and damage on the coastal boats has the same restrictions as those outlined above for the Gulf service. In both cases however, the time required in processing claims is long, sometimes as high as five months. The absence of a prompt claims payment service is an undue hardship on the shipper in this Province.

d) Lack of Co-ordination Between Modes

The whole transport system in Newfoundland suffers from a lack of co-ordination between modes and often between carriers within modes. The degree of interlining for both freight and passengers is not as great as it could be, often placing the residents of this Province at a disadvantage.

In most cases, this is caused because each carrier is concerned with his own route and service and as such no one is concerned with the overall effectiveness of the total system.

On the passenger side, there is little, if any, co-ordination between CN bus services, feeder bus services, airline services and coastal services, although there appears to be some degree of co-ordination with the Gulf ferries. This results in excess waiting times, and excess expenses often incurred by the travelling public who require a carrier change to complete their journey.

On the freight side, routes off the TCH corridor, for which mainland carriers have licences, receive some service even though in some cases it may not be a regularly scheduled one. However, if a carrier or intermodal change is required, long waiting time may be encountered as the goods often sit in a yard or warehouse waiting for someone to take the responsibility to move it to the interlining company.

2. *Cost Characteristics*

As was demonstrated in the review of the component parts of the Newfoundland transport system, the cost of providing service to, from and within this Province is an extremely high one, with subsidy policies showing many inconsistencies. The Commission has examined, in some detail, the cost structure of the transport system and presents the most salient points of that analysis here.

a) Inter-modal Cost Comparison

In examining the cost structure of the system, it was first necessary to differentiate between the cost which the user pays or the price of service, and the total cost of providing that service, made up of carrier costs, plus direct and indirect subsidies. In no case did the Commission encounter a situation where the price equalled the total costs. In other words, the "user pay" principle, as far as Newfoundland is concerned, is not being applied. What is of particular concern is the rather indiscriminate manner in which subsidy or support costs are being given or applied to the various modes, often resulting in distortions of the competitive market and utilization of the most ineffective way of moving goods and people.

It is not possible to present cost statistics for all the routes and services available in the Province. In fact for most carriers which operate several routes using common equipment, separate detailed costs data are not available. For illustrative purposes, the Montreal/St. John's services, which handle over 50% of all incoming freight have been analyzed separately and are presented in Table 5-22 showing the average costs per ton for 1976 by the three major modes.

Table 5-22 Average Costs Including All Support Costs in Dollars Per Ton For Freight Moving Montreal to St. John's

	Montreal to North Sydney	Gulf	P.A.B. to St. John's	Total
Rail	26	60	60	146
Highway (Via Gulf)		40		155
Direct Water				91

As can be seen, the highway mode is the most costly of the three while direct shipping is the least costly.

While these figures represent reasonable estimates of the total cost of moving freight from Montreal to St. John's, they by no means represent the price charged to the user. For all three modes there are substantial subsidies available on a direct or indirect basis.

In the case of rail, these are 1) direct assistance on the Gulf, and 2) cross subsidization by the carrier as the rail traffic in Newfoundland in 1976 sustained a total loss of $14 million.

In the case of trucking, subsidies are 1) in the form of Gulf support over the rate charged by CN Marine to move the vehicles, and 2) costs of providing and maintaining the highways over what is paid by the truckers in the form of taxes and license fees.

For the steamship services concerned the Federal Government pays a direct subsidy of $15.64 per ton (however, only to Newfoundland Steamships Limited). Also indirect subsidy is provided in the form of National Harbours Board and Coast Guard support. A comparison of total costs, shows that the railway is most heavily subsidized while the water is the least subsidized. Table 5-23 summarizes the subsidies paid to each.

Table 5-23 Intermodal Comparison of Average Subsidy Support on Montreal/St. John's Service

		$/Ton
Rail	Gulf Support	57
	Cross-subsidy Due to Shortfall	23
	Total	80
Highway	Gulf Support	40
	Highway Infrastructure Support	9
	Total	49
Water	Direct Subsidy	16
	Coast Guard	4
	National Harbours Board	3
	Total	23

While the situation in Tables 5-22 and 5-23 represents an average condition on one of the most heavily utilized transport routes, it should not be misunderstood as being a complete cost analysis of the whole system and for all conditions. It is pointed out, however, that large differences in the level of public support are paid either intentionally or otherwise to the various modes. The result of this uneven support has been to foster and develop modes of transport which have tended to distort the true competitive market situation and has really led to the promotion of ineffective modes. Such a support policy allows carriers to compete relatively easily on the basis of price rather than on the basis of service. In other words, carriers can provide a relatively poor level of service

and as long as sufficient subsidy is available to allow competitive rates they can remain in business and there is no incentive to improve the service.

Of course these subsidies did not arrive at the present levels overnight. Rather, there has been a gradual escalation in the level of support provided by the Federal Government, more than anything else caused by the rather lax attitude of the government towards operations of the Gulf.

In making the above cost comparisons, the effect of the inefficient railway operation in Newfoundland is easily seen. Since the tonnage carried on the line has dropped off so drastically in recent years, the fixed cost associated with the operation must now be distributed over a much smaller volume. For instance, for most of the CN system, fixed cost represents 25% of the total costs. In Newfoundland, fixed costs represent 40-50% of the total. This explains why the Port aux Basques to St. John's segment shown in Table 5-22 is so high.

A reasonable question then might be, why not improve the railway to give better service and thereby attract more business which in turn would give rise to lower unit costs? This indeed might be feasible if the capital costs of the required improvements were low and if rail freight were not required to cross the Gulf. The operation and transfer costs on the Gulf, however, increase with the traffic carried and, therefore, regardless of what the railway might do, large operating subsidies would still be required for rail freight carried on the Gulf plus very substantial investment in new ferries and terminals.

b) Freight Rate Subsidies

Currently, in addition to the subsidy and support as already discussed, there are two specific programs of subsidy available to carriers to enable a reduction in certain freight rates to shippers. The effectiveness of these programs, which were originally intended as a measure of assistance to help Atlantic based industries to be competitive in the central Canada marketplace is seriously questioned and as a result both programs are under review. Since their implementation, modification to their scope has resulted in the subsidy being extended from purely freight moving westward from the Atlantic area to include freight moving within the area. The net result has been to view the subsidy as a means of containing the cost of consumer goods rather than an aid to industrial development.

As a development tool the programs have not achieved their objective and even in some cases have tended to discourage development in some parts of the region. For instance, potato farming in this Province has been retarded partly because of the low freight rate which enables P.E.I. potatoes to compete effectively in local markets.

Perhaps the most serious drawback has been that the subsidy did not apply equally and to all modes. The original Maritime Freight Rates Act instituted in 1927, applied only to rail. This certainly gave an advantage to that mode until in 1969 The Atlantic Freight Rates Assistance Act was instituted, and a similar program extended to trucking. The result was that there was an immediate increase in truck utilization. Even to the present time, the subsidy is not available to the air or marine mode although amendments to the program are expected to instigate changes in that direction in the near future.

From a systems standpoint, the effect of the uneven application of these programs has again led to the utilization of modes of transport which were not the most cost effective. Although some improvement was evident when trucking was allowed a similar program to rail, the true effectiveness will not be realized until all modes are treated equally.

In the past, because Newfoundland lacked large scale manufacturing, this Province had not benefited from the programs to the same degree as other provinces. For instance, a disturbing feature as far as this Province is concerned, with both the present legislation and the proposed amendments, is that there is no provision for a subsidization of commodities going into the export market. Since in this Province the number of products produced, which could eventually be placed in the Canadian market, is relatively small, the true impact of the program cannot be felt. An extension of the program to export products such as fish, would enable our products to be more competitive in the world markets, a situation which would have an immediate and beneficial effect here.

3. *Social and Economic Impacts of the System*

The effectiveness of a transport system, to some degree, can be measured by the socio-economic impacts it produces or is responsible for in the community. The Commission, in assessing the effectiveness of the system, limited its review to; 1) the effect of transport on the cost of food products, 2) the effect of transport on tourist industry development, and 3) the role of transport in providing employment.

a) *Impact of Transportation on Food Prices*

One of the often quoted reasons for the high price of consumer goods in this Province is the high cost of transportation. In an effort to test this hypothesis, the Commission examined, in some detail, the transport methods, tariffs, and method of payment involved in moving food products from mainland processors to Newfoundland consumers. Twenty-five commonly used products were considered and, for comparative purposes, the unit sizes and types were the same as those used by Statistics Canada for the Consumer Price Index calculations.

It is interesting to note that the Food Prices Review Board completed a similar piece of work in 1974, wherein it was concluded that while there are marked differences between Newfoundland and mainland prices, the whole distribution system of wholesalers, jobbers, exclusive agents and retailers, accounted more for the differentials than did the transport tariffs.

Since 1974, there have been significant changes in the physical distribution system for food products. Fewer but larger wholesale companies (some of which operate their own transport service), an increase in the number of mainland chain store supermarkets and a decrease in the use of exclusive agents are just some of the changes. Still, from the data gathered by the Commission, there are significant price differentials between prices in St. John's and those in Toronto and Halifax, which cannot be traced to transport costs. A resumé of all the price differentials can be seen in Table 5-24. It is important to note that the sample data shown represents prices for a single week only. Prices between locations fluctuate drastically and what is shown for one week may not necessarily hold for another period.

The major findings of the survey are:

(i) For most food products surveyed which are imported into Newfoundland (72%), transportation costs per unit are lower than the difference in the retail selling price between St. John's and Toronto. Therefore, direct transportation costs are not alone contributing to the difference in retail prices.

(ii) For the remaining products (28%), surveyed transportation costs per unit are higher than the difference in the retail selling price. Therefore, the direct transportation costs are not being covered by the difference in mark-up on retail price. Transportation of these products is in effect being subsidized to Newfoundland.

(iii) For a majority (64%) of food products observed transportation costs are prepaid but the extent to which they are absorbed by the processor cannot be determined.

(iv) Most bulky or heavy weight food products are shipped to Newfoundland from the mainland of Canada and the U.S. by water or rail mode.

(v) Most perishable foodstuffs observed are shipped to Newfoundland from the mainland by truck for speed of delivery. When truck is used for such products, the unit transportation costs are less than the retail price difference.

While the transportation charges alone do not always account for the price differentials, the Com-

Table 5-24 Transportation Cost—Retail Price Differences

Product	Origin	Transport Mode	Transport Terms	Unit Transport Cost	St. John's Toronto Price Difference	St. John's Halifax Price Difference
Evap Milk (16 oz)	Que	Chimo, Clarke	Prepaid	.03	.02	.04
Powd Milk (3 lb)	Que	Chimo, Clarke	"	.09	.23	.25
Butter (1 1b)	Ont	Truck	"	.07	.28	.27
Sausages (1 1b)	Ont	Truck	"	.07	.26	.34
Bacon (1 1b)	Ont	Truck	"	.07	.36	.20
Wieners (1 1b)	Ont	Truck	"	.07	.26	.19
Chicken (1 1b)	Ont, NS	Truck	"	.07	.20	−.01
Salmon (7 ¾ oz)	BC	CNR	Collect	.04	.28	.13
Shortening (1 1b)	Ont	CNR	Prepaid	.04	−.06	.08
Flour (7 lb)	Que	Clarke	"	.17	.11	.26
Corn Flakes (16 oz)	Ont	CNR	"	.04	.08	.14
Soda Crackers (16 oz)	Que	CNR	"	.07	.00	.07
Sugar (2 kg)	Que	CNR	"	.11	.22	.17
Jam (9 oz)	Ont	Chimo	Collect	.02	.06	.11
Bananas (1 1b)	US (Florida)	Truck	"	.04	.09	.07
Potatoes (10 1b)	PEI	Truck	Prepaid	.31	.90	.40
Onions (1 1b)	Ont	CNR	Collect	.05	.03	.04
Carrots (1 1b)	Ont	CNR	"	.10	.08	.05
Cabbage (1 1b)	US (Fa, Texas)	Truck	"	.07	.10	.10
Lettuce (1 1b)	(Ca) US	Truck	"	.04	.21	.04
Baby Food (4½ oz)	Ont	Clarke	Prepaid	.02	.03	.03
Veg Soup (10 oz)	Ont	CNR	"	.03	.03	.02
Jelly Powd (3 oz)	Ont	CNR	"	.01	.02	.02
Oranges (1 1b)	(Ca) US	CNR & Truck	Collect	.04	−.02	.02
Grapefruit (1 1b)	US (Florida)	Truck	"	.04	.01	−.06

A minus (−.05) denotes a retail price higher in Toronto at the time of sampling. Price differences are first week of September 1977.

mission made no attempt to ascertain the reasons for the remainder. The principal conclusion which the Commission feels can reasonably be drawn from this exercise, is that transportation charges alone are not responsible for the price differentials. (It should be noted that the high inventory which Newfoundland businesses are forced to carry has already been established as a contributing factor in the generally higher commodity prices in the Province.)

It is difficult to extend this reasoning to other parts of the Province, however, as servicing the small communities with small volumes can result in somewhat higher unit transport costs. Within the time available to the Commission, it was not possible to carry out a Province-wide study which would be meaningful.

b) *The Effect of Transport on Tourism*

Although tourism is not as yet a major industry in the Province, it does contribute significantly to the Provincial economy. Statistics kept by the Provincial Department of Tourism indicate that there is considerable use made of the Gulf ferries by tourists visiting the Province. Table 5-25 shows the pattern since 1973.

Table 5-25 January-December Non-Resident Autos

	1973	1974	1975	1976	1977
Passenger Autos	23,684	27,329	29,785	27,874	26,517
Auto Trailers	2,774	3,256	3,243	3,482	2,886
Campers	1,754	2,309	2,565	2,550	2,191
Buses	43	58	69	162	64
Motor Cycles	336	487	—	—	671
	28,591	33,437	35,662	34,068	32,329

To a large extent the growth of the industry is then dependent on the relative ease with which tourists can cross the Gulf. In the past the fare structure combined with accommodation problems have been a deterrent to the industry.

A study of the Gulf ferry services in 1976 revealed that during the July and August peak season, the car deck capacity on the North Sydney/Port aux Basques run and the North Sydney/Argentia run was filled or booked to capacity on certain sailings. The effect of this is to limit the number of tourist related vehicles entering the Province and thus to retard the industry as a whole. An example of the difficulty one might encounter in trying to obtain accommodation can be seen from the degree of overbooking as shown in Table 5-26.

Table 5-26 Overbookings

	July 1977				August 1977			
Sailing (Hour)	0830	1145	1630	2245	0830	1145	1630	2245
Percentage of Overbooking	35%	10%	38%	52%	10%	0%	0%	61%

The Department of Tourism outlook for 1978 indicates stability or a slight decrease in tourist volumes if the present ferry situation is unchanged; a 2-4% rise if the second Argentia ferry is replaced; a 5-8% escalation if the Gulf service is reorganized, and a 9-12% jump if fares are reduced by 25% and the service reorganized. The long range projections are difficult to foresee but with the recent five year DREE agreement, tourist attractions in the Province should draw more visitors, in which case the ferry capacity would be the ultimate limiting factor.

c) *The Role of Transport in Providing Employment*

In the Newfoundland region, where unemployment has always been a major problem, the transport system has assumed the dual role of providing employment as well as serving the transport function. In this respect, service improvement which would result in reductions in employment, have been resisted.

At the present time, it is estimated that there are approximately 7500 people directly employed in the transport industry. This figure, however does not include persons employed in private trucking firms for which no statistics are maintained. Being involved in all the surface modes it is not surprising that CN accounts for nearly half of the above total. The presence of highly organized unions in CN, and their efforts to maintain as many jobs as possible, is in the end a deterrent to innovative planning. For instance, the substitution of chartered vessels in place of CN-owned vessels on the Coastal Service is being vigorously opposed by CN unions, even though it has been demonstrated that the chartered vessels can serve the function at a lower cost than CN-owned ships.

This situation is not unique to CN. A few years ago, the substitution of side-loading vessels for top-loading vessels was vigorously opposed by stevedoring unions even though there is no question that the side-loaders provide a much more efficient service.

While it must be recognized, that employment is an integral part of the transport system, and changes which displace large numbers of people create a great deal of social upheaval, there must be an ongoing attempt to optimize the service and cost aspects of the transport system. In cases where reductions in employment result, they should be treated as serious problems for which appropriate solutions must be sought. To retain outdated and costly transport services solely on the basis of the employment generated, is doing a disservice to the Province.

4. *Vulnerability of System*

The Commission has determined that although there are instances where the Newfoundland system meets or perhaps exceeds comparable services in

other provinces, in general, however, our services are substandard compared to those available elsewhere.

One of the major differences between this Province and others is the vulnerability of this Province to be isolated from other provinces and also for certain parts of this Province to be isolated from other parts in the event of labour strikes. As Newfoundland is an island, all surface connections to the mainland must use the marine mode. A strike in the marine mode, which occurred in 1973, effectively closes not only the marine services but interprovincial rail and highway as well. This situation does not exist elsewhere. Even Prince Edward Island, which is also an island province, has two independent ferry operations and, as such, the probability of a simultaneous work stoppage on both is remote.

Within the Province the areas served by a single mode such as: the coastal vessels in the northeast and southwest coasts, Quebec North Shore and Labrador railway in Labrador West; and Labrador Airways on the Labrador coast find themselves in the same situation. A strike, work stoppage or a disruption in the service for any reason, brings total isolation. This is a situation which is not found in many other parts of Canada.

Although it has been mentioned elsewhere in this report, the Commission wishes to re-emphasize the importance of the fishing industry to the economic well-being of the Province and the damage to this industry which might result if transport services on which the industry relies are, for any reason, disrupted. At a time when the industry is about to overcome many of its long-term problems, it would be most serious to encounter such disruptions. Four years ago, disruptions of service on the Gulf would not have been of any major consequence to the fishing industry. Today, because of the heavy dependence on truck transport, a similar disruption would paralyze the industry and seriously affect future markets.