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TRANSPORTATION IN CANADA 1997

ANNUAL REPORT

Transport Canada Transports Canada

Canada

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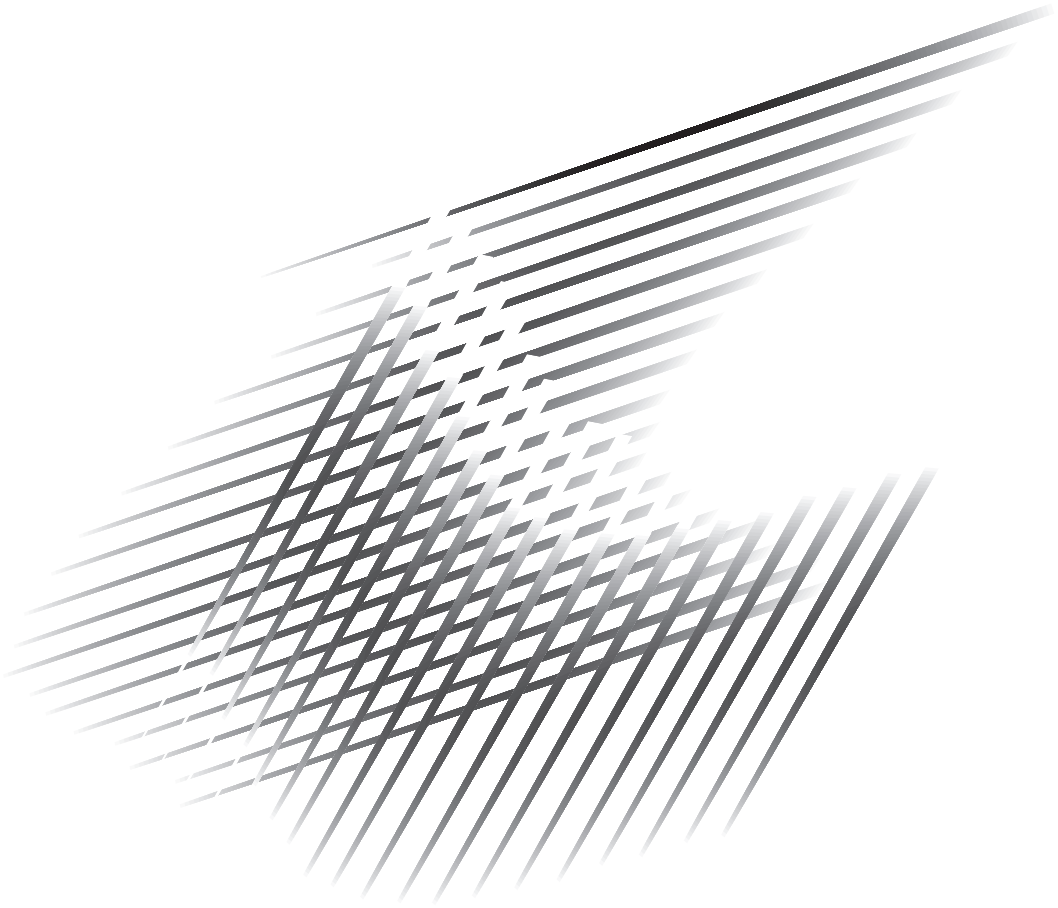

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Minister of Transport Ministre des Transports

Ottawa, Canada K1A ON8

MAY 1 8 1998
MAI

His Excellency
The Right Honourable Roméo LeBlanc, P.C., C.C., C.M.M., C.D.
Governor General of Canada
Rideau Hall
1 Sussex Drive
Ottawa, Ontario
K1A 0A1

Excellency:

I am pleased to submit to you the 1997 annual report on the state of transportation in Canada. This report responds to the requirements set out in section 52 of the *Canada Transportation Act*.

The year 1997 was a good year for transportation. It was marked by a strong economy, fueled to a large extent by the growth in international trade, an overall improvement in the financial performance of carriers, considerable improvement in safety in all modes, and the continued implementation of the reforms introduced in the transportation sector in recent years.

As world economies become more integrated and trade barriers continue to fall around the globe, much of Canada's continued competitiveness rests on the ability of its transportation sector to get its goods to market and to respond to the needs of travelers in an efficient and affordable manner, both within Canada and outside its borders.

The World Economic Forum, an organization which ranks countries in terms of their global competitiveness, has rated Canada's transportation sector as one of the best in the world.

The federal government will continue to set the framework that will allow Canada's transportation sector to compete globally and to face the challenges of the new millenium. It will also ensure that the transportation system maintains its high level of safety and that its future development is managed in a sustainable manner.

Yours sincerely,

Hon. David M. Collenette, P.C., M.P.

Table of Contents

Report Highlights i

Chapter 1. Introduction 1

2. Transportation and the Economy 3

3. Transportation and Regional Economies 17

4. Government Spending on Transportation 33

5. Infrastructure and Associated Services 43

6. Safety 83

7. Environment 97

8. Air 105

9. Marine 127

10. Rail 145

11. Trucking 161

12. Bus 175

13. Transportation Statistics 185

LIST OF TABLES

Table	*Title*	*Page*
2. Transportation and the Economy		
2-1	Modal Distribution of Transportation – Gross Domestic Product (GDP)	5
2-2	Gross Domestic Product and Prices	6
2-3	Transportation Gross Domestic Product	8
2-4	Transportation Share of Total GDP for Selected Countries	8
2-5	Transportation Employment by Mode	9
2-6	Investment in Transportation	9
2-7	Total Transport Demand	10
2-8	Average Annual Spending on Transport, per household	11
2-9	Interprovincial and International Trade Flows of Total Goods	12
2-10	Interprovincial and International Trade Flows of Total Goods	12
2-11	Share of Trade Flows in Total Production of Goods	12
2-12	Canadian Merchandise Exports by Country	13
2-13	Canadian Merchandise Imports by Country	13
2-14	Share of Canadian Merchandise Trade	14
2-15	Canadian Exports and Imports by Transport Mode	14
2-16	Canada's Merchandise Exports to the US and Mexico by Major Commodity Grouping and by Mode	15
2-17	Canada's Merchandise Imports from the US and Mexico by Major Commodity Grouping and by Mode	15
2-18	Canada's Trade with the US and Mexico by Province	15
3. Transportation and Regional Economies		
3-1	Structure of Regional Economies – Eastern Canada Provinces	18
3-2	Trade of Eastern Canada Provinces	18
3-3	Importance of Commercial Transportation to Eastern Provinces	18
3-4	Structure of Regional Economies – Central Canada Provinces	20
3-5	Trade of Central Canada Provinces	20
3-6	Importance of Commercial Transportation to Central Canada Provinces	20
3-7	Structure of Regional Economies – Western Canada Provinces and Territories	22
3-8	Trade of Western Canada Provinces and Territories	22
3-9	Importance of Commercial Transportation to Western Provinces and Territories	22
3-10	Importance of Commercial Transportation Employment to Eastern Canada Provinces	24
3-11	Importance of Commercial Transportation Employment to Central Provinces	24
3-12	Importance of Commercial Transportation Employment to Western Provinces and Territories	25
3-13	Importance of Total Transportation Demand to Eastern Provinces	26
3-14	Importance of Total Transportation Demand to the Central Provinces	28
3-15	Importance of Total Transportation Demand to Western Provinces and Territories	29
3-16	Importance of Total Transportation Investment to the Eastern Provinces	30
3-17	Importance of Total Transportation Investment to the Central Provinces	31
3-18	Importance of Total Transportation Investment to the Western Provinces and Territories	32
4. Government Spending on Transportation		
4-1	Governments' Net Expenditures on Transportation	34
4-2	Governments' Revenues from Transportation – Not Credited to Transportation Budgets	34
4-3	Federal Government Gross Expenditures on Transportation	35
4-4	Transport Canada's Gross Spending on Transportation	35
4-5	Revenues Credited to Transport Canada's Budget	36
4-6	Transport Canada – Level of Cost Recovery	36
4-7	Total Direct Federal Subsidies, Grants and Contributions – by Mode	37
4-8	Federal Subsidies, Grants and Contributions – Rail Transportation	37
4-9	Federal Subsidies, Grants and Contributions – Highways and Bridges	38
4-10	Federal Subsidies, Grants and Contributions – Trucking	38
4-11	Federal Subsidies, Grants and Contributions – Marine Transport	39
4-12	Federal Subsidies, Grants and Contributions – Air Transport	39
4-13	Federal Expenditures on Transport Facilities and Services	40
4-14	Provincial Government Expenditures on Transportation	41
4-15	Local Government Expenditures on Transportation	42

Table *Title* *Page*

5. Infrastructure and Associated Services

5-1 Canada's Air Navigation System Workload Statistics 46
5-2 Passenger Traffic at Canadian Airports 48
5-3 Cargo Traffic at Canadian Airports 49
5-4 Total Revenues and Expenses of Canada's Airport Authorities 49
5-5 Total Tonnage Handled in Canada's Port System 53
5-6 Containers Handled at Canadian Ports 53
5-7 Canada's Container Traffic Trans-shipped Through the US Port System 54
5-8 US Container Traffic Trans-shipped Through Canada's Port System 54
5-9 Financial Profile, Ports Canada Ports 55
5-10 Revenues, Expenses and Incomes of the Ports Canada System 56
5-11 Financial Profile of Canada's Harbour Commissions 57
5-12 Financial Profile of Ports Remaining Under Transport Canada Control 57
5-13 St. Lawrence Seaway Cargo Movements 58
5-14 St. Lawrence Seaway Financial Performance 59
5-15 St. Lawrence Seaway Authority Reserve Fund 59
5-16 Pilotage Assignments 60
5-17 Pilotage Authorities – Revenues and Expenditures 61
5-18 Canadian Coast Guard Fleet and Facilities 62
5-19 Revenues and Budgeted Expenditures of the Canadian Coast Guard 62
5-20 Canada's Railway Infrastructure 64
5-21 Major Shortline Corporations Operating in Canada 65
5-22 CN and CP Rationalization by Province 65
5-23 CN and CP Three-Year Rationalization Plans by Province 66
5-24 Canada's Road System by Province or Territory 68
5-25 Upgrading Costs for the National Highway System 71
5-26 National Highway System Spending Estimates 72
5-27 Daily Traffic Levels on the National Highway System 73
5-28 Annual Car and Truck Traffic for Major Border Crossings 74

6. Safety

6-1 Transportation Occurrences – 1997 vs. Five-Year Average 84
6-2 Occurrences in Aviation Transportation 84
6-3 Accident and Fatality Rates in Canada and the US for Level I And II Air Carriers 85
6-4 Accident and Fatality rate in Canada and the US for Level III and IV Air Carriers 85
6-5 Occurrences in Marine Transportation 86
6-6 Occurrences in Rail Transportation 86
6-7 Total Road Collisions and Casualties 88
6-8 Road Fatalities by Categories of Road Users 88
6-9 Annual Number of Accidents, Fatalities and Injuries 90
6-10 Estimated Average Cost of Fatalities, Injuries and Property Damage Resulting from Road Vehicle Accidents 90

7. Environment

7-1 Canadian Motor Vehicle Fuel Efficiency 102
7-2 Air Emissions from Transportation Sources 103
7-3 Trends in the Atmospheric Concentration of Indicated Pollutants 104

8. Air

8-1 Carriers Designated by the Minister of Transport in 1997 107
8-2 Aircraft of Selected Canadian Carriers in Passenger Services 108
8-3 Licence Authorities Held in 1997 109
8-4 Domestic Passenger Traffic – Top 20 City-Pairs – Scheduled vs. Charter Services 110
8-5 Domestic Sector Enplaned and Deplaned Passengers 110
8-6 New Air Services in Transborder Markets 112
8-7 Transborder Passenger Traffic for Scheduled, Regional and Charter Operations 112
8-8 International Passenger Traffic 113
8-9 Marketing Alliances of Canada's Major Air Carriers 114
8-10 Participation of Canadian Air Carriers in Transborder Courier Operations 114
8-11 Value of Canadian International Trade's Air Share 114
8-12 Value of Canadian Exports by Air – Main Destinations 116
8-13 Value of Canadian Imports by Air – Main Countries of Origin 116

Table *Title* *Page*

8. Air (continued)

8-14 Aircraft Movements at Towered Airports 117
8-15 Summary of Personnel Licences as of January 1998 117
8-16 Price and Output Changes in the Airline Industry 119
8-17 Cost Structure and Efficiency Indicators in the Airline Industry 121

9. Marine

9-1 Shipping Conferences Serving Canada in 1997 134
9-2 Canada's Marine Traffic Flows, by Sector 135
9-3 Marine Domestic Flows, by Canadian Region 135
9-4 Canada's International Trade - Marine Transportation 136
9-5 Canada's Marine Traffic to the US 137
9-6 Canada's Marine Traffic from the US 137
9-7 Canada's Marine Traffic to Overseas 138
9-8 Canada's Marine Traffic from Overseas 139
9-9 Cruise Ship Traffic at Major Canadian Ports 139
9-10 Conference/Non-conference Shares of Canadian Liner Trade 140
9-11 Liner Traffic by Region 140
9-12 Price and Output Changes in Marine Transport 141
9-13 Productivity and Unit Cost Changes In Marine Transport 143
9-14 Financial Highlights of the Marine Industry 143

10. Rail

10-1 Destination of Imports From the US by Rail 146
10-2 Origin of Exports to the US by Rail 146
10-3 Rail Exports to the US by Commodity 147
10-4 Rail Imports from the US by Commodity 148
10-5 Canada/US Railroad Price Comparison 152
10-6 Output and Price Changes in Rail Freight 152
10--7 Cost Structure and Efficiency Indicators – CN and CP 156
10-8 Financial Performance Highlights of Canada's Rail Transport Industry 156
10-9 Railway Net Fixed Assets as of December 31, 1996 159
10-10 Financial Performance Highlights of VIA Rail Passenger Industry 159
10-11 Cost Structure and Efficiency Indicators of VIA rail 160
10-12 Output and Price Changes in VIA Rail 160

11. Trucking

11-1 Distribution of Truck Traffic by Sector 165
11-2 For-hire Trucking Activity Revenues by Commodity Group 165
11-3 For-hire Trucking Traffic by Commodity Group 166
11-4 Distribution of Trucking Activity by Travel Sector 166
11-5 Distribution of Truck Traffic by Type of Carriage 166
11-6 Driver Distribution of Truck Traffic 167
11-7 Truck Types on Canada's Roads 167
11-8 Canada's Exports by Truck 168
11-9 Canada's Imports by Truck 168
11-10 Trucking Bankruptcies Across Canada 169
11-11 Distribution of Total For-Hire Trucking Revenues by Size of Carrier 170
11-12 Average Annual Revenues by Size of Carrier 170
11-13 Output and Price Changes in Trucking 171
11-14 Cost Structure and Efficiency Indicators of Trucking 172
11-15 Financial Results of For-Hire Trucking Firms 173

12. Bus

12-1 Summary of Revenues by Sources of Revenue 176
12-2 Price and Output Changes in the Bus Industry 182
12-3 Financial Highlights of the Canadian Bus Industry – Inter-City Scheduled and Charter Services 183
12-4 Cost Structure and Efficiency Indicators of the Bus Industry 184

LIST OF FIGURES

Figure *Title* *Page*

2. Transportation and the Economy

2-1 Domestic Passenger Travel, Per Capita – By Mode 4
2-2 Domestic Freight Transportation, Per Capita – By Mode 4
2-3 Relative Importance of Goods and Services Production 5
2-4 Relative Importance of Goods Producing Industries 5
2-5 Gross Domestic Product Trends, Goods Production vs. Freight Transportation 6
2-6 Transportation Share of Total GDP 8

5. Infrastructure and Associated Services

5-1 Canada's Air Navigation System 45
5-2 Canada's National Airports System 47
5-3 Financial Results of Airport Authorities 50
5-4 Financial Ratios of Airport Authorities 50
5-5 Canada's Major Ports 51
5-6 Operating Ratios and Returns on Assets for Canada's Major Ports 55
5-7 Operating Ratios and Returns on Assets for Canada's Divisional Ports 56
5-8 Canada's Rail Network 63
5-9 CN and CP Discontinuances and Transfers of Lines 66
5-10 Canada's National Highway System 70
5-11 Traffic on the National Highway System 73
5-12 Daily Traffic Levels Between Canada and the US 74
5-13 Annual Car and Truck Traffic by Largest Border Crossing 75

6. Safety

6-1 Comparison of Rail Safety – Canada vs. US 87
6-2 Number of Trespasser Fatalities at Railway Crossings – Canada vs. US 87
6-3 Road Fatality Rate by Province 88
6-4 Percentage of Road Collisions and Fatalities Involving Commercial Vehicles 89
6-5 Fatality Rates Among OECD Countries 89

7. Environment

7-1 Canada's Actual and Projected Annual Emissions of Global Warming Gases by Sector 98
7-2 Energy Use by the Transportation Sector 100
7-3 Per Capita Sales of Petroleum Products for Transport Purposes 100
7-4 Sales of Petroleum Products for Transport Purposes 101
7-5 Litres of Fuel per 100 Vehicle-kilometres (Cars, Including SUVs, etc.) or Per 100 Tonne-kilometres 101

8. Air

8-1 Proportion of Personnel Licences and Permits by Province 109
8-2 Regional Breakdown of Domestic Passengers (Enplaned and Deplaned) 111
8-3 Transborder Passenger Traffic 111
8-4 Number of Seats Offered in the Transborder Market 113
8-5 Value of Canadian Imports and Exports with the US by Air and by Province of Clearance 115
8-6 Profile of the Recreational Aviation Fleet 118
8-7 Canadian Air Transport Industry – Operating Revenues 119
8-8 Operating Revenues of Large Carriers by Market Segment 120
8-9 Significant Growth in International Passenger Revenues – Air Canada and Canadian Airlines Including Affiliates . 120
8-10 Air Transport Industry – Operating Margin 121
8-11 Capital Expenditures – Air Canada and Canadian Airlines 122

9. Marine

9-1 Canadian Registered Fleet 129
9-2 Canadian Registered Fleet By Type 130
9-3 Canada's Maritime Trade with the US 136
9-4 Canada's Maritime Overseas Trade 138
9-5 Marine Freight Rate Indices 142
9-6 Canadian-domiciled For-hire Water Carriers – Sources of Operating Revenues 142

Figure *Title* *Page*

10. Rail

10-1 Rail Revenue Tonne-Kilometres 146
10-2 Canada/US Rail Exports and Imports 147
10-3 Value of Principal Commodities Exported by Rail to US and Mexico 148
10-4 Total Monthly Rail Traffic 149
10-5 Year Over Year Change in Traffic Volume 149
10-6 Monthly Grain Traffic Loadings 150
10-7 Rail Intermodal Traffic 151
10-8 Traffic Volume and Market Share 153
10-9 Rail Passenger Traffic Volumes 153
10-10 Canadian Rail Transportation Industry – Operating Revenues 154
10-11 Railway Employment Trends 154
10-12 Canadian National Railway – Operating and Net Income 157
10-13 Canadian Pacific Railway – Operating and Net Income 157
10-14 Rail Freight Transportation in Canada – Operating Margins 158
10-15 Railway Capital Expenditures in Canada by CN and CP 158

11. Trucking

11-1 Trucking Industry Structure and Revenues 162
11-2 Number of For-hire Carriers 168
11-3 Operating Margins of the For-hire Trucking Industry 173

12. Bus

12-1 Bus Industry Structure and Revenues 176
12-2 Fleet Size of Scheduled Intercity Bus Activity 177
12-3 Fleet Utilization of Scheduled Intercity Bus Activity 177
12-4 Annual Scheduled Intercity Bus Activity – Passengers and Bus-kilometres 178
12-5 Scheduled Intercity Bus Activity – Passengers per 100 Vehicle-kilometres 178
12-6 Fleet Size of Charter Bus Activity 179
12-7 Fleet Utilization of Charter Bus Activity 179
12-8 Charter Carriers' Bus-kilometres 180
12-9 Urban Transit Fleet Size 180
12-10 Urban Transit Fleet Utilization 180
12-11 Long-term Trends in Urban Transit 181
12-12 Urban Transit Passengers per 100 Bus-kilometres 181
12-13 Cost Components of the Intercity Bus Industry 182
12-14 Operating Margins of Intercity Scheduled and Charter Bus Industries 184

LIST OF ANNEXES

Annex *Title* *Page*

5. Infrastructure and Associated Services

5-1 Total Aircraft Movements 77
5-2 Enplaned and Deplaned Passengers 78
5-3 Enplaned and Deplaned Cargo 79
5-4 Airports Capital Assistance Program Projects Approved in 1997 80
5-5a Percentage Change in Total Tonnage Handled by Ports Canada 81
5-5b Percentage Change in Total Tonnage Handled by Harbour Commissions 81
5-5c Percentage Change in Total Tonnage Handled by Transport Canada and Other Ports 82

8. Air

8-1 Status of Transborder Services by Carrier Nationality 123
8-2 Status of Transborder Air Services as of February 24, 1998 124
8-3 Status of International Air Services as of February 24, 1998 126

REPORT HIGHLIGHTS

The transportation sector was marked in 1997 by a strong economic performance, new legislative initiatives, overall improved financial performance of transportation carriers, and additions to enhance Canada's transportation system.

TRANSPORTATION AND THE ECONOMY

- The transportation sector benefited again in 1997 from a robust economy, a performance fueled to a large extent by a strong external trade. Activity in transportation increased by 5.4 per cent in 1997.
- Total annual spending on transportation in Canada is around $125 billion, including $83 billion on private auto sales, maintenance and fuel, and $35 billion on commercial freight and passenger transportation.
- Annual investment in transportation averages over $17 billion, accounting for about 19 per cent of total investment in the economy. Some 87 per cent of that amount is in road transportation equipment (including automobiles) and road infrastructure.
- Forty per cent of Canada's domestic production is exported, linking our growth to our success in the global economy.
- With the US as our major trading partner, almost two-thirds of our exports move by road as opposed to 26 per cent by rail. There is even more dependence on roads for our imports.
- Transportation is also important for domestic trade, particularly for provinces such as Prince Edward Island, New Brunswick, Nova Scotia and Manitoba that import more than 30 per cent of their gross domestic product (GDP) from other provinces. All provinces, with the exception of British Columbia and Newfoundland, export more than 20 per cent of their GDP to other provinces.
- In 1997, some 470,000 persons were directly employed in the transportation sector in Canada. Since 1992, transportation employment has increased by almost three per cent a year.
- The average annual salary in transportation in 1997 reached $37,239, about 17 per cent higher than the average in the economy as a whole.

- In 1997, the average Canadian household spent $6,655 on transportation, roughly 14 per cent of its budget and more than it spent on food.

Transportation and Regional Economies

- Both Eastern and Western Canada make greater use of for-hire carrier transportation compared to Central Canada. This is primarily due to the greater distance to and from markets, lower population density, higher dependence on interprovincial trade, and higher shares of primary commodity production in Eastern and Western Canada.
- British Columbia, being a transport hub for trade with the Pacific rim countries, exhibits a higher proportion of for-hire carrier transport than other provincial economies.
- The province with the highest level of total transport spending as a proportion of total provincial spending is British Columbia (20.1 per cent), but the Territories, with 21.4 per cent, are the jurisdiction with the highest level.

Government Spending on Transportation

- In 1996/97, total government spending, net of revenues earmarked to transportation, amounted to $16 billion broken down as follows: $2.7 billion by the federal government, $7.1 billion by provincial/territorial governments and $6.1 billion by municipal governments. The $16 billion total was down from the 1995/96 total of $17.2 billion. As a result of an overall reduction in subsidies, the federal portion dropped to $2.7 billion, from $3.3 billion in 1995/96.
- Transport Canada's cost-recovery initiatives amounted to $587 million in 1996/97 after peaking at almost $1.2 billion in 1995/96 when the Air Transportation Tax (ATT) was still credited to the departmental budget. In 1997/98, Transport Canada revenues are expected to drop to $224 million.
- Additional unassigned government revenues from transportation in 1996/97 amounted to $12.4 billion, including $4.0 billion in federal fuel taxes and $5.6 billion in provincial/territorial fuel taxes. Provincial/territorial licence fees amounted to $2.7 billion.

Infrastructure and Associated Services

Air Navigation System

- In its first year of operation in 1997, Nav Canada received approval for its proposed fee structure, which is being implemented in two stages: the first on March 1, 1998, and the second on November 1, 1998. The ATT is being eliminated to make way for these direct charges to users.

Airports

- Local airport authorities took over operations of local airports in Victoria, Winnipeg, Thunder Bay, Ottawa and Moncton in 1997. Currently more than 90 per cent of all passenger traffic in Canada passes through airports operated by local airport authorities.
- The Greater Toronto Airports Authority purchased Terminal 3 and selected a design consortium for the redevelopment of the other two terminals at Pearson airport. A new parallel north–south runway began operations in November.
- Vancouver International Airport Authority announced plans for a $114-million expansion.
- Ottawa's Macdonald-Cartier International Airport became the seventh Canadian airport with facilities for US customs and immigration pre-clearance for passengers on US-bound flights.
- The Calgary Airport Authority began a $28 million capital program, including improvements to vehicle parking, Canada customs space and aircraft parking.
- The Edmonton Regional Airport Authority began work on a terminal redevelopment program at the international airport.

Ports

- The Port of Vancouver officially opened its Deltaport Container Terminal in 1997, doubling the port's container handling capacity to 1.2 million Twenty-Foot Equivalent Units. The new facility can handle the largest container vessels currently in service and transfer containers to double-stack rail cars for immediate dispatch to Central Canada and the US Midwest.
- The federal government transferred the Port of Churchill to the Hudson Bay Port Company, an affiliate of OmniTRAX Inc., in September 1997. OmniTRAX also owns the Hudson Bay Railway, which acquired 1,300 kilometres of rail line between The Pas and Churchill previously owned by Canadian National.

CANADIAN COAST GUARD

- The Canadian Coast Guard (CCG) continued its efforts to reduce its expenditures and improve efficiency; it introduced in 1997 the Maintenance Dredging Services Tonnage Fee for the St. Lawrence Ship Canal.

RAIL

- In 1997, five shortline corporations which dominate Canada's shortline rail industry – Railtex, Iron Road, OmniTRAX, RaiLink, Genessee Rail-One – added over 3,000 kilometres of track to their networks, primarily as a result of transfers or leasing agreements with CN and CP Rail.

ROADS

- The Confederation Bridge between Prince Edward Island and New Brunswick was officially opened in June 1997. Also notable was the transfer of some segments of provincial roads to municipal responsibility in Alberta and Ontario.
- The first completely electronic toll highway – Highway 407 – opened for traffic in Ontario.

SAFETY

- The general level of safety in all modes improved considerably in 1997. The number of accidents, accident rates and the number of fatalities were generally lower than the previous year and/or the average of the previous five years.
- There were 352 **aviation** accidents in 1997, up slightly (three per cent) from 1996 but 11 per cent below the 1992–96 average. The rate of nine accidents per 100,000 hours flown represents a two per cent increase over 1996, but a decrease of 17 per cent from the 1992–96 average. The 76 fatalities indicated an eight per cent increase from 1996, but a 14 per cent reduction over the 1992–96 average.
- There were 528 **shipping** accidents in 1997, a 19-year low, down 12.5 per cent from 1996 and 27 per cent from the 1992–96 average; the number of fatalities was also 27 per cent lower than the 1992–96 average; and the accident rate at 3.9 per 1,000 vessel movements has remained relatively stable since 1994.
- There were 1,125 **railway** accidents in 1997, down 14 per cent from 1996 and three per cent below the 1992–96 average; nine accidents per million train-kilometres, down 17 per cent from 1996 and three per cent from the 1992–96 average; and 107 fatalities, the lowest since 1990, and 11 per cent below 1996 and the 1992–96 average.
- There were 661,000 **road** accidents in 1995, seven per cent below the 1990–94 average; 159,000 motor vehicle casualty collisions in 1996, five per cent below 1995 and seven per cent below the 1991–95 average; 3,082 persons were killed in road accidents in 1996, eight per cent below 1995 and 11 per cent below that of 1991–95 average; and the fatality rate in 1995 was 1.96 per 10,000 registered motor vehicles, compared to 2.17 in the United States.
- The annual cost of transportation fatalities, injuries and property damages (to road motor vehicles only) was estimated to be in the order of $15 billion, a figure that does not reflect damages to property from transportation accidents.
- The federal government expenditures were in the order of $315 million for implementation of various safety measures. The provincial government safety-related expenditures in 1997 were also in excess of $300 million. Expenditures by municipal governments toward railway/highway grade crossing improvements were $20 million annually. Their contributions for road safety improvements, while significant, are not captured in this report.

ENVIRONMENT

- The sustainability of the transportation sector received greater focus in 1997 with the consultative process of developing, and ultimately tabling in Parliament, Transport Canada's *Sustainable Development Strategy.*
- Another significant event was the Kyoto Protocol to the Framework Convention on Climate Change. Meeting Canada's target to reduce greenhouse gas emissions will require a broad-based response by all stakeholders in Canada's transportation system – by governments, by the private sector and by individuals – if sustainable reductions in transport emissions are to be achieved.
- In 1990, the transportation sector contributed about 26.5 per cent of total greenhouse gas emissions in Canada as measured in megatonnes of carbon dioxide equivalents. In 1995, transportation's portion was 26.4 per cent.

- Precursors to low level ozone (smog) such as nitrogen oxides and volatile organic compounds have declined substantially per vehicle-kilometre since the introduction of emission standards in the 1970s. Stricter vehicle emission standards will apply to 1998 model year vehicles. However, traffic growth since 1991 has caused total emissions to increase slightly. Transportation is responsible for between 40 and 50 per cent of smog.

AIR

- The financial health of the domestic air services market continued to improve in 1997, although marked by the cessation of jet aircraft operations by Kelowna Flightcraft on behalf of Greyhound Transportation Canada Ltd., and by Vistajet.
- 1997 marked the end of the two-year transition period for new US services to Vancouver and Montreal under the 1995 *Canada-US Air Agreement*, and the number of new services initiated since its signing has now reached 107.
- International services continued to expand and were marked by a more frequent use of code-sharing with foreign alliance partners, which allows Canadian carriers to have a presence in a vastly increased number of markets without having to provide their own aircraft.
- Pilot projects under way at Vancouver with "intransit pre-clearance" and "transit without visa" are designed to test procedures which will allow foreign passengers flying via Canada to the United States to bypass Canadian Customs and proceed directly to US inspection authorities, frequently with no need for a Canadian visa.
- International scheduled services to and from Montreal were for the most part relocated to Dorval, with charter and all-cargo services being assigned to Mirabel as a result of a decision by Les Aéroports de Montréal, which took effect in the fall of 1997.

MARINE

- The *Canada Marine Act* was re-introduced in Parliament during the fall session. The Bill will make it easier for major ports to operate in a commercial manner, allow the Minister to transfer the day-to-day management of Seaway operations to a users group, and provide for a review of pilotage.
- Amendments to the *Canada Shipping Act* (Bill S-4) will increase the amount of compensation available to claimants for maritime claims, including oil pollution damage.
- Marine Atlantic has seen a drastic reduction in the ferry services under its sphere of responsibility. The Confederation Bridge replaced the Borden, PEI – Cape Tormentine, N.B. ferry service; the Bay of Fundy and Yarmouth – Bar Harbour services were transferred to a private operator, Bay Ferries Ltd.; and control over Labrador's coastal marine service passed to the Government of Newfoundland.
- Canadian Pacific Ltd. moved into the ranks of the major international liner operators through the acquisition of US-based Lykes Bros. Steamship Co. and UK-headquartered Contship Containerlines Ltd.
- Despite a significant decline in both vessel numbers and capacity over the past decade, the Canadian registered merchant fleet continued to dominate Canada's domestic trade, carrying 98 per cent of the traffic. The Canadian fleet was also active in the transborder trades between Canada and the US, carrying 55 per cent of this traffic. However, on the deep-sea trade, the Canadian flag fleet carried less than one per cent of the traffic, with Canadian shippers relying on foreign-based carriers for most deep-sea movements.

RAIL

- In aggregate, rail freight traffic levels increased by about seven per cent during 1997, making the past year the strongest in railway history.
- 1997 saw a record number of lines transferred and new railways created.
- Severe weather conditions led to disruptions in rail transportation services to the West Coast in the early part of the year.
- These disruptions resulted in reduced volumes of grain and coal in particular during the first quarter as compared with previous years; however, volumes of these, and other commodities, rebounded quickly, exceeding previous years' levels – in some cases significantly – by the year-end.
- The disruptions to the grain handling system are currently under investigation by the Canadian Transportation Agency.

TRUCKING

- A review of the *Motor Vehicle Transport Act, 1987 (MVTA)*, is under way in conjunction with the provinces and stakeholders.
- Customs rules governing equipment usage were liberalized in both Canada and the US, improving the efficiency of carrier operations in both countries.
- Truck traffic and revenues continued to increase, particularly in transborder operations.
- 1997 was another year of structural changes for the trucking industries. Alliances between carriers, mergers and acquisitions of carriers were observed, all with the objective to expand or rationalize services. Partnerships between firms on each side of the Canadian border were again reported.
- The financial performance of the trucking industry in 1997 was positive, showing strong growth in revenues coupled with improved operating margins.

BUS

- The regulatory regime governing extra-provincial bus services is being examined as part of an overall legislative review of the *MVTA*.
- Structural changes in the industry included acquisition of Canada's largest bus company – Greyhound – by Laidlaw Inc.
- Scheduled intercity bus ridership continued to decline, while charter saw increased passenger traffic over the past year.

INTRODUCTION

The mandate of this second report was once again interpreted broadly.

The focus has been placed, as much as possible, on 1997 information.

This is the second annual report submitted by the Minister of Transport to Parliament on the state of transportation in Canada. The report covers the year 1997, within the limits of data availability. It responds to the requirements set out in section 52 of the *Canada Transportation Act*, which states that:

"Each year the Minister shall, before the end of May, lay before Parliament a report briefly reviewing the state of transportation in Canada in respect of the preceding year, including:

(a) the financial viability of each mode of transportation and its contribution to the Canadian economy and the development of the regions;

(b) the extent to which carriers and modes of transportation were provided resources, facilities and services at public expense;

(c) the extent to which carriers and modes of transportation received compensation, indirectly or directly, for the resources, facilities and services that were required to be provided as an imposed public duty; and

(d) any other transportation matters the Minister considers appropriate."

This mandate is interpreted in the broadest possible way, taking into account all significant aspects of the Canadian transportation system, pipelines being the only transportation activity not covered.

Structure of Report

The next two chapters of the report provide an overview of the importance of the transportation industry to the economy, both at the national and regional levels. This is followed by four chapters, which take a horizontal look at all modes, and deal respectively with government spending, infrastructure, safety and the environment. Five modal chapters – air, marine, rail, trucking and bus – complete the review of the state of transportation. In addition to pointing out the important legislative and regulatory changes introduced in 1997, these chapters present detailed information on the operations and finances of each mode.

Changes from 1996 Report

While the report follows a similar layout to that of its predecessor, there are some differences. Two important differences are the absence of separate chapters on private passenger vehicles and intermodal transport. In this report, the subject of private passenger vehicles is dealt with in the context of road transportation. Intermodal transport is more specifically addressed in three chapters of the report – Infrastructure, Marine and Rail. The chapters on safety and the environment have been moved closer to the front of the report, given their importance as broad policy objectives.

The first report on transportation in Canada discussed in detail the legislative and regulatory framework for each mode at the federal, provincial and municipal levels. Only the changes in legislation that occurred in the past year are reflected in this year's report. Also, the first edition highlighted many of the trends that have emerged in recent years throughout the modes. This served to set the stage for the examination of the state of transportation in the ensuing years.

Finally, every effort was made to focus on data from the preceding year in the coverage reported, data availability being the deciding factor in the end. When 1997 information was not available, the most recent information accessible was reported.

2

TRANSPORTATION AND THE ECONOMY

A solid performance of the Canadian economy, and a dynamic trade sector, increased both the level of activity and the relative importance of transportation.

This chapter begins with a comparison of the importance of the transportation sector in Canada with the sector's importance in other countries. Then it moves to major influences of recent years on transportation demand, examines general economic conditions in 1997, and assesses transportation's contribution to the economy in terms of the sector's gross domestic product, employment and spending. Finally, the chapter looks at linkages between transportation and trade.

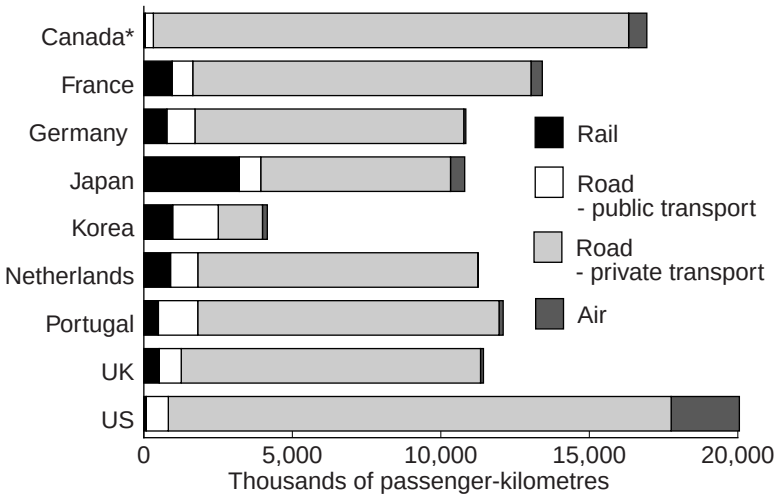
Canadians are very dependent on transportation. For most, transportation is key to doing business and for moving from place to place. For many others, transportation is employment.

Canada's size dictates that people and goods generally travel considerable distances to reach their destination. Per capita, Canada ranks second in passenger travel among major industrialized countries, far behind the US. Canada is significantly higher, (20 per cent), than Western Europe.

Over 90 per cent of all passenger travel is done by automobile in Canada, compared with 84 per cent for the US and just over 80 per cent for the other countries. Figure 2-1 illustrates domestic passenger travel in Canada.

In terms of freight transportation, the divergence is even greater. As shown in Figure 2-2, Canada's per capita tonne-kilometres is more than twice as high as in Western Europe, but almost 25 per cent lower than in the US.

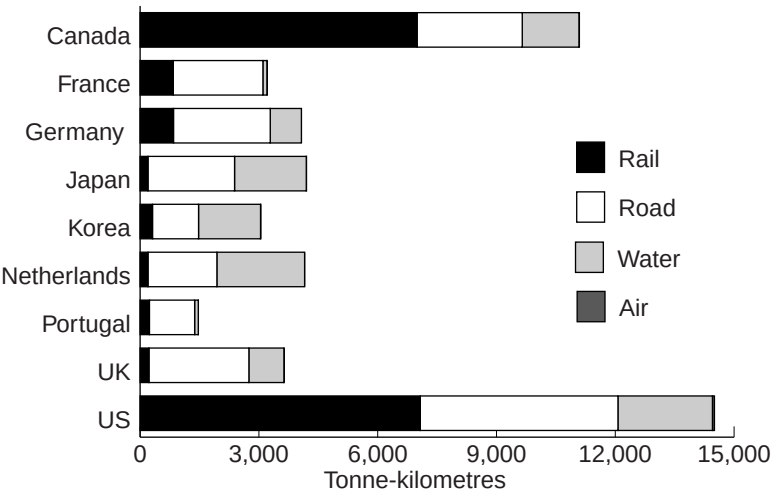
FIGURE 2-1
DOMESTIC PASSENGER TRAVEL
PER CAPITA, BY MODE
1995



* For Canada, passenger rail accounts for a small portion of total passenger travel.

Source: United Nations Organization; OECD; ECMT; ICAO

FIGURE 2-2
DOMESTIC FREIGHT TRANSPORTATION
PER CAPITA, BY MODE
1995



Note: For any one country, air freight accounts for less than three tenths of one per cent of all freight.

Source: United Nations Organization; OECD; ECMT; ICAO

Structural Changes and Transportation

Since the early 1960s, Canada's economy has experienced ongoing structural changes. These changes are evident at the aggregate and industrial levels, and include changes in transportation services. Figure 2-3 shows the relative importance of services and goods production over the last 16 years. Some traditional sectors – primary resources, manufacturing and construction – are losing ground to the service sector. The production of goods, which accounted for 35 per cent of total production in 1981, accounts for only 33 per cent now.

Whether they rank low or high on the scale of structural change, some industries within these aggregates are experiencing more structural changes than others. In the transportation sector, this trend can be witnessed in freight transportation services. While total freight transportation went up by 66 per cent since 1981, trucking increased by 109 per cent, marine transportation by only 13 per cent, and rail by 42 per cent. These changes indicate a shift away from rail and marine toward trucking.

Table 2-1 gives a brief overview of how the relative share of each transportation mode has changed over the last 16 years.

During this period, freight transportation has shifted significantly, with trucking making the most dramatic gains. There are two main reasons for this. First, the structural changes to the overall economy have resulted in a shift in goods production, which in turn means changing freight transportation needs. For example, the current trend is to keep inventories low,

and the "just-in-time" delivery system now in fashion is best suited to trucking. Second, transportation prices have had low increases, prompting shippers to use better quality services, such as door-to-door delivery, for which the truck mode is well equipped.

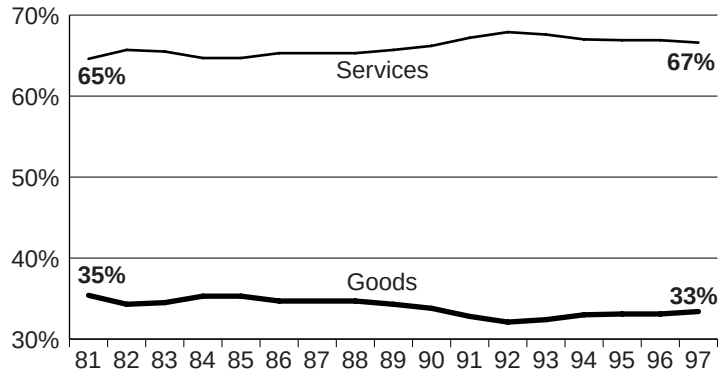
Figure 2-4 shows how, over the last 16 years, the three traditional goods-producing sectors of the economy – manufacturing, primary resources, and construction and utilities – have seen their relative importance fluctuate.

In 1997, goods production increased by 4.8 per cent, compared with 3.9 per cent for the economy. The sector regained the ground lost during the 1990 – 1991 recession, reaching about 33 per cent of total production in 1997. The service sector, lost slightly from the traditional sectors.

Equally relevant, the type of goods produced is shifting away from raw materials to finished or semi-finished products. The most significant gain observed in 1997 was in manufacturing, which rose by over six per cent, compared with the primary resources sector, which increased by less than three per cent.

Many industries make products for export, which means business for the transportation sector. For example, almost 76 per cent of non-electrical machinery, 89 per cent of electrical equipment and 84 per cent of transportation equipment are exported. Imports of commodities are also important in terms of domestic demand for transportation.

FIGURE 2-3
RELATIVE IMPORTANCE* OF GOODS AND SERVICES PRODUCTION
1961 – 1997



* As a % of total business production, based on 1986 dollars

Source: Statistics Canada, Cat. 15-001

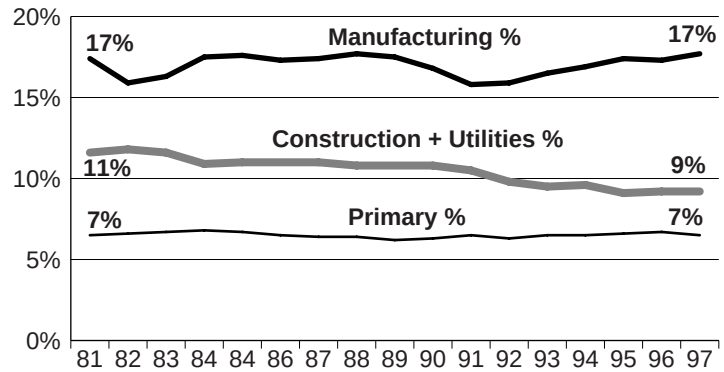
TABLE 2-1
MODAL DISTRIBUTION OF TRANSPORTATION
GROSS DOMESTIC PRODUCT (GDP)
1961 – 1997

(per cent)

	1981	*1991*	*1997*
Rail	15.8	16.7	18.3
Water	9.4	9.7	8.7
Truck	20.8	29.8	35.4
Air	16.3	13.2	14.5
Urban	17.7	10.3	6.8
Interurban	2.4	1.1	0.6
Other	17.6	19.3	15.8
Total	**100.0**	**100.0**	**100.0**

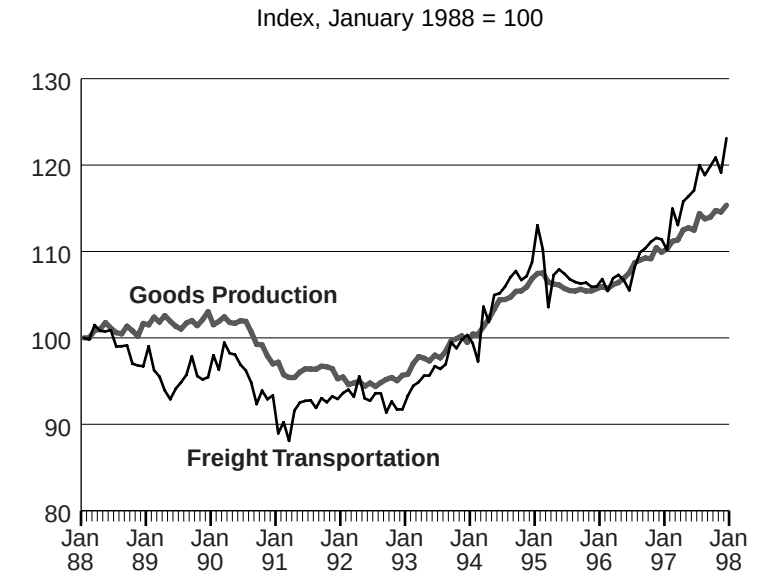
Source: Statistics Canada, Cat. 15-001

FIGURE 2-4
RELATIVE IMPORTANCE OF GOODS PRODUCING INDUSTRIES
1961 – 1997



Source: Statistics Canada, Cat. 15-001

FIGURE 2-5
GROSS DOMESTIC PRODUCT TRENDS
GOODS PRODUCTION VS. FREIGHT TRANSPORTATION
1988 – 1997



Note: Seasonally adjusted monthly GDP
Source: Statistics Canada, Cat. 15-001

TABLE 2-2
GROSS DOMESTIC PRODUCT AND PRICES

	1997 (Level)	*1996 – 1997 (Real % change)*	*1991 – 1997 (AAPC)*[1]
GDP (billions of dollars)			
Total	**691**	**3.9**	**2.4**
Goods Industries	231	4.8	2.7
Services Industries	460	3.4	2.2
Transport	**25.4**	**5.4**	**2.5**
Freight	15.8	8.3	4.2
Air	3.7	5.9	4.0
Urban	1.7	-0.7	-4.4
Other[2]	4.2	-2.4	-1.1
Population (millions)	30.3	1.1	1.2
Prices - Total economy[3]	**106.6**	**0.6**	**1.4**
Transport[4]	**97.7**	**1.4**	**-0.3**

Note: GDP is at factor cost and in billions of 1992 dollars. Freight includes rail, truck and water transport. All per cent changes are in real terms.
1 AAPC = Average annual per cent change
2 Includes taxis, interurban and other transportation
3 GDP prices, 1992=100.0
4 Transport Canada estimates

Source: Transport Canada; Statistics Canada, Cat. 13-001; 13-531; 15-001; 62-001 and 91-002

Because it touches almost every economic transaction, transportation is vulnerable to variations in the business cycle, as well as to long-term structural changes. The transportation sector's performance and prospects are related to those of the economy.

With its derived demand, transportation grows when the economy grows, and likewise slows down with the economy during downturns.

Since the 1970s, however, growth in the economy has differed from that in the transportation sector for two reasons: the increased relative importance of services; and greater productivity in the transportation sector.

Figure 2-5 plots the growth cycles of goods production and freight transportation, revealing the periods when they are synchronized and when they are not.

The transportation sector is tied more closely to the production of goods than to total economic activity, with the movement of goods accounting for about two thirds of all transportation activity. For its part, goods production is more affected by business cycles than is the service sector. It follows, therefore, that freight transportation changes are more closely related to changes in goods production than to total economic activity.

1997 – A Good Year for Transportation

Gross Domestic Product

Gross Domestic Product (GDP), the total value of the goods produced and the services provided in a country in one year, is a key element in understanding the impact of any one factor on the economy. By comparing the overall economy's GDP to the transportation sector's GDP, it becomes easier to understand transportation's role in and contribution to Canada's economy.

Canada's GDP increased by 3.9 per cent in 1997, up dramatically from 1.6 per cent in 1996. The total GDP increase resulted from a 4.4 per cent rise in domestic demand and a 8.6 per cent increase in exports. This surge in domestic demand is the strongest since 1988.

Just as Canada's GDP rose in 1997, so did transportation's GDP – by a significantly higher figure of 5.4 per cent. In fact, during the recovery and expansion period of 1993 to 1997, transportation services regularly grew faster than total economic activity, due largely to the strong impetus of trade in Canada's growth.

Freight modes increased by 8.3 per cent, spread across rail and truck modes. Passenger transportation increased only in the air sector, by 5.9 per cent. Urban transportation, however, continued to post negative growth rates, maintaining a downward trend that began in the early 1980s.

Table 2-2 shows Canada's GDP and the transportation sector's GDP in 1997, as well as giving the change between 1996 and 1997 and the average annual per cent change over the previous six years, 1991 to 1997.

Trade Activity

Merchandise exports were up by 9.1 per cent in 1997, with strong showings in manufactured goods, crude oil and natural gas. Among the manufactured goods, the most notable increases were in paper and allied products; chemicals; and machinery and equipment, including office equipment.

Fueled by a strong domestic demand, merchandise imports soared by almost 15.9 per cent. Imports of machinery and equipment, primary metals, and petroleum and coal products increased significantly, followed by automobiles and automobile parts. Agricultural product import increases were below average.

Expenditures

There were a number of notable showings on the expenditure front. Consumer spending was up by 3.9 per cent. Likewise, spending on commercial transportation services by consumers totaled two per cent more. Total transportation spending (including auto purchases and related expenditures) was up three per cent. Private fixed investment rose by 14.5 per cent, with its largest component, machinery and equipment, soaring by close to 20 per cent.

Non-residential construction, which influences freight transportation activity, posted a hefty 9.1 per cent increase in 1997, the highest in almost a decade. Residential construction, also an influencing factor, enjoyed a strong growth rate for the second consecutive year.

In the overall economy, lower interest rates meant lower interest payments on corporate debt, which saw profits rise by 17 per cent in 1997. Transportation benefited in particular, being a sector where capital/output ratio is high and debt servicing is important.

With inflation at 1.6 per cent, transportation prices dropped by 0.5 per cent. In general, transportation prices have shown almost no increase since 1991.

The lower Canadian dollar helped exports growth, also good news for the transportation sector. The increase in employment and lower interest rates helped consumers finance increased spending, including transportation spending.

Transportation's Contribution to the Economy

By moving people and goods, and by generating profits and paying salaries, transportation contributes to the economic well-being of Canadians. Apart from its strategic role, the size of the transportation service industry in terms of GDP is significant. This sector is larger than the agriculture, fishing and trapping, logging and forestry industries combined.

Transportation accounted for 3.7 per cent of total GDP in 1997. Figure 2-6 charts how transportation's GDP has declined almost continuously over the last 13 years.

However, strong economic growth in 1997 pulled transportation activity to a higher level. Compared to 1996, transportation GDP in 1997 increased by 5.4 per cent in real

FIGURE 2-6
TRANSPORTATION SHARE OF TOTAL GDP
1961 – 1997

Source: Statistics Canada, Cat. 15-001 and 15-201

TABLE 2-3
TRANSPORTATION GROSS DOMESTIC PRODUCT

	Truck	*Rail*	*Air*	*Marine*	*Other**	*Total*
Transport GDP (Billions 92 $)	9.0	4.6	3.7	2.2	5.9	**25.4**
Per cent change – 97/96	9.3	9.0	5.9	3.2	-1.7	**5.4**

* Includes urban transit, taxis, inter-urban and other modes.

Source: Statistics Canada, Cat. 13-001.

TABLE 2-4
TRANSPORTATION[1] SHARE OF TOTAL GDP
FOR SELECTED COUNTRIES
(Based on current values of national currency)

	New Zealand	*Australia*	*Italy*	*France*	*US*	*Germany*	***Canada***
1981	5.2	5.1	4.1	4.0	3.7	3.6	**4.3**
1987	5.1	5.0	4.1	3.8	3.4	3.3	**4.1**
1991	4.9	4.9	4.3	3.7	3.2	3.3	**3.8**
1996	4.8	4.7	4.3	3.5	3.0	3.1	**3.2**

1. Includes the storage industry which, in 1996 in Canada, accounted for 1/10 of 1 per cent.

Source: OECD National Accounts, 1981 – 1996

terms. On a modal basis, truck and rail have shown the largest increase with 9.3 and 9.0 per cent respectively, followed by air and marine with 5.9 and 3.2 per cent. Table 2-3 shows how transportation's GDP has improved.

In many OECD countries, including Canada, the transportation sector has been growing at a slower rate than total GDP. Overall, the ratio of transportation GDP to total GDP has fallen, due to higher productivity and lower prices. Wages, profits, interest payments and rent in transportation have increased at a slower rate than the average increase in the economy. This has translated into a relative decline in the overall cost of transportation, compared with costs in the economy. Consequently, transportation's share of the economy has declined.

Table 2-4 compares how much transportation has contributed to the overall economy, or the ratio of transportation GDP to total GDP, for Canada and selected major industrialized countries over the last 15 years.

TRANSPORTATION AS AN EMPLOYER

In 1997, transportation employed approximately 472,000 people, with twice as many people in road than in all other modes combined. At least that many more people are also indirectly dependent on the transportation sector for employment. In fact, transportation accounts for 3.4 per cent of all jobs in Canada. Trucking is the biggest employer, with 158,000 jobs, and marine is the smallest, with 31,000.

TABLE 2-5
TRANSPORTATION EMPLOYMENT BY MODE
1992 and 1997

(Thousands of employees)

Mode	*1992*	*1997*	*1992-97* [1]
Truck	113	158	6.9
Air	59	71	3.8
Rail	60	50	-3.6
Water	23	31	6.2
Urban	79	84	1.2
Other [2]	75	78	0.8
Total	**409**	**472**	**2.9**

1. Average annual per cent change
2. Includes taxis, inter-urban and other modes

Source: Statistics Canada, Cat. 72-002; Transport Canada

TABLE 2-6
INVESTMENT IN TRANSPORTATION
1992 – 1995

(Millions of current dollars)

	1992	*1993*	*1994*	*1995*	*Average*	*%*
Total investment	**85,045**	**85,803**	**93,356**	**96,353**	**90,139**	**100.0**
Government construction	12,691	12,325	13,559	14,456	13,258	14.7
Government machinery	3,415	3,491	3,508	3,332	3,437	3.8
Business construction	29,734	30,162	32,962	32,213	31,268	34.7
Business machinery and equipment	39,205	39,825	43,327	46,352	42,177	46.8
Total transport	**14,670**	**15,155**	**18,754**	**19,716**	**17,074**	**18.9**
Equipment	9,199	9,651	12,342	12,876	11,017	12.2
Infrastructure	5,471	5,504	6,412	6,840	6,057	6.7
Road	**12,401**	**13,321**	**16,375**	**17,454**	**14,888**	**16.5**
Equipment (e.g. cars)	7,705	8,493	11,033	11,632	9,716	10.8
Roads and bridges	4,696	4,828	5,342	5,822	5,172	5.7
Rail	**583**	**761**	**866**	**845**	**764**	**0.8**
Equipment (e.g. locomotives)	288	401	379	356	356	0.4
Rail Track and roadbeds	295	360	487	489	408	0.5
Marine	**722**	**510**	**678**	**719**	**657**	**0.7**
Equipment (e.g. ships)	308	267	186	274	259	0.3
Marine engineering construction	414	243	492	445	399	0.4
Air	**964**	**563**	**835**	**698**	**765**	**0.8**
Equipment (e.g. aircraft)	898	490	744	614	687	0.8
Runways including lighting	66	73	91	84	79	0.1

Source: Statistics Canada, Cat. 61-223

TABLE 2-7
TOTAL TRANSPORT DEMAND
1991 and 1996

(Millions of current dollars)

	1991		1996		91-96
	Billions of $	%Share	Billions of $	%Share	AA%C*
(A) Final domestic demand	**693.1**	**100.0**	**788.1**	**100.0**	**2.6**
Aggregate domestic spending on transportation					
(B) Total (Items 1+2+3)	**108.5**	**15.7**	**134.2**	**17.0**	**4.3**
(C) Total less indirect taxes and fees (Items 1+2+5)	**98.5**	**14.2**	**122.8**	**15.6**	**4.5**
1) For-hire carriers	**26.9**	**3.9**	**35.3**	**4.5**	**5.6**
Air	7.8	1.1	9.7	1.2	4.3
Rail	5.3	0.8	6.2	0.8	3.2
Water	2.3	0.3	4.0	0.5	12.1
Truck	8.0	1.2	12.0	1.5	8.5
Urban transit	1.4	0.2	1.2	0.2	-2.7
Other	2.1	0.3	2.2	0.3	0.8
2) Private transport sales	**64.4**	**9.3**	**83.1**	**10.5**	**5.2**
Retail vehicle dealers (new and used)	36.9	5.3	52.2	6.5	7.2
Gasoline service stations	14.0	2.0	16.1	2.0	2.9
Retail vehicle parts and repair shops	10.8	1.6	12.1	1.5	2.4
Vehicle rental agencies	2.8	0.4	2.6	0.3	-1.2
3) Government expenditures	**17.1**	**2.5**	**15.8**	**2.0**	**-1.6**
Road construction and maintenance	10.9	1.6	11.0	1.4	0.2
Urban transit subsidies	2.4	0.3	2.5	0.3	1.5
Other net transfers and subsidies	3.9	0.6	2.3	0.3	-10.1
4) Total indirect taxes and fees	**10.0**	**1.4**	**11.4**	**1.4**	**2.6**
Fuel taxes	7.7	1.1	8.8	1.1	2.6
Licence fees	2.3	0.3	2.6	0.3	2.5
5) Government expenses less indirect taxes and fees	**7.1**	**1.0**	**4.4**	**0.6**	**-9.0**

AA%C: Average annual per cent change

Source: Statistics Canada, Special tabulation from the National Accounts and Environment Division; Several annual reports of transportation companies; Transport Canada

Since 1992, changes in the number of jobs in transportation have varied greatly between the modes. Total employment increased by 63,000 jobs. The largest increase, in both relative and absolute terms since 1992, occurred in trucking – an increase of 45,000 jobs. Air employment increased by 12,000 and water by 8,000. Streamlining of rail operations has cut 10,000 jobs over the last five years.

Table 2-5 displays the growth and decline in employment in the transportation sector, mode by mode.

INVESTMENT

Investment in transportation includes government spending on transportation infrastructure, such as building roads; and business and government spending on machinery and equipment, such as cars and trucks. In transportation, investment usually occurs at irregular intervals and involves large sums of money.

From 1992 to 1995, transportation investment accounted for 18.9 per cent of total investment in the economy in an average year, with equipment accounting for 12.2 per cent and infrastructure for 6.7 per cent. Significantly, road dominates investment in transportation, accounting for 16.5 of the 18.9 per cent, while all other modes accounted for less than one per cent each. Table 2-6 compares investment in transportation to investment in the economy (less residential construction, which is considered a non-productive investment).

TRANSPORTATION DEMAND

In 1996, the domestic demand for transportation represented 17 per cent of Canadians' total domestic demand, an increase from the 15.7 per cent in 1991, reflecting an annual growth rate of 4.5 per cent (Table 2-7). This rate exceeded the growth rate for overall demand, which explains transportation's increasing share of total domestic demand. If total indirect taxes and fees are subtracted from government expenditures, aggregate domestic spending on transportation in 1996 would represent 15.6 per cent of total domestic demand, compared to 14.2 per cent in 1991.

Domestic demand for transportation is composed of many segments, the largest being private transportation sales, which accounted for 10.5 per cent of total domestic demand in 1996. The largest component of private transportation sales – retail vehicle sales – accounted for 6.5 per cent of overall demand, while the other components – gasoline service stations, retail vehicle parts and repairs, and rental agencies – accounted for two, 1.5 and 0.3 per cent, respectively.

The second largest segment of domestic demand in 1996 was for-hire carriers, representing 4.5 per cent of overall demand. Trucking was the most significant sub-segment, at 1.5 per cent, followed by air at 1.2 per cent, while all other modes were less than one per cent each. Except for rental agencies, the components of private transportation sales were larger than or equal to any individual mode in the for-hire carriers group.

The demand for urban transit is declining steadily, reflecting the ongoing trend of using private vehicles.

TABLE 2-8
AVERAGE ANNUAL SPENDING ON TRANSPORT, PER HOUSEHOLD
1997

Item	*$/Household*	*Percentage*
Vehicle purchase	**3,071**	**46.1**
New cars and trucks	2,178	32.7
Used cars and trucks	602	9.0
Bicycles and motorcycles	207	3.1
Boats, aircraft	84	1.3
Fuel	**1,297**	**19.5**
Insurance	**300**	**4.5**
Other vehicle operating expenses	**830**	**12.5**
Repairs and maintenance	439	6.6
Parts and accessories	391	5.9
Other	**320**	**4.8**
Motor vehicle rental/lease	64	1.0
Parking	61	0.9
Driving lessons, licence fees	195	2.9
Urban public transportation	**168**	**2.5**
Transit	129	1.9
Taxi	39	0.6
Intercity public transportation	**669**	**10.1**
Air	577	8.7
Rail	14	0.2
Intercity bus	52	0.8
Ferry and water transportation	26	0.4
Total	**$6,655**	**100.0**

Source: Statistics Canada, Special tabulation from the National Accounts and Environment Division; Transport Canada

Government accounted for the smallest segment of domestic demand for transportation, at two per cent of total domestic demand in 1996. The largest sub-segments were road construction and maintenance, at 1.4 per cent, with urban transit subsidies and other subsidies and administration at 0.3 per cent each.

HOUSEHOLD SPENDING ON TRANSPORTATION

The dependence of the average Canadian consumer on transportation is another indicator of the sector's importance. In 1997, the average household spent 15.2 per cent of its budget on transportation, of which over 80 per cent was put towards buying and using an automobile. The average Canadian household also spent 12.6 per cent of its transportation budget on public transportation. Air dominated this spending, accounting for 68.9 per cent of the budget. Table 2-8 itemizes the transportation budget for the average household, including the item purchased, the cost, and what percentage of the total budget the item accounts for.

TRANSPORTATION AND TRADE

The transportation system plays a critical role in Canada's trade, both domestically and internationally. As

TABLE 2-9
INTERPROVINCIAL AND INTERNATIONAL TRADE FLOWS OF TOTAL GOODS
1989 – 1996

(1988=100)

Year	Intra-Regional	Inter-Regional	Exports to US	Exports to ROW	Imports from US	Imports from ROW	Total flows	Domestic flows	Total production	Total demand
1989	107	105	101	107	104	110	106	107	106	107
1990	107	98	108	99	103	115	106	105	105	106
1991	99	88	106	86	102	116	100	97	98	99
1992	96	86	121	84	113	123	103	94	99	100
1993	99	83	146	84	134	131	111	96	105	106
1994	106	84	176	98	162	145	124	102	116	116
1995	109	88	200	131	178	161	135	105	125	122
1996	111	95	214	133	185	167	140	108	130	127

ROW: Rest of the World

Source: Statistics Canada; Transport Canada

TABLE 2-10
INTERPROVINCIAL AND INTERNATIONAL TRADE FLOWS OF TOTAL GOODS
1988 – 1996

Year	Intra-Regional	Inter-Regional	Exports to US	Exports to ROW	Imports from US	Imports from ROW	Total	Total Trade Balance	Trade Balance with US	Trade Balance with ROW	Total Exports	Total Imports
1988	46.8	11.3	15.2	5.7	13.1	8.0	100	-0.3	2.1	-2.3	20.8	21.1
1989	47.3	11.2	14.5	5.7	12.9	8.3	100	-0.9	1.7	-2.6	20.3	21.2
1990	47.3	10.5	15.5	5.3	12.8	8.7	100	-0.7	2.7	-3.4	20.8	21.4
1991	46.4	10.0	16.1	4.9	13.3	9.3	100	-1.7	2.8	-4.4	21.0	22.6
1992	43.8	9.5	18.0	4.6	14.5	9.6	100	-1.5	3.5	-5.0	22.6	24.1
1993	41.9	8.5	20.0	4.3	15.9	9.4	100	-1.0	4.1	-5.1	24.3	25.3
1994	39.9	7.6	21.6	4.5	17.1	9.3	100	-0.4	4.5	-4.8	26.1	26.4
1995	37.7	7.4	22.5	5.5	17.3	9.6	100	1.2	5.2	-4.0	28.1	26.9
1996	37.1	7.6	23.2	5.4	17.2	9.5	100	1.8	5.9	-4.2	28.5	26.7

ROW: Rest of the World

Source: Statistics Canada; Transport Canada

TABLE 2-11
SHARE OF TRADE FLOWS IN TOTAL PRODUCTION OF GOODS
1988 – 1996

(In per cent of total value of production)

Year	Intra-Regional	Inter-Regional	Exports to US	Exports to ROW	Total
1988	59.2	14.3	19.2	7.2	100
1989	60.0	14.3	18.5	7.3	100
1990	60.2	13.3	19.7	6.7	100
1991	59.9	12.9	20.8	6.3	100
1992	57.7	12.5	23.7	6.1	100
1993	56.1	11.4	26.7	5.7	100
1994	54.2	10.4	29.3	6.1	100
1995	51.6	10.1	30.8	7.5	100
1996	50.6	10.4	31.6	7.3	100

ROW: Rest of the World

Source: Statistics Canada; Transport Canada

TABLE 2-12
CANADIAN MERCHANDISE EXPORTS BY COUNTRY
1988 – 1997

(Billions of current dollars)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
US	100.9	101.6	111.6	109.7	125.7	150.7	184.2	209.9	223.5	244.9
Japan	8.8	8.8	8.2	7.2	7.5	8.5	9.7	12.1	11.2	10.9
Mexico	8.5	0.6	0.7	0.6	0.8	0.8	1.1	1.1	1.3	1.3
Other APEC*	8.4	7.7	7.8	8.4	8.1	8.0	10.2	14.3	13.2	13.2
European Union	11.9	12.5	12.8	12.2	12.2	11.5	12.5	16.6	15.7	15.0
Other	8.0	7.5	7.9	7.9	8.5	8.0	8.8	10.3	11.0	11.6
TOTAL	**138.5**	**138.7**	**149.0**	**146.0**	**162.8**	**187.5**	**226.5**	**264.3**	**275.9**	**296.9**

* Note: Other Asia Pacific Economic Cooperation forum includes Australia, Brunei, Chili, China, Hong Kong, Indonesia, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Singapore, Chinese Taipei, Thailand and Peru (Canada, the US, Mexico and Japan are also members of APEC).

Source: Statistics Canada, Cat. 65-202, 65-004; 1997 is an estimate

TABLE 2-13
CANADIAN MERCHANDISE IMPORTS BY COUNTRY
1988 – 1997

(Billions of current dollars)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
US	86.0	88.1	87.9	86.4	96.5	113.8	137.3	150.8	157.5	183.4
Japan	9.3	9.6	9.5	10.3	10.8	10.7	11.4	12.1	10.4	12.5
Mexico	1.3	1.7	1.7	2.6	2.8	3.7	4.5	5.4	6.0	7.0
Other APEC*	9.3	9.9	9.8	10.3	11.8	14.0	16.4	18.9	18.7	21.7
European Union	17.6	16.6	17.3	16.0	15.8	16.3	19.6	22.6	22.7	26.8
Other	7.7	9.3	10.0	9.9	10.3	11.5	13.5	15.8	17.8	20.1
TOTAL	**131.2**	**135.2**	**136.2**	**135.5**	**148.0**	**170.0**	**202.7**	**225.6**	**233.1**	**271.5**

* Note: Other Asia Pacific Economic Cooperation forum includes Australia, Brunei, Chili, China, Hong Kong, Indonesia, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Singapore, Chinese Taipei, Thailand and Peru (Canada, the US, Mexico and Japan are also members of APEC).

Source: Statistics Canada, Cat. 65-203, 65-001; 1997 is an estimate

an open economy, Canada relies on transportation to get goods to foreign markets.

Transportation is also important for domestic trade. In addition to trade within each province, trade between provinces is vital to regional economies. Each province is unique in its economic makeup, with its own specific industrial structure. Where one may be dominated by natural resources, the other may be dominated by specific manufacturing activities, making transportation a crucial link.

In recent years, the flow of commodities has altered significantly. For the purposes of comparison, it is useful to look at domestic trade flows versus international trade flows. Total flows increased by 40 per cent between 1988 and 1996. During the same period, the total output of goods (intra-regional and inter-regional flows plus exports) increased by 30 per cent, while domestic demand (intra-regional and inter-regional flows plus imports) increased by 27 per cent.

Domestic flows saw an increase of eight per cent between 1988 and 1996, the result of an 11 per cent increase in intra-regional traffic and a five per cent decrease in inter-regional movements of goods. Clearly, domestic transportation activities have not benefited from the increases registered in domestic production and demand. The gains have come mainly from international trade. Table 2-9 shows the flow of trade between 1989 and 1996.

TABLE 2-14
SHARE OF CANADIAN MERCHANDISE TRADE*
1988 and 1997

(In per cent)

	Exports		Imports	
	1988	1997	1988	1997
US	72.9	82.5	65.6	67.5
Japan	6.4	3.7	7.1	4.6
Mexico	0.4	0.4	1.3	2.6
Other APEC*	5.6	4.4	7.3	8.0
European Union	8.6	5.1	12.4	9.9
Others	6.1	3.9	6.3	7.4
Total	100.0	100.0	100.0	100.0

* Note: Other Asia Pacific Economic Cooperation forum includes Australia, Brunei, Chili, China, Hong Kong, Indonesia, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Singapore, Chinese Taipei, Thailand and Peru (Canada, the US, Mexico and Japan are also members of APEC).

Source: Statistics Canada, Cat. 65-202 and 65-203

TABLE 2-15
CANADIAN EXPORTS AND IMPORTS BY TRANSPORT MODE
1996

		Road	Rail	Water	Air	Other	Total
Exports*	($B)	125.2	50.7	43.8	15.8	24.0	259.4
	(%)	48.3	19.5	16.9	6.1	9.3	100.0
Imports	($B)	145.3	16.6	38.5	29.8	2.9	233.1
	(%)	62.3	7.1	16.5	12.8	1.2	100.0

* Does not include re-exports. At this detailed level, data for 1997 not yet available.

Source: Statistics Canada, Cat. 65-202 and 65-203

Since 1988, Canada's exports of goods to the US have increased by 114 per cent, while exports to the rest of the world have increased by 33 per cent. Similarly, Canada's imports of goods from the US have risen by 85 per cent, while imports from the rest of the world have increased by 67 per cent.

Canada's trade traffic with the US is the most significant. In 1988, Canada's export business to the US represented 15 per cent of all goods moved in Canada – today, that figure is at 23 per cent. Similarly, our import business from the US has risen from 13 to 17 per cent of total traffic. Table 2-10 illustrates these trade levels. Between 1988 and 1996, Canada moved fewer goods within regions, and the share of intra-regional trade fell from 47 to 37 per cent of total trade activity. Likewise, the share of trade movements between regions also declined, from eleven to eight per cent of the total.

Relative importance of trade can be measured in terms of domestic production, that is, domestic flows plus exports to the US and the rest of the world. The share of intra-regional trade dropped from 59 to 51 per cent of Canadian production of goods, while inter-regional traffic fell from 14 to ten per cent of production. While overseas exports maintained their share at seven per cent, US exports rose from 19 to 32 per cent. Table 2-11 shows these traffic shares of total output.

Canada exports close to 40 per cent of what it produces, and imports slightly less than it exports. Over the past decade, these proportions have almost doubled, which demonstrates that growth of the Canadian economy is directly related to our participation in the global economy.

Since 1988, total exports have increased by 8.8 per cent per year in current dollars. Exports to the US more than doubled. Table 2-12 illustrates these changes in Canada's exports.

During the same period, imports grew at 8.4 per cent per year. Notably, imports from countries other than the US, the European Economic Community and Japan more than doubled. Table 2-13 illustrates these changes in Canada's imports.

The US is by far Canada's major trading partner. Trade with the US features access to the world's largest market. For this trade, shippers, receivers and business people can benefit from the two countries' increasingly integrated transportation systems.

In 1997, the US alone received 83 per cent of Canada's merchandise exports, compared to 73 per cent just ten years earlier. Over the same period, the share of Canadian imports from Europe and Japan dropped, benefiting the US and the rest of the world. In 1997, over two thirds of our imported goods came from the US. Table 2-14 charts Canada's merchandise trade.

Almost half of Canada's exports were shipped by road. Rail accounts for 20 per cent, followed by water at 17 per cent and air at six per cent. For imports, road is by far the most used method of shipping, at 62 per cent, followed

by water and air with 17 and 13 per cent respectively. Table 2-15 shows by which mode Canada's trade was moved.

For exports, transportation equipment is the largest commodity group. Within that group, automobiles are the single most important export good, followed by fabricated materials and electrical equipment. Most of the goods were shipped by road, although rail moved about 26 per cent, mostly transportation equipment and fabricated materials. Table 2-16 shows Canada's exports to the US and Mexico by major commodity grouping and mode.

For imports, transportation equipment is again the largest commodity grouping at 32 per cent. Almost 80 per cent of imports enter Canada by road and less than ten per cent by rail. Table 2-17 shows Canada's imports from the US and Mexico by major commodity grouping and mode.

The two largest provinces, Ontario and Quebec, dominate provincial trade with our NAFTA partners, the US and Mexico, and account for almost 75 per cent of exports and 83 per cent of imports. Because foreign trade is so critical to Canada's economic growth, an efficient, affordable transportation system is essential to help Canada compete globally. In fact, without its transportation system, Canada would not have undergone the growth it has experienced in recent years. Table 2-18 shows Canada's merchandise exports to and imports from the US and Mexico by province in 1996.

TABLE 2-16
CANADA'S MERCHANDISE EXPORTS TO THE US AND MEXICO BY MAJOR COMMODITY GROUPING AND BY MODE
1996

	Billions of current dollars	*Per cent total Exports*	*Per cent moved by Road*	*Per cent moved by Rail*
Live animals	**1.9**	0.9	99.8	0.0
Crude materials	**13.7**	6.8	72.4	12.1
Fabricated materials	**62.7**	31.0	55.8	34.6
End products	**9.8**	4.9	92.7	2.2
Transportation equipment	**70.4**	34.8	57.2	39.5
Electric equipment	**23.6**	11.7	80.2	0.7
Other	**20.0**	9.9	87.7	2.0
Total	**202.1**	100.0	65.6	25.7

Note: Based on exports to the US and Mexico. Excludes electricity and pipelines. At this detailed level, data for 1997 not yet available.

Source: Statistics Canada, Cat. 65-202 and 65-203

TABLE 2-17
CANADA'S MERCHANDISE IMPORTS FROM THE US AND MEXICO BY MAJOR COMMODITY GROUPING AND BY MODE
1996

	Billions of current dollars	*Per cent total Imports*	*Per cent moved by Road*	*Per cent moved by Rail*
Live animals	0**.1**	0.1	94.4	0.0
Crude materials	**13.3**	8.2	80.1	9.4
Fabricated materials	**31.9**	19.7	79.7	12.3
End products	**14.0**	8.6	92.5	1.9
Transportation equipment	**52.2**	32.1	76.4	18.7
Electric equipment	**32.9**	20.3	74.3	1.0
Other	**17.9**	11.0	89.0	0.7
Total	**162.3**	100.0	79.7	9.6

Note: Based on imports from the US and Mexico. Excludes electricity and pipelines. At this detailed level, data for 1997 not yet available.

Source: Statistics Canada, Cat. 65-202 and 65-203

TABLE 2-18
CANADA'S TRADE WITH THE US AND MEXICO BY PROVINCE, 1996

(Billions of current dollars)

		Atlantic	*Quebec*	*Ontario*	*Prairies*	*BC**	*Total*
Exports from	($B)	8.4	39.9	127.8	35.0	14.5	225.6
	(%)	3.7	17.7	56.7	15.5	6.5	100.0
Imports to	($B)	2.1	17.2	118.8	14.7	11.2	164.0
	(%)	1.3	10.5	72.7	9.0	6.5	100.0

Note: Based on trade between Canada and the US and Mexico.
* Includes Territories. At this detailed level, data for 1997 not yet available.

Source: Statistics Canada, Cat. 65-202 and 65-203

INTERNATIONAL TRANSPORTATION INITIATIVES

Canada is one of 18 member economies of the Asia Pacific Economic Co-operation (APEC) Forum, formed in 1989 to promote open trade, investment and technical co-operation in the Asia Pacific region. While it is not a negotiating forum, APEC supports the work of the World Trade Organization. A unique aspect of APEC is its emphasis on private sector participation.

For Canada, 1997 was a banner year. In November, Canada chaired the APEC Forum in Vancouver, British Columbia. In addition to hosting the Trade and Foreign Ministers' Meeting and the APEC Leaders' Meeting, Canada hosted five sectoral Ministerial Meetings, including one on transportation.

Canada is active in the APEC Transportation Working Group. This group supports regional economic growth by promoting an effective, integrated region-wide transportation system. In June 1997, Canada hosted the second APEC Transportation Ministerial in Victoria, British Columbia. Seventeen APEC partners participated, sending 500 official delegates, including some 180 senior business and industry representatives.

APEC Initiatives Completed in 1997

At the June meeting, the collective Ministers of Transport accepted the *Report of the Group of Experts on Aviation Safety and Assistance* (GEASA), including the civil aviation safety recommendations. The Ministers also signed the Declaration of Principles, which supports the harmonization of Civil Aviation Safety Rules with International Civil Aviation Organization (ICAO) standards. The APEC region's unprecedented growth and the globalization of air transportation may lead to civil aviation safety issues, which the GEASA report addresses. With Canada taking the lead for its development, the GEASA report was based on a survey, review and prioritization of safety issues. It includes specific recommendations related to air travel safety in all APEC economies.

In addition, the Ministers endorsed the Joint Policy Statement on Satellite Navigation and Communications Systems, which calls for a series of co-operative actions to implement communications systems, and establishes an Advisory Committee to monitor those actions. Spearheaded by Canada, the policy statement grew out of a comprehensive study of integrated satellite-based navigation and communication systems, in order to facilitate their implementation in both the air and marine modes within the APEC region. A complement to the work of the ICAO and International Marine Organization (IMO), the study consisted of a technology review, an inventory of plans and issues, an economic assessment and policy recommendations.

The Australian-led Model Mutual Recognition Arrangement (MRA) for Automotive Products was endorsed by the Ministers. A tool to facilitate trade, the MRA promotes bilateral or multilateral agreements between APEC members. It is a component of the Road Transport Harmonization project, a multi-phased initiative that promotes harmonized standards within APEC.

The Ministers signed off on the *Best Practices Manual and Technical Report, Volumes 1 and 2*, for eliminating traffic congestion points. Led by the US, the report represents the third and final phase of the Transportation Congestion Points Study undertaken by the APEC Transportation Working Group. The study researched the location and nature of transportation bottlenecks at airports, seaports and land access points in the APEC Region caused by increasing demands placed upon existing infrastructure. It also included solutions and best practices to resolve those bottlenecks.

Finally, the Ministers endorsed the Options Paper on More Competitive Air Services with Fair and Equitable Opportunity. The paper identified options for future action and directed that a comprehensive final report be submitted to Ministers by mid-1998.

APEC Initiatives Launched in 1997 under Ministerial Request

The Canadian-led Transportation Working Group established the Maritime Safety Experts Group. The group will develop programs and mechanisms to promote the implementation of, and compliance with, existing international rules and standards adopted by these organizations. Ministers also urged APEC members to work closely with international maritime safety experts, such as the IMO.

The APEC Transportation Working Group also set up the Road Safety Experts Group as a first step toward enhancing road safety in the APEC Region.

In addition, a Maritime Initiative was established to promote an efficient, safe and competitive operating environment for maritime transportation. The first project will take an inventory of restrictive and discriminatory measures in the international maritime sector.

The Transportation Working Group will also set up a framework of standards for the initial application of Intelligent Transportation Systems for vehicle identification, safety, location and tolling.

And finally, building upon identified best practices from the Transportation Congestion Points Study, an Intermodal Task Force was set up to provide guidelines, standards and provisional options associated with an integrated transportation system.

3

TRANSPORTATION AND REGIONAL ECONOMIES

Regions which have increased their trade activities have also seen an increase in the relative share of transport activities in their economy.

The transportation industry is as important to regional economies as it is to the national economy. In each province, transportation plays two roles: one as an intermediary industry (for example, moving goods from factories to stores), and another as a contributor to economic consumption (for example, moving people to and from shopping centres). An efficient provincial economy requires a balance between supply and demand for transportation.

Four indicators provide clues to the transportation industry's importance to provincial economies: the value-added[1] that for-hire[2] carriers contribute; the employment that for-hire carriers create; total transportation demand[3]; and investment[4] by business and government in transportation infrastructure and machinery.

The value-added of for-hire carriers can be compared to provincial gross domestic product

1 "Value-added" is an economic concept used for measuring the importance of an industry's production within an economy. In the context of this chapter, it refers to payments such as wages and profits made to the principal factors employed in production throughout the provincial economy, with the principal factors being labour and capital. Since value-added is determined by payments to labour and capital, using this concept means that the importance of transport to provincial economies is determined by the location of the workers and capital employed by for-hire carriers. Value-added is a measure of the production or supply of transport.

2 "For-hire" carriers can be defined as industries that transport goods and/or passengers for a fee. They form part of "total transport," which also includes private spending on transport, such as consumer purchases of cars, and government expenditures on transport, such as highway maintenance and construction.

3 "Total transport demand" measures transport sales to consumers, businesses and governments within the province. In contrast to value-added, total transport demand includes private and government expenditures on transport, as well as sales of for-hire carriers.

4 Whether made by business or government, "transport investment" can be defined as both new infrastructure construction and purchases of new machinery and equipment. It does not include repair and maintenance expenditures, which are expenditures on existing infrastructure, machinery and equipment. In this chapter, a distinction is made between investment in infrastructure such as roads, and investment in equipment. Transport infrastructure investment is broken down into four categories: road, rail, marine and air.

TABLE 3-1
STRUCTURE OF REGIONAL ECONOMIES
EASTERN CANADA PROVINCES

(Per cent)

	NFLD		PEI		NS		NB	
	Share 1996	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*
Provincial GDP	100.0	0.0	100.0	2.7	100.0	0.9	100.0	1.8
Primary commodities	6.7	0.0	10.6	3.2	4.9	0.6	5.1	1.0
Manufacturing and construction	13.8	-2.3	16.0	6.2	17.3	-1.3	21.4	2.9
Utilities and trade	26.2	1.2	22.8	3.2	25.4	3.3	27.1	2.9
Finance and services	60.1	-0.1	57.8	1.8	59.7	0.7	53.0	1.0
Government services	10.7	-1.8	10.3	-1.5	10.1	-2.3	8.9	-0.6
Other finance and services	49.4	0.3	47.5	2.7	49.6	1.5	44.1	1.3

AAG: Average annual growth

Source: Statistics Canada, Cat. 15-203-XPB, Provincial Gross Domestic Product by Industry, 1984–96

TABLE 3-2
TRADE OF EASTERN CANADA PROVINCES

(Per cent)

	NFLD		PEI		NS		NB	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Interprovincial exports	9.9	-0.2	29.6	6.8	21.8	4.1	29.2	5.9
- Interprovincial imports	41.6	0.6	47.6	2.8	34.8	0.5	40.3	2.9
Interprovincial Balance	**-31.8**	**0.8**	**-18.1**	**-1.7**	**-12.9**	**-3.7**	**-11.2**	**-2.5**
International exports	30.1	8.8	16.7	11.1	20.1	4.9	35.4	15.7
- International imports	21.9	7.9	14.4	7.2	27.1	4.8	36.8	14.7
International Balance	**8.1**	**11.8**	**2.3**	**227.6**	**-7.0**	**4.5**	**-1.4**	**0.8**
Total exports	39.9	5.9	46.3	8.2	42.0	4.5	64.6	10.5
- Total imports	63.5	2.6	62.0	3.7	61.9	2.2	77.1	7.4
Total Trade Balance	**-23.6**		**-15.7**		**-19.9**		**-12.6**	

AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada System of National Accounts Division, Input-Output section

TABLE 3-3
IMPORTANCE OF COMMERCIAL TRANSPORTATION
TO EASTERN PROVINCES

(Per cent)

	NFLD		PEI		NS		NB	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Commercial Transportation	**3.7**	**4.8**	**2.9**	**-1.4**	**4.0**	**5.6**	**5.6**	**7.4**
Air	0.9	18.0	0.3	13.3	0.4	3.4	0.1	8.5
Rail	0.8	5.9	0.0	0.0	0.5	0.9	0.9	0.9
Water	0.6	-1.1	0.5	0.0	0.4	-1.5	0.4	-2.8
Truck	1.1	2.7	1.4	0.3	2.3	11.7	3.8	14.0
Urban transit	0.0	-3.0	0.0	0.0	0.1	-3.0	0.0	-3.8
Other transport*	0.3	1.3	0.8	-6.2	0.3	0.0	0.3	-3.8

* "Other transport" refers primarily to travel agencies and tour operators, taxis, and intercity and charter bus operators.
AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada, Transport Canada estimates

(PGDP) – the standard measure of a province's total value of production. Total transportation demand can be compared to a province's final domestic demand (PFDD), a measure of the total amount of sales in the provincial economy. These two economic concepts are related in that PGDP is equal to PFDD plus the trade balance, where the trade balance includes both interprovincial and international trade.

Canada's provinces are grouped here into three regions: Eastern, including Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick; Central, including Quebec and Ontario; and Western, including Manitoba, Saskatchewan, Alberta, British Columbia and the Territories. This section will follow that order.

VALUE-ADDED OF TRANSPORTATION

The importance of for-hire carriers to provincial economies, and the transport mode that predominates in each province, is primarily determined by the province's geography, its economic structure and its interprovincial and international trade. Public transportation policy also has an influence.

The principal policies that have recently affected transportation's contribution to provincial economies are deregulation (for example, of the trucking industry) and commercialization or privatization of transportation infrastructure (for example, of airports).

Location is another determinant of the importance of for-hire carrier transportation to certain provincial economies. For example, provinces that border on Quebec or Ontario can act as hubs for transportation entering or leaving Central Canada.

Both Manitoba and New Brunswick exhibit the largest share of carrier transportation relative to the provincial economies of their respective regions. British Columbia also has a large carrier share, a result of its suitability as a staging area for trade with the Pacific Rim countries.

EASTERN CANADA

New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland have the smallest provincial economies. In each of these provinces, financial and other services (particularly government services) provide a relatively high contribution to the provincial economy, while the contribution of primary commodity production is moderately important. Another characteristic of these economies is the moderate rate at which they have grown. Table 3-1 shows the industrial structure of the provinces in the Eastern region, as well as their percentage of PGDP in 1996 and their annual growth from 1991 to 1996.

In terms of international and interprovincial trade, the economies of these provinces are characterized by large total-trade deficits, generated by large shares of imports, primarily manufactured goods, in each province.

The total-trade deficits are primarily generated by trade deficits in interprovincial trade, which occur principally with Ontario and Quebec. In Eastern Canada, the trend has been toward reducing trade deficits in both interprovincial and total trade – export growth exceeding import growth from 1991 to 1996. Table 3-2 illustrates trade in the Eastern region and its contribution to PGDP and annual growth from 1991 to 1996.

Four factors are generating moderately higher shares of for-hire transportation activities in Eastern Canada: the relatively large distance from markets in Central Canada; the geographic dispersion of the population relative to Central Canada; the high share of imports; and the moderate levels of primary commodity production.

As New Brunswick is the nearest Eastern province to both Central Canada and the United States, it acts as a staging area or hub for transportation to and from Eastern Canada. Consequently, New Brunswick enjoys the highest for-hire carrier share of all the Eastern Canadian provinces, and the second highest share (after Manitoba) of all provinces. New Brunswick exhibits the largest growth in for-hire carrier transportation activities of all provinces.

In each Eastern province, trucking is the most important mode of for-hire carrier transportation, with particularly high growth rates in Nova Scotia and New Brunswick. Rail is the second largest mode in all provinces, except Prince Edward Island and Newfoundland.[5]

5 The share of rail in Newfoundland may be unrepresentative. The sole railway in Newfoundland is located in Labrador, where it transports iron ore from Labrador to Quebec for processing on the north shore of the St. Lawrence River. Neither the islands of Newfoundland or Prince Edward Island have railways.

TABLE 3-4
STRUCTURE OF REGIONAL ECONOMIES
CENTRAL CANADA PROVINCES

(Per cent)

	QUE		ONT	
	Share 1996	*AAG 91-96*	*Share 1996*	*AAG 91-96*
Provincial GDP (PGDP)	100.0	1.8	100.0	2.2
Primary commodities	3.1	1.0	2.5	1.5
Manufacturing and construction	26.4	1.4	29.5	3.2
Utilities and trade	25.0	3.2	23.2	3.6
Finance and services	52.0	1.5	50.4	1.1
Government services	6.3	-0.6	5.2	-1.5
Other finance and services	45.6	1.9	45.1	1.5

AAG: Average annual growth

Source: Statistics Canada, Cat. 15-203-XPB, Provincial Gross Domestic Product by Industry, 1984–96

TABLE 3-5
TRADE OF CENTRAL CANADA PROVINCES

(Per cent)

	QUE		ONT	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Interprovincial exports	19.7	2.0	19.9	3.0
- Interprovincial imports	19.9	4.6	12.5	3.4
Interprovincial Balance	**-0.2**	**-22.8**	**7.4**	**2.4**
International exports	32.1	18.9	43.5	18.0
- International imports	31.9	10.6	41.5	13.1
International Balance	**0.2**	**-21.0**	**2.0**	**-38.4**
Total exports	51.7	10.1	63.4	11.6
- Total imports	51.8	8.0	54.0	10.2
Total Trade Balance	**0.0**		**9.4**	

AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada System of National Accounts Division, Input-Output section

TABLE 3-6
IMPORTANCE OF COMMERCIAL TRANSPORTATION
TO CENTRAL CANADA PROVINCES

(Per cent)

	QUE		ONT	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Commercial Transportation	**3.5**	**1.9**	**2.9**	**1.6**
Air	0.4	1.6	0.4	3.6
Rail	0.9	4.0	0.6	4.3
Water	0.3	5.7	0.1	-6.6
Truck	1.4	3.3	1.1	3.1
Urban transit	0.2	-4.0	0.1	-7.1
Other transport*	0.2	-7.0	0.7	0.9

* "Other transport" refers primarily to travel agencies and tour operators, taxis, and intercity and charter bus operators.

AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada, Transport Canada estimates

The geography of the Eastern provinces influences the importance of other modes, notably in Newfoundland, where the levels of marine and air transportation are the highest of all provinces and territories – equivalent to British Columbia for marine transportation and to the Territories for air transportation. The other Eastern provinces, however, also have relatively high shares of marine transportation, although growth rates are relatively low or negative.

Table 3-3 shows the relative importance of commercial transportation in each of the provinces in the Eastern region, as well as its percentage of PGDP in 1996 and its average annual growth from 1991 to 1996.

CENTRAL CANADA

Quebec and Ontario represent the nation's largest provincial economies, with the largest share of manufacturing and construction. They also share the lowest proportions of primary commodity production in Canada. The economies of both provinces exhibit modest growth, with their fastest growing sectors being utilities and trade. Ontario also exhibits growth in manufacturing and construction. Table 3-4 shows the industrial structure of Quebec and Ontario, their percentages of PGDP and their contribution to annual growth from 1991 to 1996.

With respect to total trade, Quebec exhibited a balanced trade situation, while Ontario showed a trade surplus of 9.4 per cent of its provincial GDP in 1996. The main source of Ontario's trade surplus is interprovincial trade. Its main trade trend is toward increasing international exports, while interprovincial trade remains relatively constant. Table 3-5

shows trade in the Central provinces.

Four factors are contributing to these provinces' relatively low share of for-hire carriers as a percentage of PGDP: their low share of primary commodity production; their relatively higher population density; their relative proximity to large American markets; and their high degree of intermodal freight competition (rail, truck and marine). In Quebec, for-hire carrier activities are growing at a rate exceeding that of the provincial economy, while in Ontario, their growth is below.

In Central Canada, the most significant mode of transportation is trucking, followed by rail, with both growing at a rate exceeding that of the provincial economies.

Rail has been growing since 1991 at a faster rate than trucking. The relatively higher growth rates for rail indicate the improved competitiveness of railways.

In the sphere of marine transportation, growth in Quebec is related to the increasing attractiveness of the Port of Montreal for container traffic. Ontario is showing a decline in marine transportation.

The main reason for the relatively low growth rates of total for-hire carriers in Central Canada since 1991 is the decline in urban transit and other public passenger modes, such as intercity buses. This decline reflects the ongoing national shift from public passenger transportation to cars. Table 3-6 illustrates the relative importance of commercial transportation to the Central provinces.

WESTERN CANADA

A heavy reliance on primary commodity production – particularly in Saskatchewan, Alberta and the Territories – characterizes the provinces and territories of Western Canada. Manitoba and British Columbia have relatively higher shares of financial and other services. The provinces of Western Canada exhibit moderate to high growth rates. The main impetus for growth throughout Western Canada is utilities and trade. In Saskatchewan and Alberta, growth is also high in primary commodity production. British Columbia's growth has come from financial and other services. Table 3-7 shows the industrial structure of the Western provinces, as well as their PGDP for 1996 and their annual growth from 1991 to 1996.

Small total-trade deficits characterize international and interprovincial trade in the Western provinces and territories, with the exception of Saskatchewan and Alberta. In 1996, Saskatchewan had a slight trade surplus of 0.3 per cent of PGDP, while Alberta's trade surplus was 12 per cent of PGDP. Interprovincial trade represents a relatively large proportion of trade in Western Canada, with all provinces and territories having interprovincial trade deficits, primarily with Central Canada. As in both Eastern and Central Canada, the primary trend in trade has been growing international exports, with some growth in interprovincial exports. Table 3-8 shows the impact of trade on the provinces of the Western region.

Western Canada's relatively high level of for-hire carrier transportation activities can be explained by its provinces' reliance on primary commodities production, their lower population density, and their larger distance from markets. However, the provincial locations of the workers and capital employed by the for-hire carriers is uneven. This uneven distribution has resulted in a greater proportion of for-hire carrier shares in Manitoba, British Columbia and the Territories, while Alberta's and Saskatchewan's for-hire carrier shares are relatively lower.

Manitoba, ideally located to act as a hub for Western traffic with Central Canada[6], has the largest for-hire carrier share of any province. British Columbia, ideally located in relation to the Pacific Rim countries, acts as a hub for Canadian traffic with that region of the world. British Columbia's advantage as a hub location, combined with its difficult geography, generates a relatively large share of for-hire carrier transportation.

Both Saskatchewan and Alberta[7] have relatively small for-hire shares, due to the concentration of transportation industry workers and capital in Manitoba and British Columbia.

The Territories exhibit a larger share of for-hire carrier transportation than all other provinces, due to their dispersed

6 An additional possible reason for Manitoba acting as central staging area is the relative differences in tax rates among the Western provinces, notably between Saskatchewan and Manitoba.

7 The for-hire carrier share of the provincial economies in Alberta principally, but also Saskatchewan, will considerably underestimate the importance of transport to these provinces as the principal and most valuable primary commodities produced (oil and natural gas) are generally transported by pipeline. In this report, pipelines were not included with transport.

TABLE 3-7
STRUCTURE OF REGIONAL ECONOMIES
WESTERN CANADA PROVINCES AND TERRITORIES

(Per cent)

	MAN		SASK		ALTA		BC		TERR	
	Share 1996	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*
PGDP	100.0	2.1	100.0	2.2	100.0	3.6	100.0	2.8	100.0	1.5
Primary commodities	6.7	-0.3	24.5	3.3	24.6	5.8	6.3	1.6	20.7	-0.2
Manufacturing and construction	17.3	1.5	11.6	1.3	15.0	4.3	17.9	1.1	10.5	1.9
Utilities and trade	29.0	4.7	24.0	4.6	21.5	4.2	26.4	4.1	21.3	2.7
Finance and services	52.8	1.4	45.2	0.9	43.5	1.9	56.4	3.2	51.9	1.9
Government services	7.7	-0.8	5.7	-1.6	3.9	-2.5	4.6	0.0	16.6	-1.4
Other finance and services	45.1	1.9	39.5	1.3	39.6	2.4	51.7	3.5	35.2	3.9

AAG: Average annual growth

Source: Statistics Canada, Cat. 15-203-XPB, Provincial Gross Domestic Product by Industry, 1984–96

TABLE 3-8
TRADE OF WESTERN CANADA PROVINCES AND TERRITORIES

(Per cent)

	MAN		SASK		ALTA		BC		TERR	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Interprovincial exports	26.7	4.6	23.7	5.9	25.6	6.2	13.1	5.6	19.3	3.8
- Interprovincial imports	30.7	3.7	36.0	3.4	27.5	5.2	21.4	3.8	41.4	-0.7
Interprovincial Balance	**-3.9**	**-1.1**	**-12.3**	**-0.1**	**-1.9**	**-2.9**	**-8.3**	**1.4**	**-22.1**	**-3.4**
International exports	28.3	15.5	39.5	18.2	37.2	19.7	29.3	12.8	24.3	3.6
- International imports	26.3	14.0	26.9	20.2	23.8	14.0	25.5	11.6	15.9	9.3
International Balance	**2.0**	**67.5**	**12.6**	**14.4**	**13.4**	**36.5**	**3.8**	**24.5**	**8.4**	**-2.8**
Total exports	55.0	9.2	63.2	12.4	62.8	12.8	42.4	10.2	43.6	3.7
- Total imports	56.9	7.5	62.9	8.5	51.3	8.7	47.0	7.5	57.3	1.3
Total Trade Balance	**-1.9**		**0.3**		**11.5**		**-4.6**		**-13.7**	

AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada System of National Accounts Division, Input-Output section

TABLE 3-9
IMPORTANCE OF COMMERCIAL TRANSPORTATION
TO WESTERN PROVINCES AND TERRITORIES

(Per cent)

	MAN		SASK		ALTA		BC		TERR	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Commercial Transportation	**6.2**	**3.3**	**2.8**	**2.9**	**2.8**	**3.5**	**5.2**	**2.9**	**6.4**	**0.9**
Air	0.6	2.4	0.1	0.8	0.3	2.9	0.8	1.7	0.9	3.0
Rail	3.4	3.2	1.2	3.7	0.8	3.5	1.1	3.7	0.0	
Water	0.0		0.0		0.0		0.6	-1.8	0.0	-20.0
Truck	1.8	7.8	1.4	4.0	1.5	5.4	1.4	5.2	3.4	0.8
Urban transit	0.1	-4.6	0.0	-7.5	0.1	-4.9	0.2	-0.9	0.0	-2.8
Other transport*	0.4	-4.5	0.1	-3.7	0.1	-2.2	1.1	4.3	2.1	1.2

* "Other transport" refers primarily to travel agencies and tour operators, taxis, and intercity and charter bus operators.
AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada, Transport Canada estimates

population and their distance from Southern Canada.

In all Western provinces except Manitoba, trucking is the largest carrier mode, with rail in second place. In Manitoba, rail places first – because the province has the highest share of rail of all provinces – leaving second place for trucking. Trucking is also the most important mode for the Territories, where air transportation fills the second-place position. In every Western Canadian province, the growth rates since 1991 for trucking exceed rail, yet both modes have grown since 1991 at a rate exceeding the rates observed in each Western provincial economy.

British Columbia and Newfoundland have the highest shares of marine transportation of all provinces, while the Territories and Newfoundland have the highest shares of air transportation.

As cars and other private transportation continues to take market share away from public road passenger modes, all Western provinces exhibit negative growth rates for urban transit. Table 3-9 illustrates the relative importance of commercial transportation in the Western provinces, its percentage of PGDP in 1996 and its annual growth from 1991 to 1996.

PROVINCIAL TRANSPORTATION EMPLOYMENT

Employment in commercial transportation activities is another indicator of the importance of transportation to provincial economies. Overall, for-hire carrier employment has been growing at a lower rate than total provincial employment over the period 1991 – 1996.

EASTERN CANADA

Commercial transportation activities provide moderately high levels of employment in Eastern Canada. New Brunswick has the highest proportion of transportation employment in the Eastern provinces and the second-highest total (after Manitoba) of all provinces. In all Eastern provinces, the growth rate of transportation employment has been, since 1991, below the growth rate in total provincial employment, with a negative growth rate in Newfoundland.

In every Eastern province except Newfoundland, trucking is the largest transportation employer. New Brunswick has the highest proportion of trucking employment of any province in Canada. In Newfoundland, air transportation provides the highest proportion of transportation-related employment, followed by trucking. In Nova Scotia and New Brunswick, the second most important mode is marine transportation. In fact, the provinces of Eastern Canada exhibit the highest proportion of marine employment of all provinces.

The principal growth in employment has been in air transportation, with high growth rates in Newfoundland, Prince Edward Island and New Brunswick. New Brunswick also exhibits high employment growth in trucking.

In each of these provinces, the principal declines in transportation employment have been in rail, urban transit and other transportation. Table 3-10 shows the importance of employment in commercial transportation in the Eastern provinces.

CENTRAL CANADA

Quebec and Ontario exhibit relatively low proportions of employment in commercial transportation. In both provinces, the growth rate of transportation employment is below the growth rates for total employment. The principal employer is trucking, followed by urban transit.

Quebec and Ontario have the highest proportion of employment in urban transportation, a reflection of Central Canada's higher population density. Quebec's principal source of transportation employment growth has been marine transportation; Ontario's principal source has been air transportation. In both provinces, the principal declines were in rail, with Ontario also exhibiting declines in other transportation. Table 3-11 illustrates the importance of commercial transportation employment in Quebec and Ontario.

WESTERN CANADA

The provinces of Western Canada exhibit relatively high proportions of commercial transportation employment. Manitoba enjoys the highest level of all provinces, with British Columbia and the Territories also showing high levels, but Saskatchewan and Alberta are confined to lower levels. In each Western province, the growth rate for employment in commercial transportation services has been less than the growth rate of total employment.

TABLE 3-10
IMPORTANCE OF COMMERCIAL TRANSPORTATION EMPLOYMENT TO EASTERN CANADA PROVINCES

(Per cent)

	NFLD		PEI		NS		NB	
	Share 1996	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*
Total employment	100.0	1.0	100.0	4.1	100.0	2.4	100.0	2.6
Commercial Transportation	**3.7**	**-4.2**	**4.7**	**0.0**	**3.7**	**0.0**	**5.5**	**2.1**
Air	1.2	4.7	0.5	48.9	0.5	1.0	0.2	10.6
Rail	0.4	-9.6	0.0		0.2	-10.2	0.5	-9.3
Marine	0.7	-3.8	1.0	0.5	0.6	-0.4	0.6	0.8
Truck	0.9	-5.9	1.6	3.3	1.8	6.3	3.6	9.2
Urban transit	0.1	-8.3	0.0		0.2	-8.0	0.1	-7.4
Other transport	0.4	-9.0	1.5	-6.6	0.3	-6.3	0.5	-9.1

AAG: Average annual growth

Source: Statistics Canada, Transport Canada estimates

TABLE 3-11
IMPORTANCE OF COMMERCIAL TRANSPORTATION EMPLOYMENT TO CENTRAL PROVINCES

(Per cent)

	QUE		ONT	
	Share PGDP 1996	*AAG 91-96*	*Share PGDP 1996*	*AAG 91-96*
Total employment	100.0	3.0	100.0	2.3
Commercial Transportation	**4.1**	**1.8**	**3.4**	**1.1**
Air	0.5	3.8	0.5	14.2
Rail	0.4	-9.8	0.3	-2.5
Marine	0.4	11.4	0.1	1.0
Truck	1.2	2.1	1.1	5.0
Urban transit	0.9	-0.6	0.8	1.6
Other transport	0.6	19.2	0.6	-7.5

AAG: Average annual growth PGDP: Provincial gross domestic product

Source: Statistics Canada, Transport Canada estimates

Rail is the largest employer among the transportation modes in Manitoba, where rail employment is of higher relative importance than in any other province. In Saskatchewan and Alberta, trucking is the largest employer, while other transportation is the largest employer in British Columbia and the Territories.

In Manitoba, British Columbia and the Territories, the second largest employer is trucking, while in Saskatchewan, second place goes to rail. Alberta benefits from equal employment levels of air transportation, rail and urban transit. Manitoba and the Territories – along with Newfoundland – have the highest proportion of air of all provinces in Canada.

In every Western province, the air and trucking modes exhibit the highest employment growth. Declining employment is observed in rail and urban transit. Table 3-12 illustrates the importance of employment in commercial transportation in Western Canada.

TABLE 3-12
IMPORTANCE OF COMMERCIAL TRANSPORTATION EMPLOYMENT TO WESTERN PROVINCES AND TERRITORIES

(Per Cent)

	MAN		SASK		ALTA		BC		TERR	
	Share 1996	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*	*Share 1996*	*AAG 91-96*
Total employment	100.0	3.1	100.0	2.8	100.0	4.0	100.0	4.2	100.0	6.7
Commercial Transportation	**5.8**	**1.1**	**4.0**	**2.1**	**4.3**	**1.7**	**4.8**	**2.4**	**5.3**	**0.0**
Air	1.0	13.9	0.4	9.3	0.6	8.5	0.9	6.3	0.9	4.0
Rail	1.9	-4.2	1.0	-3.8	0.6	-5.6	0.4	-4.8	0.0	-11.2
Marine	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.6	0.0	0.0
Truck	1.8	12.4	2.1	8.8	2.3	7.5	1.0	7.2	2.1	-1.3
Urban transit	0.4	-4.7	0.2	-7.1	0.6	-5.7	0.6	-4.0	0.1	-7.2
Other transport	0.6	-5.8	0.4	-4.9	0.2	-4.6	1.3	3.8	2.2	0.3

AAG: Average annual growth

Source: Statistics Canada, Transport Canada estimates

TOTAL TRANSPORTATION DEMAND

The first two sections of this chapter examined two indicators of the supply side of commercial transportation services to provincial economies: value-added and employment. This section looks at the demand for total transportation.

"Total transportation" refers to a broader definition of transportation, because it also includes private spending on transportation,[8] such as consumer purchases of cars, and government expenditures,[9] such as highway maintenance and construction, as well as sales of commercial transportation services.[10]

"Total transportation demand" [11] refers to transportation purchases by consumers, businesses and governments within a province. Total transportation demand can be compared to provincial final domestic demand (PFDD), defined as the total value of all goods and services sold in the provincial economy in one year.

The principal observation that emerges from assessing total transportation demand is the predominance of private transportation, which is the largest segment of total transportation demand in all provinces, although not in the Territories.

The principal component of private transportation demand is retail vehicle dealer sales through, for example, car dealerships. In every province, retail vehicle dealer sales are larger than any single modal commercial transportation activity.

In general, the demand for commercial transportation is the second largest segment of transportation demand, everywhere but in Prince Edward Island and the Territories. There are two principal differences between the provincial assessment of the for-hire carriers based on value-added (production) and the assessment based on demand. The first difference is the relatively greater importance of the air and marine modes; the second is the relative shift in the importance of provincial for-hire carrier transportation within Eastern and Western Canada.

When measuring the importance of transportation to regional economies from transportation demand, the relative greater importance of the air and marine modes is measured in relation to their importance under one of the other indicators – in this case,

8 Private transport spending refers to sales to consumers, businesses and government. It includes sales and services tied to automotive vehicles, parts and accessories; and automobile and truck rental and leasing services.

9 Government expenditures are estimated net of direct fees for services. Direct fees are distinguished from indirect fees, such as fuel excise taxes, which form part of general government revenues.

10 The definition of commercial transportation differs from that used in the section on value-added, which excluded travel agencies, tour operators, charter bus operators, freight forwarders and smaller carriers in air, trucking and marine.

11 Total transportation demand is a mixture of the intermediate and final demand goods and services, and should not be confused with the standard macro-economic concept of final demand. As the term refers to a mixture of intermediate- and final-demand goods and services, it contains some double-counting, and thus overestimates somewhat the importance of transport demand as a proportion of final domestic demand.

TABLE 3-13
IMPORTANCE OF TOTAL TRANSPORTATION DEMAND TO EASTERN PROVINCES

(Per cent)

	NFLD		PEI		NS		NB	
	Share PFDD 1996	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*
Final transportation demand	**100.0**	**1.5**	**100.0**	**2.1**	**100.0**	**1.2**	**100.0**	**2.1**
Domestic transport demand	**15.7**	**1.6**	**20.0**	**4.6**	**16.7**	**2.0**	**20.2**	**3.2**
Commercial transportation services	**4.6**	**6.2**	**3.2**	**5.0**	**5.1**	**3.4**	**5.2**	**4.7**
Air	2.3	6.7	0.8	-1.4	1.1	-1.5	0.7	1.5
Rail	0.1	-14.8	0.1	-13.7	0.7	-7.2	0.8	0.4
Marine	0.7	9.6	0.1	9.0	1.3	10.9	1.1	11.0
Truck	1.2	6.8	2.0	8.8	1.7	5.7	2.3	4.6
Urban transit	0.0	0.0	0.0	0.0	0.1	0.2	0.0	-0.6
Other	0.2	-0.2	0.2	0.5	0.3	0.3	0.2	0.0
Private transportation sales	**9.1**	**0.4**	**12.5**	**7.2**	**9.1**	**2.0**	**11.3**	**3.6**
Retail vehicle dealers (new and used)	5.2	3.6	6.1	5.4	5.1	4.8	7.3	5.2
Gasoline service stations	2.4	-6.5	4.4	10.6	2.5	-3.4	1.8	-3.0
Retail vehicle parts and repair shops	1.4	0.2	1.7	5.1	1.3	2.1	1.9	3.6
Vehicle rental agencies	0.2	1.6	0.2	4.8	0.2	-0.3	0.2	2.5
Government expenditures	**1.9**	**-4.1**	**4.3**	**-3.2**	**2.5**	**-0.7**	**3.7**	**-0.3**
Road construction and maintenance	1.2	-6.0	4.2	-3.2	2.3	-0.7	3.4	-0.5
Urban transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other subsidies and administration	0.7	-0.7	0.1	0.0	0.1	-1.1	0.3	2.3
Total indirect fees	**1.6**	**-4.5**	**2.8**	**9.9**	**1.7**	**-1.8**	**1.5**	**-0.4**
Fuel taxes	1.3	-6.5	2.4	10.6	1.4	-3.4	1.0	-3.0
Licence fees	0.3	3.6	0.4	5.4	0.3	4.8	0.5	5.2
Government expenditures less indirect fees	**0.3**	**-1.5**	**1.5**	**-28.3**	**0.8**	**1.5**	**2.3**	**-0.1**

PFDD: Provincial final domestic demand
AAG: Average annual growth

Source: Statistics Canada, Transport Canada estimates

Canada's international trade deficits in these two modes.

A trade deficit implies a proportion of domestic demand satisfied by foreign carriers.[12] In terms of marine demand, the relatively higher importance is particularly noticeable in the provincial economies of Nova Scotia, New Brunswick, Quebec and British Columbia. The increasing importance of air transportation is more widespread, but particularly noticeable in Ontario, Quebec, Manitoba and British Columbia.

In general, government expenditure is the third most important segment of transportation demand, except in the Territories and Prince Edward Island, where it ranks first and second, respectively. Government expenditures on transportation are predominantly in road construction and maintenance. The trend in all provinces but Manitoba has been toward lower levels of government spending on transportation.

"Indirect fees on transportation" refers to government revenues earmarked for general taxation funds, of which the most significant tax funds are fuel excise taxes. While the level of indirect fees has remained relatively constant, governmental transportation expenditures have declined in all provinces. The level of government expenditures, net of indirect fees, has declined in all provinces as well. In 1996, Alberta and Saskatchewan had expenditures on transportation equivalent to the revenue of the indirect fees they collected from the sector in that year.

EASTERN CANADA

The provinces of Eastern Canada exhibit varying levels of total transportation demand, ranging from the lowest in Newfoundland to relatively high levels in New Brunswick and Prince Edward Island. The variations are directly related to private transportation sales and government transportation expenditures, which are low in Newfoundland and higher in Prince Edward Island and New Brunswick. In all Eastern provinces, the growth rate for total transportation demand exceeds the growth rate of PFDD.

The largest segment of total transportation demand is private transportation sales, of which the largest component is tied to retail vehicle dealers. The growth rates of private transportation sales exceed those for total transportation demand in Prince Edward Island and New Brunswick, are equal to those in Nova Scotia, and represent less than the growth rate of total transportation demand in Newfoundland.

In all Eastern provinces, commercial transportation services represent the second largest segment of total transportation demand. The growth rate of commercial transportation demand exceeds that of total transportation demand in all provinces.

Trucking represents the largest component of commercial transportation demand in all Eastern provinces except Newfoundland, where it is the second largest. Air transportation is the largest component in Newfoundland and the second largest in Prince Edward Island. In Nova Scotia and New Brunswick, marine transportation represents the second largest component. In all provinces, marine is the fastest growing component, followed by trucking. Declines are observed in rail in all provinces but New Brunswick.

In all Eastern provinces, government expenditures form the smallest segment of total transportation demand. Government expenditures are the second largest segment in Prince Edward Island, which exhibits the highest proportion of government expenditures on transportation of any province, due to the construction (during the period covered by this report) of the Confederation Bridge linking the province to the mainland.

In all Eastern provinces, road construction and maintenance forms the major component of government expenditures, although both total government expenditures and expenditures on road construction and maintenance are declining in all provinces.

In every Eastern province, indirect fees on transportation are composed primarily of fuel excise taxes. Indirect fees on transportation are also declining in all provinces, but Prince Edward Island. In the larger provinces indirect fees have declined at a faster rate than government expenditures, generating increasing levels of government expenditures on transportation, net of indirect fees.

Table 3-13 shows the importance of total transportation demand in each of the provinces in the Eastern region.

12 It is important to distinguish between the concepts of domestic demand used for purposes of transport regulation, and that used in macro-economic accounting. For purposes of regulation, "domestic demand" refers to transport between two points within Canada. In macro-economic terms, it refers to purchases of transport by domestic consumers, businesses and governments.

TABLE 3-14
IMPORTANCE OF TOTAL TRANSPORTATION DEMAND TO THE CENTRAL PROVINCES

(Per cent)

	QUE		ONT	
	Share PFDD 1996	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*
Final domestic demand	**100.0**	**1.6**	**100.0**	**1.7**
Total transportation demand	**17.1**	**3.3**	**16.1**	**3.9**
Commercial transportation services	**3.7**	**3.4**	**3.6**	**3.2**
Air	1.0	0.5	1.2	4.5
Rail	0.4	0.1	0.4	-2.7
Water	0.6	8.3	0.2	7.1
Truck	1.3	5.6	1.3	5.4
Urban transit	0.2	-1.0	0.2	-6.0
Other	0.3	0.4	0.3	0.7
Private transportation sales	**11.3**	**4.0**	**10.6**	**5.1**
Retail vehicle dealers (new and used)	7.1	5.3	6.6	6.3
Gasoline service stations	2.1	1.5	2.1	4.2
Retail vehicle parts and repair shops	1.8	3.0	1.5	3.2
Vehicle rental agencies	0.3	-3.5	0.4	-2.7
Government expenditures	**2.1**	**-0.7**	**1.8**	**-1.8**
Road construction and maintenance	1.3	1.6	1.3	-1.7
Urban transit	0.4	0.0	0.4	0.0
Other subsidies and administration	0.4	-0.4	0.1	-12.9
Total indirect fees	**1.6**	**2.6**	**1.6**	**4.7**
Fuel taxes	1.1	1.5	1.1	4.2
Licence fees	0.4	5.3	0.4	6.3
Government expenditures less indirect fees	**0.5**	**-11.0**	**0.2**	**-43.2**

PFDD: Provincial final domestic demand AAG: Average annual growth

Source: Statistics Canada, Transport Canada estimates

CENTRAL CANADA

Quebec and Ontario have moderate levels of total transportation demand, primarily due to relatively low levels of commercial transportation demand. In both provinces, the growth rates of total transportation demand exceed that of PFDD.

The largest segment of total transportation demand in each province is private-transportation sales. The largest component of private-transportation sales is tied to retail vehicle sales. The growth rates of private-transportation sales exceed those for total transportation demand in both provinces, with private transportation sales the fastest growing segment of total transportation demand and retail vehicle sales the fastest growing component of private-vehicle sales.

In both provinces, commercial transportation represents the second largest segment of total transportation demand, but at relatively lower levels when compared with most Eastern and Western Canadian provinces. The growth rates of commercial transportation activities exceeds the growth rates of PFDD in both provinces. The growth rate of the for-hire carriers slightly exceeds the growth rate of total transportation demand in Quebec, and are less than total transportation demand growth in Ontario.

In both provinces, trucking is the principal mode, followed by air. The most significant growth is observed for marine, followed by trucking, with declines in urban transit in both provinces, and in rail for Ontario.

In both provinces again, government expenditures form the smallest segment of total transportation demand, with road construction and maintenance forming the major segment of government transportation expenditures. Total government transportation expenditures are also declining, while expenditures on road construction and maintenance are increasing in Quebec and declining in Ontario.

In both Quebec and Ontario, indirect fees on transportation are composed primarily of fuel excise taxes. Indirect fees have been increasing in both provinces, generating a falling level of net government expenditures on transportation.

Table 3-14 illustrates the importance of total transportation demand in Quebec and Ontario.

WESTERN CANADA

Provinces in Western Canada exhibit different levels of total transportation demand. British Columbia shows the highest level of all provinces. Throughout this region, the growth rate for total transportation demand exceeds the growth rate of PFDD. In British Columbia, the two rates are roughly equivalent. The

TABLE 3-15
IMPORTANCE OF TOTAL TRANSPORTATION DEMAND TO WESTERN PROVINCES AND TERRITORIES

(Per cent)

	MAN		SASK		ALTA		BC		TERR	
	Share PFDD 1996	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*	*Share PFDD 1996*	*AAG 91-96*
Final domestic demand	**100.0**	**2.5**	**100.0**	**2.7**	**100.0**	**2.8**	**100.0**	**3.7**	**100.0**	**3.2**
Domestic transportation demand	**17.4**	**4.1**	**18.9**	**4.4**	**18.3**	**4.4**	**20.1**	**3.6**	**21.4**	**3.6**
Commercial transportation services	**5.1**	**4.6**	**5.4**	**2.9**	**5.9**	**6.4**	**7.3**	**5.1**	**8.6**	**4.5**
Air	1.6	6.3	0.7	-5.1	1.7	6.0	1.5	4.6	6.4	5.0
Rail	1.0	-1.9	2.5	0.5	1.4	2.2	2.1	1.5	0.1	-10.9
Water	0.0	11.9	0.0	0.0	0.0	0.0	1.7	8.7	0.0	18.2
Truck	2.1	7.2	2.0	9.0	2.5	9.9	1.6	7.2	2.0	3.5
Urban transit	0.1	-1.9	0.0	-6.8	0.1	-2.3	0.2	2.4	0.0	0.0
Other	0.2	0.0	0.1	-0.6	0.2	0.6	0.3	2.4	0.0	0.0
Private transportation sales	**10.6**	**5.0**	**11.6**	**6.0**	**10.8**	**4.6**	**10.7**	**4.3**	**4.4**	**5.0**
Retail vehicle dealers (new and used)	6.5	6.3	7.4	7.0	7.0	6.0	7.0	4.8	2.7	5.8
Gasoline service stations	2.4	1.5	2.5	5.2	2.0	2.8	2.0	2.6	0.8	2.6
Retail vehicle parts and repair shops	1.5	4.9	1.6	3.1	1.5	1.4	1.4	4.6	0.6	2.2
Vehicle rental agencies	0.2	2.4	0.1	4.5	0.3	1.3	0.3	2.6	0.3	10.3
Government expenditures	**1.7**	**-3.0**	**1.9**	**-1.8**	**1.7**	**-4.3**	**2.1**	**-5.8**	**8.4**	**1.9**
Road construction and maintenance	1.4	-3.4	1.8	-1.9	1.4	-4.6	1.5	-6.8	5.0	3.2
Urban transit	0.1	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.0
Other subsidies and administration	0.2	-0.5	0.1	0.0	0.3	-3.4	0.1	-14.6	3.4	-0.1
Total indirect fees	**1.7**	**2.7**	**1.8**	**5.6**	**1.5**	**3.7**	**1.6**	**3.2**	**0.6**	**3.4**
Fuel taxes	1.3	1.5	1.4	5.2	1.1	2.8	1.1	2.6	0.5	2.6
Licence fees	0.4	6.3	0.5	7.0	0.4	6.0	0.4	4.8	0.2	5.8
Government expenditures less indirect fees	**0.0**		**0.0**		**0.2**	**-69.4**	**0.5**	**-33.2**	**7.8**	**1.8**

PFDD: Provincial final domestic demand AAG: Average annual growth

Source: Statistics Canada, Transport Canada estimates

geographic characteristics of British Columbia and the Territories determine their relatively high shares of transportation demand.

The largest segment of total transportation demand in all Western provinces is private transportation sales. They contribute to the second largest segment in the Territories. The largest component of private-transportation sales is retail vehicle dealer sales, in all provinces and the Territories. The growth rate of private transportation sales exceeds that of total transportation demand.

In every Western province, commercial transportation represents the second largest segment of total transportation demand, but it represents the smallest segment in the Territories. The growth rate of commercial transportation demand exceeds that of total transportation demand in all provinces and the Territories, except Saskatchewan.

Trucking represents the largest segment of commercial transportation demand in Manitoba and Alberta, and the second largest in Saskatchewan and the Territories. Rail is the most important in Saskatchewan and British Columbia, and second in importance in Alberta. Air transportation is the largest segment in the Territories and the second largest in Manitoba. Marine is the second largest segment in British Columbia.

The most significant[13] growth in trucking occurred in Manitoba, Saskatchewan and Alberta, while

13 Significant growth refers to growth in transport demand that forms a major segment of provincial demand. For example, there is a small port in Churchill, Manitoba, which has high growth. Marine transport, however, does not constitute a significant portion of transport demand in Manitoba.

TABLE 3-16
IMPORTANCE OF TOTAL TRANSPORTATION INVESTMENT TO THE EASTERN PROVINCES

(Per cent share of the 1992 – 1995 Annual Average Investment)

	NFLD	PEI	NS	NB
Total Transportation	**15.2**	**39.6**	**27.1**	**26.3**
Equipment	8.3	10.1	16.3	9.6
Infrastructure	6.9	29.4	10.8	16.6
Road	**11.6**	**35.8**	**20.9**	**24.3**
Equipment (e.g. cars, trucks)	5.7	8.6	12.3	8.6
Roads and bridges	5.9	27.2	8.5	15.7
Rail	**0.0**	**0.0**	**0.4**	**0.5**
Equipment (e.g. locomotives)	0.0	0.0	0.2	0.2
Rail track and roadbeds	0.0	0.0	0.2	0.3
Marine	**2.3**	**2.8**	**4.4**	**1.0**
Equipment (e.g. ships)	1.2	0.6	2.3	0.5
Marine engineering construction	1.0	2.2	2.0	0.5
Air	**1.4**	**0.9**	**1.5**	**0.5**
Equipment (e.g. aircraft)	1.4	0.9	1.5	0.4
Runways including lighting	0.0	0.0	0.0	0.1

Source: Statistics Canada, Cat. 61-223 "Capital Expenditures by Type of Asset"

growth in marine is highest in British Columbia, and growth in air transportation highest in the Territories. Air transportation also showed notable growth in Manitoba.

Notable declines were registered in urban transit in Manitoba, Saskatchewan and Alberta, in rail in Manitoba, and in air transportation in Saskatchewan.

In all Western provinces, government expenditures form the smallest segment of total transportation demand, although it is the second largest segment in the Territories. In all Western provinces, road construction and maintenance forms the largest component of government expenditures, while in the Territories, the largest component goes to subsidies and administration. In each Western province but Manitoba and the Territories, total government expenditures are declining. Expenditures on roads are decreasing in Saskatchewan and Alberta and increasing in the two other Western provinces and in the Territories.

In every Western province and in the Territories, indirect fees on transportation are increasing. This increase generates a falling level of government expenditures on transportation net of indirect fees in all provinces.

Table 3-15 shows the importance of total transportation demand in the Western provinces.

PROVINCIAL TRANSPORTATION INVESTMENT

Whether the investment is made by business or government, "transportation investment" can be defined as both new infrastructure construction, and purchases of new machinery and equipment. Transportation investment does not include repair and maintenance expenditures, which are expenditures on existing infrastructure, machinery and equipment.

A distinction is introduced here between investment in infrastructure such as roads, and in equipment. Transportation infrastructure investment is broken down into four categories: road, rail, marine and air.

Transportation investments are usually major expenditures and take place over a number of years. To account for this fact, investment is analysed using a four-year average of the four most recent years with investment information available, i.e., 1992 – 1995. Investment in transportation is then compared with total investment in provincial economies, excluding residential construction.

The principal observation derived from assessing investment in transportation is that in all provinces there is a predominance of road transportation investment, in terms of both road infrastructure and equipment. The question of transportation infrastructure investment is controversial. Some economists have suggested that public infrastructure investment, such as in roads, increases growth in the economy by more than the amount of the investment, due to spin-off benefits to the other sectors of the economy. Other economists argue the contrary – that economic growth generates the need for public infrastructure investment, with limited spin-off benefits. While both sides talk of a relationship between public infrastructure investment and economic growth, the debate centres on the question of causality, nature, and the importance of the relationship.

EASTERN CANADA

In Eastern Canada, transportation investments represented more than a quarter of all investments for three of the four provinces. In Newfoundland, the share of transportation investment was the lowest, at 15.2 per cent. Over the period, road investment predominated in all provinces. Prince Edward Island exhibited the highest level of investment, due to the construction of the Confederation Bridge.

The second most important mode in all Eastern provinces is marine. Nova Scotia has the highest proportion of marine investment of all provinces.

Table 3-16 shows the importance of total transportation investment in the Eastern provinces on average from 1992 to 1995.

CENTRAL CANADA

Transportation investment in Quebec and Ontario between 1992 and 1995 has averaged roughly one fifth of total investment. However in both Quebec and Ontario, transportation investments have been predominantly road-related investment, two thirds on the equipment side and one third on roads. The second highest level of transportation investment was observed in air, primarily in air transportation equipment. For Ontario, rail investments were as important as air, with relatively equal levels of investment in rail equipment and infrastructure.

Quebec's somewhat lower share of transportation investment reflects the lower growth rates of the Quebec economy relative to Ontario, which translated into relatively lower investment in road equipment.

TABLE 3-17
IMPORTANCE OF TOTAL TRANSPORTATION INVESTMENT TO THE CENTRAL PROVINCES

(Per cent share of the 1992 – 1995 Annual Average Investment)

	QUE	ONT
Total Transportation	**17.9**	**21.0**
Equipment	11.4	14.7
Infrastructure	6.5	6.3
Road	**16.2**	**18.8**
Equipment (e.g. cars, trucks)	10.3	13.4
Roads and bridges	5.9	5.4
Rail	**0.6**	**0.9**
Equipment (e.g. locomotives)	0.4	0.4
Rail track and roadbeds	0.2	0.5
Marine	**0.5**	**0.5**
Equipment (e.g. ships)	0.1	0.1
Marine engineering construction	0.4	0.4
Air	**0.7**	**0.9**
Equipment (e.g. aircraft)	0.6	0.8
Runways including lighting	0.0	0.0

Source: Statistics Canada, Cat. 61-223 "Capital Expenditures by Type of Asset"

TABLE 3-18
IMPORTANCE OF TOTAL TRANSPORTATION INVESTMENT TO THE WESTERN PROVINCES AND TERRITORIES

(Per cent share of the 1992 – 1995 Annual Average Investment)

	MAN	SASK	ALTA	BC	TERR
Total Transportation	**19.2**	**13.0**	**12.7**	**21.4**	**14.0**
Equipment	12.1	9.0	8.6	12.6	6.3
Infrastructure	7.1	4.0	4.0	8.8	7.7
Road	**16.9**	**11.4**	**11.4**	**17.3**	**8.0**
Equipment (e.g. cars, trucks)	10.9	8.1	7.9	10.3	3.9
Roads and bridges	6.0	3.4	3.5	7.0	4.1
Rail	**1.0**	**0.9**	**0.6**	**1.6**	**0.0**
Equipment (e.g. locomotives)	0.4	0.4	0.2	0.8	0.0
Rail track and roadbeds	0.6	0.5	0.3	0.8	0.0
Marine	**0.4**	**0.1**	**0.2**	**1.5**	**0.8**
Equipment (e.g. ships)	0.1	0.0	0.0	0.8	0.6
Marine engineering construction	0.3	0.1	0.2	0.7	0.3
Air	**0.9**	**0.5**	**0.5**	**0.9**	**5.2**
Equipment (e.g. aircraft)	0.8	0.5	0.5	0.7	1.9
Runways including lighting	0.1	0.0	0.0	0.2	3.3

Source: Statistics Canada, Cat. 61-223 "Capital Expenditures by Type of Asset"

Table 3-17 illustrates the importance of total transportation investment in Quebec and Ontario on average from 1992 to 1995.

WESTERN CANADA

Between 1992 and 1995, Saskatchewan and Alberta had the lowest share of transportation investment. For the other Western provinces, transportation investments accounted for one fifth of total provincial investments.

Road investment predominates in all Western provinces and the Territories, primarily investment in road transportation equipment in the Western provinces and investment on road infrastructure in the Territories.

Rail has the second highest level of investment in the Western provinces, as opposed to air for the Territories. British Columbia has the highest proportional investment in rail of all provinces, equally split between equipment and infrastructure. The Territories has the highest proportion of air investment, primarily air infrastructure.

Table 3-18 charts the importance of total transportation investment in the Western provinces on average from 1992 to 1995.

4

GOVERNMENT SPENDING ON TRANSPORTATION

With the overall reduction in subsidization and infrastructure commercialization initiatives, total government spending on transportation came down.

This chapter describes expenditures on and revenues from transportation by all three levels of government – federal, provincial/territorial and municipal. It discusses subsidies to transportation by mode, as well as the provision of facilities and services that are provided at public expense. In addition, the chapter looks at the services provided by transportation operators for imposed public duties. The figures presented are for standard Canadian government fiscal years, from April 1 to March 31, unless otherwise indicated.

Traditionally, government's involvement in transportation essentially fell into three functions: regulation (economic and safety), provision of infrastructure, and subsidization and production of transportation services. Over the last few years, government's role in transportation has been redefined and the economic regulatory framework has been lessened, paving the way for a significantly greater role for market forces.

GOVERNMENT TRANSPORTATION EXPENDITURES AND REVENUES

EXPENDITURES BY LEVEL OF GOVERNMENT

This section covers spending on transportation by all levels of government and their agencies, including operating costs, such as salaries, capital expenditures and grants, as well as contributions and payments to corporations. Where possible, gross spending on the sector and revenues obtained from it are shown separately.

TABLE 4-1
GOVERNMENTS' NET EXPENDITURES ON TRANSPORTATION

(Millions of dollars)

	1991/92	*1992/93*	*1993/94*	*1994/95*	*1995/96*	*1996/97*
Federal	3,633	3,109	3,200	3,025	3,295	2,705
Provincial/Territorial	7,871	7,437	7,230	7,558	7,603	7,169
Municipal*	5,650	5,862	5,941	6,007	6,173	6,079
Total	**16,954**	**16,408**	**16,371**	**16,590**	**17,071**	**15,953**

* Calendar basis

Source: Main Estimates of Government of Canada; Transport Canada, Finance Directorate; Canadian Transportation Agency; Internal reports from several agencies and federal departments; Provincial and Territorial Departments of Transportation; Statistics Canada, Public Institutions Division, Unpublished data.

TABLE 4-2
GOVERNMENTS' REVENUES FROM TRANSPORTATION NOT CREDITED TO TRANSPORTATION BUDGETS

(Millions of dollars)

	1991/92	*1992/93*	*1993/94*	*1994/95*	*1995/96*	*1996/97*
Federal fuel taxes	3,150	3,218	3,302	3,415	3,873	4,023
Provincial/Territorial						
Fuel taxes	4,390	4,988	5,183	5,426	5,526	5,638
Licence fees	2,256	2,337	2,493	2,568	2,513	2,690
Total	**9,796**	**10,543**	**10,978**	**11,409**	**11,912**	**12,351**

Source: Transport Canada, Provincial and Territorial Departments of Transportation

Most government revenues derived from a transportation activity or use of a facility or service are not specifically earmarked for expenditures in that sector. Instead, they are deposited into the government Consolidated Revenue Fund. Federal and provincial/territorial revenues raised from taxes on fuels, for instance, are considered an important source of general government revenue – they are not allocated to the transportation sector.

Some other transportation revenues, however, such as those derived from federally operated airports, are credited to Transport Canada's budget. Until recently, the air transportation tax or ATT paid on airline tickets was credited to Transport Canada's budget. This procedure, known as "vote-netting," is used mainly by the federal government. Parliament approves a voted amount of money (net expenditures) to which vote netted revenues are deleted to provide the total funds (gross expenditures) available for a program. Since 1996/97, the ATT has been credited to the Consolidated Revenue Fund and Parliament has increased the voted (or "net") expenditures by an equivalent amount.

For all levels of government, net expenditures on transportation dropped to just over $15 billion in 1996/97, with the federal government accounting for 18 per cent and the provincial/territorial and municipal governments for 41 per cent each. Table 4-1 shows the net transportation expenditures by level of government.

Non-Credited Government Revenues

Government revenues collected from transport users that were not directed to the transportation budget grew at an average rate of 4.7 per cent over the past five years to reach $12.4 billion in 1996/97. These revenues come mainly from motor vehicle use: permit and licence fees collected by the provincial and territorial governments, and fuel taxes collected independently by both the provinces/territories and the federal government.

Fuel taxes make up close to 80 per cent of the total of non-credited taxes in 1996/97. Over the years, this percentage has increased as licence fee revenues have grown at an average annual rate of just under three per cent, while fuel tax revenues have risen an average of five per cent. Table 4-2 shows the non-credited government revenues from transport from 1991/92 to 1996/97.

In the case of provincial fuel taxes, an adjustment has been made to deduct an amount equal to that of the provincial sales taxes where sales tax is not levied on fuel. This adjustment is based on the assumption that some fuel taxes replace provincial sales taxes. The intention here is to identify only those taxes specific to transport use. Approximately $600 million is deducted per year.

FEDERAL EXPENDITURES AND REVENUES ON TRANSPORTATION

GROSS FEDERAL EXPENDITURES

Expenditures on transportation by the federal government include the entire budgets of Transport Canada, the Canadian Transportation Agency, the Transportation Safety Board of Canada and the Civil Aviation Tribunal of Canada, as well as certain expenditures by other federal departments. Spending includes operational and capital expenditures, subsidies, and grants and contributions to Crown corporations and other "transportation" entities.

Actual gross spending (not accounting for revenues credited to the budget) by the federal government on transportation during fiscal year 1996/97 reached $3.3 billion, after peaking at $4.7 billion in 1991/92. Spending in 1997/98 is expected to drop to $3.1 billion. Table 4-3 shows federal government spending on transportation from 1991/92 to 1997/98.

Transport Canada's gross expenditures on transportation accounted for about 76 per cent of total federal spending on transportation in 1996/97. The department has shifted its focus from being an operator and subsidizer to concentrating on the core areas of developing policy and legislation, and enforcing safety and security standards.

To put federal spending on transportation into perspective, in 1981/82, those expenditures represented 4.4 per cent of total federal spending. In 1996/97, that ratio dropped to two per cent and even further decreases are expected in 1997/98.

TABLE 4-3
FEDERAL GOVERNMENT GROSS EXPENDITURES ON TRANSPORTATION

(Millions of dollars)

	1991/92	*1992/93*	*1993/94*	*1994/95*[1]	*1995/96*[2]	*1996/97*	*1997/98*[3]
Transport Canada	3,202	2,984	3,096	2,977	3,448	2,501	2,422
Other[4]	1,479	1,108	1,033	1,050	1,046	791	679
Total	**4,681**	**4,092**	**4,129**	**4,027**	**4,494**	**3,292**	**3,101**
Total transport expenditures as per cent of total federal expenditures	**2.9**	**2.5**	**2.4**	**2.4**	**2.8**	**2.0**	**1.9**

1 Transport Canada expenditures include a budgetary expenditure of $1,101 million for the lowering of the value of the assets on the Accounts of Canada relating to the sale of the Canadian National Railways.
2 Starting in that fiscal year, Canadian Coast Guard operations related to transportation included under "Other".
3 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
4 Includes the Canadian Transportation Agency, the Transportation Safety Board, the Aviation Safety Board the Civil Aviation Tribunal as well as transportation expenditures by other federal departments such as DFO, PWC and Parks Canada.

Source: Main Estimates of the Government of Canada; Transport Canada – Finance; Canadian Transportation Agency; internal reports from several agencies and departments.

TABLE 4-4
TRANSPORT CANADA'S GROSS SPENDING ON TRANSPORTATION

(Millions of dollars)

	1991/92	*1992/93*	*1993/94*	*1994/95*	*1995/96*	*1996/97*	*1997/98*[1]
Operating and EBP[2]	1,756	1,686	1,677	1,687	2,320	1,155	519
Capital	533	499	588	501	297	273	106
Grants & Contributions[3]	913	799	831	789	831	1,073	1,797
Total	**3,202**	**2,984**	**3,096**	**2,977**	**3,448**	**2,501**	**2,422**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 EBP is Employee Benefit Plan
3 Includes transfers to Crown corporations as well as $348 million in 1997–98 to Newfoundland for termination of ferry services.

Source: Transport Canada – Finance

TRANSPORT CANADA EXPENDITURES

As more and more departmental operations were transferred to other entities, Transport Canada's budget was reduced accordingly. Operating expenditures amounted to almost $1.8 billion in 1991/92, accounting for as much as 55 per cent of the entire budget. This declined to slightly more than half a billion in 1997/98, representing less than 25 per cent of the total Transport Canada budget. Table 4-4 shows Transport Canada's gross spending on transportation.

TRANSPORT CANADA REVENUES BY MODE

Transport Canada raises revenues through airport fees and leases, and port and harbour fees, which are credited to the departmental budget. These cost recoveries amounted to $587 million in 1996/97 after peaking at almost $1.2 billion in 1995/96, when the air transportation tax was still credited to the departmental budget.

TABLE 4-5
REVENUES CREDITED TO TRANSPORT CANADA'S BUDGET

(Millions of dollars)

	91/92	*92/93*	*93/94*	*94/95*	*95/96*	*96/97*[1]	*97/98*[2]
Air transportation tax	485.9	498.1	530.0	588.8	682.7	-	-
Airport fees/leases	479.1	379.4	291.3	303.3	367.9	324.6	156.5
Air navigation fees[3]	32.4	37.4	45.1	38.5	70.8	179.7	-
Ports and harbours fees	8.6	28.4	27.4	23.3	21.0	25.7	16.7
Other fees and recoveries[4]	41.8	39.9	35.2	48.4	56.1	57.4	51.2
Total	**1,047.8**	**983.2**	**929.0**	**1,002.3**	**1,198.5**	**587.4**	**224.4**
Total as a per cent of gross federal transport expenditures							
	22.4	24.0	22.5	24.9	26.7	17.8	7.2

1 Starting in 1996/97, the air transport tax, formerly netted against Transport Canada budget is now credited to the government Consolidated Revenue Fund. In 1996-97 it amounted to $737.2 million and estimated to be in the order of $781.9 million in 1997/98.
2 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
3 Air navigation systems was privatized as Nav Canada on November 1, 1996.
4 Includes inter- and intra-departmental transfers for services and various regulatory, licensing and administrative fees.

Source: Main Estimates, Government of Canada, Part III; Transport Canada, Finance Directorate

TABLE 4-6
TRANSPORT CANADA LEVEL OF COST RECOVERY

(Millions of dollars)

	91/92	*92/93*	*93/94*	*94/95*	*95/96*	*96/97*[1]	*97/98*[2]
Total revenues	1,048	983	929	1,002	1,198	587	224
Total expenditures	3,202	2,984	3,096	2,977	3,448	2,501	2,422
Net Expenditures	2,154	2,001	2,167	1,975	2,250	1,914	2,198
Cost recovery (%)	32.7	32.9	30.0	33.7	34.7	23.5	9.3

1 Starting in 1996/97, the air transport tax, formerly netted against Transport Canada budget is now credited to the government Consolidated Revenue Fund. In 1996/97 it amounted to $737.2 million and estimated to be $781.9 million in 1997/98. Since total expenditures include subsidies, these two sums have been subtracted from total expenditures for 1996/97 and 1997/98.
2 Forecast as at January 31, 1998 of full fiscal year actual expenditures.

Source: Transport Canada, Finance Directorate

Beginning in 1996/97, that tax was credited to the Consolidated Revenue Fund. Revenues from it amounted to $737 million in 1996/97, with estimates of $782 million for 1997/98. Table 4-5 shows transport revenues credited to Transport Canada from 1991/92 to 1997/98.

In preparation for the privatization of the Air Navigation System (ANS), which took place in November 1996, the department also introduced an overflight fee in 1995 that resulted in higher revenues in 1995/96 and 1996/97 than in previous years. With the sale of the ANS to Nav Canada, Transport Canada's revenues from air navigation fees ceased on November 1, 1996. The air transportation tax was reduced on March 1, 1998 and will be discontinued by November 1, 1998. It will be replaced by user charges by Nav Canada based on full cost recovery.

With the loss of revenues from the air transportation tax, one of the most important sources of revenue for Transport Canada will be the leases paid by local entities looking after airport operations. By 1997/98, these revenues will account for almost 70 per cent of the department's total revenues despite the fact that, in absolute terms, this sum will be significantly less than it was in 1991/92.

Cost Recovery Levels

Up until 1995/96, Transport Canada was recovering about one third of its expenditures, which include operations and maintenance, as well as capital expenditures and subsidies. In 1997/98, this percentage came down to 9.3 per cent. Table 4-6 shows Transport Canada's level of cost recovery since 1991/92.

FEDERAL SUBSIDIES TO TRANSPORTATION

DIRECT FEDERAL SUBSIDIES

For many decades, direct grants and contributions or payments to Crown corporations represented significant expenditures on transportation. Although recent policy changes have reduced some subsidies, such as those to VIA Rail, or eliminated many large ones, such as those for the transport of grain from Western Canada under the *Western Grain Transportation Act (WGTA)* and the *Atlantic Region Freight Assistance (ARFA)* program, some funds are still being paid out to ease the period of transition.

Subsidies are still being made as transition payments to the ARFA program to upgrade the road network in the Atlantic region and Eastern Quebec. In addition, the province of Newfoundland will receive some $350 million in 1997/98 for taking over the Labrador Ferry services.

Large interim payments (the air transportation tax) are also being paid up to November 1998 to Nav Canada until it can put charging mechanisms in place to recover costs. Therefore, it is not surprising that subsidies to air, road and marine continue to appear high.

For rail services on the other hand, which until recently received the largest proportion of federal subsidies (66 per cent of all direct subsidies in 1993/94), the share has dropped to less than 15 per cent in 1997/98. Table 4-7 shows the total direct federal subsidies, grants and contributions from 1993/94 to 1997/98.

TABLE 4-7
TOTAL DIRECT FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS – BY MODE

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
Rail	1,044.7	1,015.2	567.2	280.6	259.3
Highways and bridges	232.5	243.4	284.9	317.1	321.6
Trucking	97.5	98.5	39.5	3.9	4.6
Ferries and marine facilities	170.9	183.5	166.9	148.1	480.0
Air	44.1	25.4	35.5	327.0	734.6
Other[2]	5.7	3.8	4.5	3.4	13.1
Total	1,595.4	1,569.8	1,098.5	1,080.1	1,813.2

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 Includes in 1997/98, $13 million for RCMP withdrawal at international airports.

Source: Transport Canada, Finance Directorate

TABLE 4-8
FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS
RAIL TRANSPORTATION

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
Freight	**683.3**	**696.1**	**248.1**	**24.9**	**28.8**
WGTA	633.0	644.0	209.8	-	-
ARFA	9.4	9.3	2.2	-	-
Branch lines	15.3	17.4	9.7	-	1.4
Hopper cars	17.8	19.1	18.2	17.1	19.0
Other	7.8	6.3	8.2	7.8	8.4
Passenger	**351.8**	**311.1**	**310.9**	**248.2**	**223.0**
VIA	342.7	301.0	301.0	235.8	216.2
Non-VIA	8.9	9.9	9.7	12.2	6.6
Other	.2	.2	.2	.2	.2
Grade Crossings	**9.6**	**8.0**	**8.2**	**7.4**	**7.5**
Total – Rail	**1,044.7**	**1,015.2**	**567.2**	**280.6**	**259.3**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.

Source: Transport Canada, Finance Directorate

TABLE 4-9
FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS
HIGHWAYS AND BRIDGES

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
Highway agreements	193.5	209.8	207.7	214.4	154.7
Transition re ARFA[2]	-	-	48.7	74.8	103.4
Northumberland Strait Crossing	-	-	-	-	37.8
Other	3.3	1.0	-	-	-
Total – Highways	196.8	210.8	256.4	289.2	295.9
Montreal bridges[3]	35.7	32.6	28.5	27.9	25.7
Total – Highways and bridges	**232.5**	**243.4**	**284.9**	**317.1**	**321.6**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 Atlantic Region Freight Assistance program
3 Jacques Cartier and Champlain Bridges Inc.

Source: Transport Canada, Finance Directorate

TABLE 4-10
FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS
TRUCKING

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
ARFA	96.2	97.8	35.4	-	-
National Safety Code	-	-	3.7	3.9	4.6
Other[2]	1.3	0.7	0.4	-	-
Total – trucking	**97.5**	**98.5**	**39.5**	**3.9**	**4.6**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 Grants to associations and institutes

Source: Transport Canada, Finance Directorate

Rail

Direct subsidies to rail were over one billion dollars in each of the two fiscal years 1993/94 and 1994/95. In those same years, payments under the *Western Grain Transportation Act (WGTA)* accounted for close to two thirds of total subsidies to rail and over 92 per cent of total subsidies to rail freight. Starting in 1996/97, this program was completely eliminated, as was the *Atlantic Region Freight Assistance (ARFA)* program. Combined with reductions to VIA Rail support ($127 million over a four-year period), total rail subsidies dropped to $281 million in 1996/97 and to $259 million in 1997/98, or around 25 per cent of their peak value in 1993/94. Table 4-8 shows the federal government's subsidies made to the rail sector.

Roads and Bridges

Over the last few decades, direct federal subsidies for highways and bridges have been primarily in the form of contributions under bilateral cost-sharing agreements with individual provinces, territories and (occasionally) municipalities. Subsidies totaled $317 million in 1996/97 and are expected to increase to $322 million in 1997/98, equal to their level in 1995/96. Without the transition payments to the *Atlantic Region Freight Assistance* program in 1997/98, that total would have accounted for about ten per cent of total federal transportation subsidies compared with 15 per cent in 1993/94. Table 4-9 shows federal subsidies made to highways and bridges from 1993/94 to 1997/98.

Trucking

Subsidies to trucking activity shown in Table 4-10 are mainly identified as payments under the *ARFA* program, which was

eliminated in 1996. The table also shows payments to provinces and territories under agreements to implement National Safety Code provisions. Total direct subsidies to trucking are expected to represent less than half of one per cent of total federal transportation subsidies in 1997/98.

Marine

Although federal subsidies for ferries and marine facilities have dropped from $171 million in 1993/94 to $148 million in 1996/97, the beneficiary share of total federal transportation subsidies has increased from 11 to 14 per cent over the same period. Here again, subsidies have been either eliminated or substantially reduced. Over the fiscal period 1993/97, subsidies to ferries, dominated by payments to Marine Atlantic Inc., represented more than 75 per cent of total marine subsidies. In 1997/98, total ferry subsidies is dominated by a $348 million one-time payment to the province of Newfoundland for the Labrador ferry services buyout. Without that payment, total subsidies for marine activities and ferries would total $132 million. Table 4-11 shows federal subsidies for the marine sector.

Air

Subsidies to air activities include those to airports, aviation and Nav Canada. The National Airports Policy (NAP) of 1994 outlined plans for federally owned airports. Transport Canada will retain ownership of 26 major airports that make up the National Airports System (NAS). The operation of these airports, however, will be transferred to local airport authorities. Many of the NAS airports require no subsidies and those that do are still operated directly by Transport Canada. The

TABLE 4-11
FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS
MARINE TRANSPORT

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
Marine facilities and services					
Pilotage Authorities	7.3	4.3	5.1	-	-
Canartic Marine Inc.	2.7	-	-	-	-
Canada Ports Corp.	.7	.9	1.9	2.5	0.7
St. Lawrence Seaway Authority	-	-	-	-	-
Port Divestiture Fund	-	-	-	13.1[2]	2.5
Other	1.5	1.8	10.1	-	3.4
Sub-total	**12.2**	**7.0**	**17.1**	**15.6**	**6.6**
Ferries					
Marine Atlantic Inc.	129.3	112.4	100.0	97.2	91.3
Nfld. South Coast ferries	-	31.0	19.0	5.0	-
BC ferries	18.4	22.8	21.3	21.8	21.9
Bay of Fundy Ferry Services	-	-	-	-	3.3
Other East Coast ferries	11.0	10.3	9.5	8.5	9.3
Labrador ferry services buyout	-	-	-	-	347.6
Sub-total	**158.7**	**176.5**	**149.8**	**132.5**	**473.4**
Total – Ferries and Marine	**170.9**	**183.5**	**166.9**	**148.1**	**480.0**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 This amount includes a $10 million grant to Newfoundland for the operation of ports.

Source: Transport Canada, Finance Directorate

TABLE 4-12
FEDERAL SUBSIDIES, GRANTS AND CONTRIBUTIONS
AIR TRANSPORT

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98*[1]
Airports					
Non-NAS[2] airport operations	14.2	12.0	7.5	4.7	3.4
Local airports	14.6	8.0	10.0	.8	.2
Non-NAS airports under NAP[3]	-	-	11.5	16.3	18.1
Airport Capital Assistance Prog.	-	-	1.7	9.4	22.2
Other[4]	14.3	4.9	4.5	3.9	4.6
Total – Airports	**43.1**	**24.9**	**35.2**	**35.1**	**48.5**
Aviation	**1.0**	**.5**	**.3**	**.2**	**.3**
Nav Canada	**-**	**-**	**-**	**291.7**	**685.8**
Total – Air	**44.1**	**25.4**	**35.5**	**327.0**	**734.6**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 National Airports System
3 The National Airports Program
4 Includes in 1993–94, a subsidy of $13.3 million to other airports

Source: Transport Canada, Finance Directorate

TABLE 4-13
FEDERAL EXPENDITURES
ON TRANSPORT FACILITIES AND SERVICES [1]

(Millions of dollars)

	93/94	*94/95*	*95/96*	*96/97*	*97/98* [1]
Airports operations (NAS [2] and non-NAS)					
Operating expenditures	244.5	245.3	238.3	255.3	120.5
Capital expenditures [3]	135.8	146.0	135.7	123.4	57.0
Total gross airports operations	380.3	391.3	374.0	378.7	177.5
Less revenues	(291.3)	(303.3)	(367.9)	(324.6)	(156.5)
Airports operations – Net Exp.	**89.0**	**88.0**	**6.1**	**54.1**	**21.0**
Air navigation system	128.2	96.1	29.6	363.7	N/A
Harbours and ports	114.2	109.4	90.2	79.1	19.1
Coast Guard services [4]	588.8	530.8	524.1	517.6	499.1
Total	**920.2**	**824.3**	**650.0**	**1,014.4**	**539.2**

1 Forecast as at January 31, 1998 of full fiscal year actual expenditures.
2 National Airports System
3 Includes in 1996–97 $2.1 million of statutory spending
4 Includes expenditures on marine navigation systems, icebreaking and Arctic operations, search and rescue and fleet management.

Source: Transport Canada, Finance Directorate; Federal Department of Fisheries and Oceans

net costs of their operation therefore are reflected as direct expenditures and discussed in that section of this chapter.

The department is also transferring both ownership and operational responsibility for regional, local and small airports to local authorities. Airports that have been transferred will continue to receive subsidies for a certain number of years. Contributions to the International Civil Aviation Organization (ICAO) and smaller amounts paid in accordance with other international agreements for air navigation and airways are shown under Aviation in Table 4-12.

As for Nav Canada, it will continue to receive the proceeds of the air transportation tax as a form of subsidy until its own fee schedule for overflight traffic is in place. If payments to Nav Canada are excluded for the fiscal periods 1996/97 and 1997/98, total air subsidies in those two years amount to $35 and $49 million, respectively.

OTHER TRANSPORT FACILITIES AND SERVICES PROVIDED AT FEDERAL GOVERNMENT EXPENSE

Indirect Subsidies to Transportation

Apart from the direct subsidization of services through money transfers to other entities, certain transportation facilities and services are provided through direct federal operations and funded through specific departmental or agency budgets. However, in recent years, Transport Canada's role in the operation of various elements of the transportation system has diminished, as have the department's expenditures on airports, air navigation services, and harbours and ports. In addition to this, when the direct user of a service is clearly identified, fees have either been instituted or increased, reducing net expenditures even further. Furthermore, cost efficiencies related to the integration of Canadian Coast Guard operations with the Department of Fisheries and Oceans have helped cap expenditures on many operations. Table 4-13 shows federal spending on transportation facilities and services from 1993/94 to 1997/98.

Federal Compensation for Imposed Public Duties

When the government's role with respect to transportation was one of regulating the industry (economic regulation), it was also directly subsidizing transportation services in specific geographic areas that could not be serviced without the carrier incurring a loss. Subsidized services were considered to be in the public interest. Services that fell into this category were referred to as "imposed public duties." Legislative and administrative mechanisms, such as those in the *National Transportation Acts* of 1967 and 1987, the *Railway Act*, and the *Western Grain Transportation Act*, were put in place to specify which services were required of carriers as public duties, and to determine the amount of compensation for which they were eligible.

Until recently, compensation to rail carriers by the federal government for statutorily imposed public duties consisted of payments for western grain transport under the *Western Grain Transportation Act*; subsidies to railways for the continued operation of unremunerative branch lines under section 178 of the *National Transportation Act, 1987;* and subsidies to railways for the operation of unremunerative passenger services under section 290 of the *Railway Act* (other than those to VIA Rail Canada, which as a Crown corporation received direct budgetary funding). With the

TABLE 4-14
PROVINCIAL GOVERNMENT EXPENDITURES ON TRANSPORTATION

(Millions of dollars)

	91/92	*92/93*	*93/94*	*94/95*	*95/96*	*96/97*
Air	117.4	99.3	90.0	89.3	105.0	102.7
Water	168.7	142.5	126.0	131.4	100.5	92.5
Rail	15.8	15.5	21.8	19.3	26.7	10.8
Highways	6,143.6	5,885.0	5,801.8	6,079.1	6,214.2	5,787.8
Transit	1,368.7	1,212.8	1,214.7	1,308.0	1,286.9	1,275.3
Multimodal	209.8	207.6	208.0	196.3	198.9	164.6
Total gross transportation expenditures	**8,024.1**	**7,562.7**	**7,462.4**	**7,823.4**	**7,932.1**	**7,433.7**
less federal transfers	**153.5**	**126.1**	**232.6**	**265.3**	**329.1**	**264.8**
Total net transportation expenditures	**7,870.6**	**7,436.6**	**7,229.8**	**7,558.1**	**7,603.0**	**7,168.8**
Per cent of total provincial expenditures	5.4%	4.9%	4.8%	4.9%	4.8%	4.7%

Source: Provincial and Territorial Departments of Transportation.

elimination of the *Western Grain Transportation Act* and the introduction of the *Canada Transportation Act*, all such payments to rail carriers were eliminated.

Statutory payments for imposed public duties exist for ferry services such as between North Sydney, Nova Scotia, and Port-aux-Basques, Newfoundland. Such payments to ferry services are not so much reflecting an "imposed public duty" but constitutional obligations. Subsidies for these services are included in Table 4-11 under Marine Atlantic Inc. and amount to $23.4 million in 1996/97 and $26.3 million in 1997/98.

PROVINCIAL EXPENDITURES

In 1996/97, provincial and territorial governments spent about $7.4 billion on transportation. The amount of this spending has fluctuated between this level and $8 billion over the past six years. Both operating and maintenance (including salaries) and capital expenditures accounted for about 36 per cent each of their total gross spending in 1996/97, while transfers accounted for 27 per cent. (Many provinces have moved to unconditional grants to municipalities and, in many cases, it is no longer possible to trace amounts spent on transportation. For this reason transfers spent on transportation may be under-reported.)

Spending on highways is by far the most important and amounted to $5.8 billion in 1996/97 or about 78 per cent of the total spending. This proportion has remained more or less constant over the past five years. Spending on transit is the next most important and amounted to $1.3 billion in 1996/97, it has remained at about 17 per cent of total spending during the past five years. Like total provincial transportation spending on both highways and transit have fluctuated over the past six years not showing any real trend while spending for the other modes as well as multimodal spending have all declined. Multimodal spending includes specific spending on more than one mode of transport as well as general departmental administration expenditures.

Federal transfers to the provinces and territories for transportation were $265 million in 1996/97 and constituted only about 3.6 per cent of gross provincial/territorial transportation spending. Federal transfers have risen ten per cent a year over the past five years. The main increase has been since 1993/94 and reflects road agreements as well as transition payments in relation to the phase-out of the Atlantic Freight Rates Program.

Provincial and territorial transportation spending, net of federal transfers, was $7.2 billion in 1996/97. This sum accounted for about 4.7 per cent of their total government spending. This percentage has been falling in recent years. By province, this percentage varies from a low of three per cent in Newfoundland and Quebec to a high of 11 per cent in the Yukon. It is five per cent in Ontario (Table 4-14).

TABLE 4-15
LOCAL GOVERNMENT EXPENDITURES ON TRANSPORTATION

(Millions of dollars)

	1991	*1992*	*1993*	*1994*	*1995*	*1996*
Roads and streets	5,967.1	5,949.8	6,087.2	6,365.7	6,674.3	6,037.5
Public transit	1,296.8	1,557.4	1,504.4	1,532.2	1,611.0	1,636.2
Other transportation	101.0	96.3	111.7	97.6	123.3	137.8
Gross expenditures	**7,364.9**	**7,603.6**	**7,703.3**	**7,995.6**	**8,408.5**	**7,811.4**
Less transfers	**1,715.2**	**1,741.9**	**1,762.6**	**1,989.1**	**2,235.2**	**1,732.7**
Provincial	1,695.1	1,714.6	1,743.4	1,900.9	2,070.4	1,618.6
Federal	20.1	27.3	19.3	88.3	164.8	114.1
Net expenditures	**5,649.8**	**5,861.7**	**5,940.7**	**6,006.5**	**6,173.3**	**6,078.7**

Source: Statistics Canada, Public Institutions Division, unpublished data.

LOCAL GOVERNMENT EXPENDITURES

In 1996, local governments in Canada spent a total of $7.8 billion on transportation. If the $1.7 billion in transfers from other levels of government is taken out, net local governments expenditures on transportation totaled $6.1 billion. Over the period 1991 to 1996, local government expenditures grew at an average annual rate of 1.2 per cent. They reached a maximum of $8.4 billion in 1995. Spending on roads and streets have been falling in relative terms while transit related expenditures have increased slightly. Spending on roads and streets accounted for approximately 77 per cent of total local government expenditures. Transfers to local governments were $1.7 billion in 1996, about the same as in 1991, although they rose significantly in 1994 and 1995. This increase came from the Special Infrastructure Program and the resulting increase in federal transfers to local governments in the past three years (Table 4-15).

5

INFRASTRUCTURE AND ASSOCIATED SERVICES

As a result of recent years' investment, major transportation infrastructure became operational in 1997, for instance the Vancouver Deltaport container facility, the electronic toll highway 407 in Ontario, and the Confederation Bridge linking Prince Edward Island to the mainland. Transfers and leasing of lines dominated rail rationalization activities.

Canada's transportation infrastructure is a vast network covering the country's landscape, which extends over some nine million square kilometres. The system includes over 900,000 kilometres of road, 50,000 route-kilometres of rail lines, approximately 1,800 registered aerodromes (646 of which are certified as airports), over 300 commercial ports and harbours, more than 2,000 fishing and recreational harbours, and the St. Lawrence Seaway.

It also includes an air navigation system that guides air traffic over Canadian airspace, as well as marine navigation and protection services provided by the Canadian Coast Guard from 11 bases across the country. In addition, four pilotage authorities provide pilotage services to and from Canada's major ports.

Each element of this transportation infrastructure is a real-property asset requiring maintenance and upkeep, as well as investment of resources to accommodate growth and evolving needs.

This chapter describes the system and its utilization, and gives an overview of the most recent developments in Canada's transportation infrastructure, including institutional changes involving commercialization, contracting out, and legislative and regulatory reform.

MAJOR EVENTS IN 1997

AIR NAVIGATION SYSTEM

In its first year of operation in 1997, Nav Canada submitted and received approval for Phase One of its proposed fee structure implemented on March 1, 1998. Phase Two has November 1, 1998 as the target date for implementation. The Air Transportation Tax is being eliminated to make way for these direct charges to users.

AIRPORTS

Local airport authorities took over operations of local airports in Victoria, Winnipeg, Thunder Bay, Ottawa and Moncton in 1997. Currently more than 90 per cent of all passenger traffic in Canada passes through airports operated by local airport authorities.

Over the past year, the airport authorities, both new and old, were busy:

- The Greater Toronto Airports Authority purchased Terminal 3 and selected a design consortium for the redevelopment of the other two terminals at Pearson airport. A new parallel north–south runway began operations in November.
- Aéroports de Montréal announced a second phase of construction at Dorval.
- Vancouver International Airport Authority announced plans for a $114-million expansion.
- Ottawa's Macdonald-Cartier International Airport opened a new facility for US customs and immigration pre-clearance. Seven Canadian airports now have pre-clearance for passengers on US-bound flights, including Montreal (Dorval), Toronto (Pearson), Winnipeg, Calgary, Edmonton and Vancouver.
- The Calgary Airport Authority began a $28-million capital program, including improvements to vehicle parking, Canada Customs space and aircraft parking.
- The Edmonton Regional Airports Authority began work on a terminal redevelopment program at the international airport.

PORTS

A notable event during the past year occurred when the Port of Vancouver officially opened its Deltaport Container Terminal on June 25, 1997, doubling the port's container handling capacity to 1.2 million Twenty-Foot Equivalent Units. The new facility can handle the largest container vessels currently in service and transfer containers to double-stack rail cars for immediate dispatch to Central Canada and the US Midwest.

Another notable event occurred when the federal government transferred the Port of Churchill to the Hudson Bay Port Company, an affiliate of OmniTRAX Inc., on September 4, 1997. OmniTRAX also owns the Hudson Bay Railway, which acquired 1,300 kilometres of rail line to Churchill previously owned by Canadian National.

ST. LAWRENCE SEAWAY

Negotiations between the Minister of Transport and the Seaway Users' Group in pursuit of a commercialization agreement continued in 1997. Completion of the agreement is expected in mid-1998.

CANADIAN COAST GUARD

Following introduction of the Marine Navigation Services Fee in 1996, the Canadian Coast Guard (CCG) continued its efforts to reduce expenditures and improve efficiency by introducing a new fee in 1997: the Maintenance Dredging Services Tonnage Fee for the St. Lawrence Ship Canal.

RAIL

In 1997, five shortline corporations, currently dominating that sector of the rail industry, added over 3,000 kilometres of track to their networks, primarily as a result of transfers or leasing agreements with CN and CP Rail.

ROADS

The highlight of 1997 was the June opening of the Confederation Bridge between Prince Edward Island and New Brunswick. Other road-sector activity included the transfer of provincial roads to municipal responsibility. In Ontario a completely electronic toll highway was opened to traffic, Highway 407.

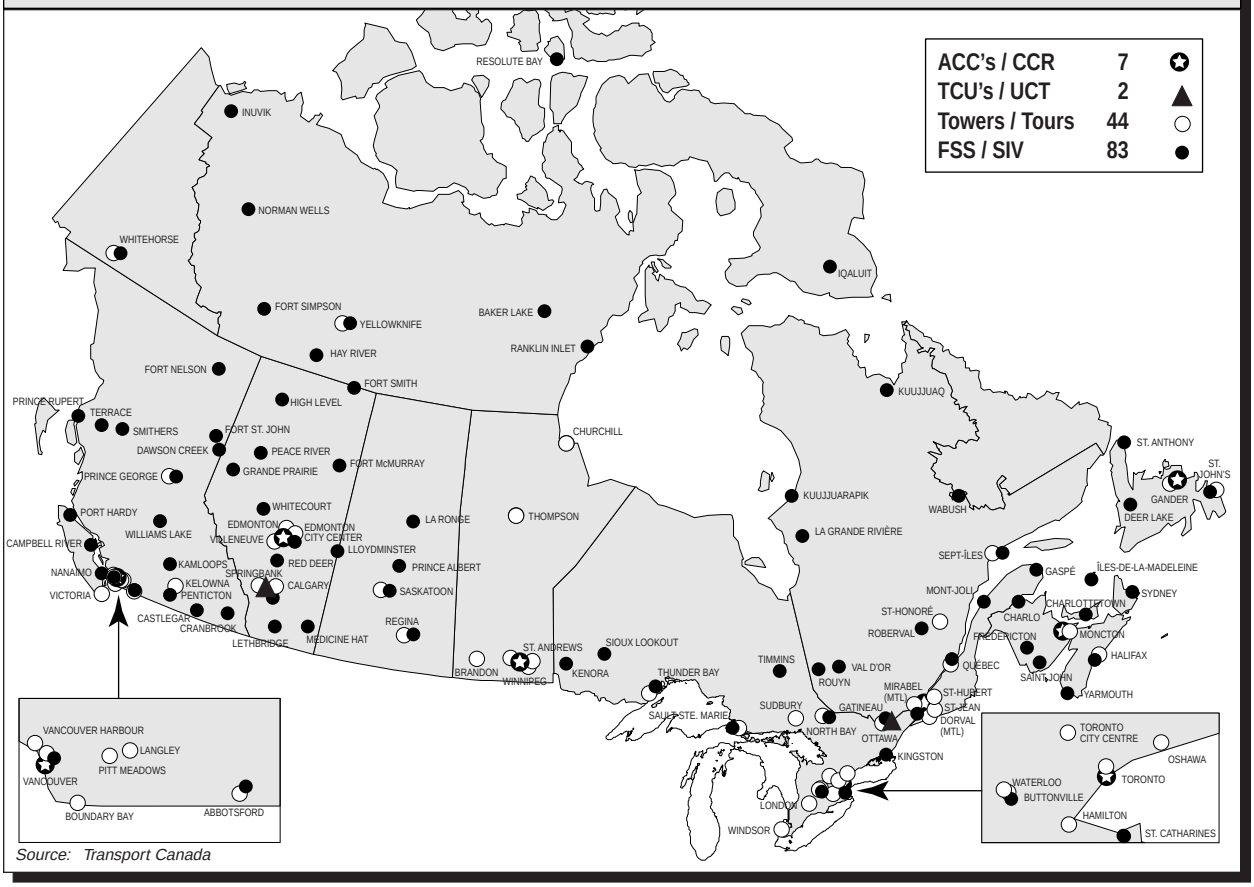
AIR TRANSPORTATION INFRASTRUCTURE

AIR NAVIGATION SYSTEM

The Canadian Air Navigation System (ANS) consists of seven area control centres (ACC), 44 air traffic control towers, 83 flight service stations (FSS), and a network of 1,400 electronic navigational aids. One of the safest and most extensive networks of air infrastructure in the world, this system delivers air traffic control and related airspace services to aircraft operators, supporting 6.8 million aircraft movements a year. Figure 5-1 pinpoints the locations of the network components across the country.

Nav Canada, a private, not-for-profit corporation, assumed responsibility for all civil air navigation services on November 1, 1996. The transfer included air traffic control, aeronautical telecommunications, aeronautical information and aviation weather services. The corporation agreed to pay the federal government $1.5 billion in cash and assume some continuing liabilities and responsibilities.

FIGURE 5-1
CANADA'S AIR NAVIGATION SYSTEM



Source: Transport Canada

The Minister of Transport retains as a mandate the safety oversight of Nav Canada's operations, by ensuring that all safety and regulatory requirements continue to be met. While Nav Canada and the Minister of Transport share responsibility for air navigation safety, the Minister remains responsible for ensuring that safety is not compromised by Nav Canada's decisions. In addition, the Minister is responsible for ensuring that changes to the Air Navigation System do not adversely affect service to northern and remote areas, as specified in the *Civil Air Navigation Services Commercialization Act.*

Air Navigation Operations

Restructuring

In September 1997, Nav Canada announced its "Corporate Direction," which involves reducing the corporation's current 6,300 employee positions by 1,000 over three years. It expects to achieve an 18 per cent reduction in operating costs from its restructuring and downsizing, which are matters for Nav Canada to determine in accordance with the requirements of the *Civil Air Navigation Act*, and the *Aeronautics Act* and its associated regulations.

Table 5-1 shows the workloads of the air navigation system resources and the air traffic controllers providing navigation services to air traffic in Canada. See Appendix 5-1 for details on aircraft movements at major Canadian airports.

Financial Performance

Proposed User Charges

As a not-for-profit corporation, Nav Canada must price its services to recover all costs from users, including any debt-servicing costs. Nav Canada reached an important milestone in establishing a long-term revenue base when it completed extensive consultations on a proposed package of user charges in 1997. Included in this package are the introduction of terminal control charges and domestic en route charges, as well

TABLE 5-1
CANADA'S AIR NAVIGATION SYSTEM WORKLOAD STATISTICS
1991 – 1997

	Aircraft Movements[1] at Canadian Airports				Air Traffic Controllers	Aircraft Movements[1] per Controller
	With Tower	With FSS[2]	Other Airports	TOTAL		
1991	5,540,273	1,169,462	574,344	7,284,079	1,619	4,511
1992	5,265,551	1,096,362	675,822	7,037,735	1,744	4,035
1993	4,952,657	1,114,410	711,888	6,778,955	1,854	3,656
1994	4,917,805	1,130,614	809,918	6,858,337	1,908	3,595
1995	4,729,817	1,339,980	762,347	6,832,144	1,957	3,491
1996	4,794,698	1,265,872	679,397	6,739,967	1,947	3,462
1997	4,996,850	1,315,230	692,172	7,004,252	2,209	3,171

1 Aircraft movements = arrivals and departures of aircraft
2 FSS = Flight Service Stations

Source : Transport Canada, Aircraft Movement Statistics, TP577, 1995-97

as increases in the oceanic and overflight charges. These latter charges had been introduced by the federal government prior to the transfer.

Nav Canada submitted its proposed structure to the Minister of Transport in early August for approval. The Minister approved the charges in early September, after determining they were consistent with the charging principles set out in the *Civil Air Navigation Services Commercialization Act*. These changes will take effect on March 1, 1998, rather than November 1, 1997, as originally scheduled, to give air carriers more time to adjust to charges imposed directly on them. Previously, carriers acted only as agents in collecting the Air Transportation Tax from passengers.

Nav Canada set the new charges at levels necessary to achieve approximately 50 per cent cost recovery. At the same time, the federal government will reduce the current Air Transportation Tax by almost 50 per cent.

A second round of charging proposals will be prepared for implementation on November 1, 1998, when the Air Transportation Tax will be completely eliminated and replaced by Nav Canada's charges.

A Good First Year

Financially, Nav Canada obtained the highest bond rating of any private sector organization in Canada. The corporation's initial debt offering, which amounted to $3 billion, was the largest such offering in Canadian history.

Nav Canada has performed beyond expectations in its first year of operation: for the fiscal year ended August 31, 1997, which covered a 10-month period of operation from November to August, revenues were $776 million; operating expenses, $584 million; interest and depreciation, $121 million; and one-time restructuring costs, $57 million.

AIRPORTS

Canada has approximately 1,800 "aerodromes," the generic name for facilities registered with Transport Canada as aircraft landing and take-off sites. Of these, 646 are certified as either airports for fixed-wing aircraft, heliports for helicopters, or water-ice bases for float- and ski-planes. Most of Canada's commercial aviation activity takes place at certified "airports." Some aerodromes are privately owned, but the vast majority of certified airports are owned by municipalities, provincial/territorial governments, or the federal government.

In terms of size and complexity, Canada's certified airports run the gamut from basic sites with a single runway and one or two multi-purpose buildings, to large airport complexes with multiple runways, aircraft hangars, cargo warehouses, and customs, immigration and agricultural inspection facilities.

Airport terminal buildings also accommodate an array of services for the comfort, security and convenience of passengers and airport employees. Private-sector companies lease space and/or pay concession fees to the owner or operator of the airport to provide these services.

The federal government's 1994 **National Airports Policy** calls for the commercialization of most federally owned airports by March 31, 2000.

FIGURE 5-2
CANADA'S NATIONAL AIRPORTS SYSTEM

Source: Transport Canada

Under the Policy, the federal government will retain ownership of each of the 26 airports that make up Canada's **National Airports System (NAS)**, transferring the operations of all but two of them to Canadian not-for-profit airport authorities through long-term leases. The governments of the Northwest Territories and Yukon have taken control of the National Airports System airports at Yellowknife and Whitehorse respectively. Figure 5-2 shows the locations of the 26 airports in the system.

Transport Canada transferred five airports in the national airports category to airport authorities in 1992: Vancouver, Calgary, Edmonton, Mirabel and Dorval. The department transferred six others in 1996 and 1997. The Greater Toronto Airports Authority took over operation of Canada's busiest airport, Lester B. Pearson International Airport, in 1996. In 1997, local authorities took over operation of the airports in Victoria, Winnipeg, Thunder Bay, Ottawa and Moncton.

Transport Canada is transferring ownership of the 70 **regional/local airports** to local interests by way of sale. As of December 31, 1997, Transport Canada had transferred 46 airports, with 24 remaining.

Transport Canada is also transferring the 25 **small and satellite airports** that do not have scheduled passenger services to local interests. By the end of 1997, 19 airports had been transferred, and six remained under negotiation.

The twelve **remote airports** providing year-round access to isolated communities will continue to receive federal assistance. The government's long-term role in these airports will be reviewed.

Transport Canada has transferred the 11 Arctic airports to their respective territorial governments.

AIRPORT TRAFFIC

Annual passenger traffic at Canadian airports grew by over 12 per cent in 1996. Airports in the National Airports System experienced the most growth, with

TABLE 5-2
PASSENGER TRAFFIC AT CANADIAN AIRPORTS
1991 – 1996

Total Enplaned/Deplaned Passengers by Airports Category – (as defined in NAP – July 1994)

Airports Category	1991	% of Total	1992	% of Total	1993	% of Total	1994	% of Total	1995	% of Total	1996	% of Total
NAS	55,210,647	93.14	56,744,047	93.57	56,165,480	93.82	57,115,452	93.93	60,904,871	94.17	68,717,794	94.80
Regional/Local	3,539,158	5.97	3,405,660	5.62	3,214,143	5.37	3,223,288	5.30	3,297,254	5.10	3,309,159	4.57
Small	24,611	0.04	17,213	0.03	9,210	0.02	364	0.00	1,078	0.00	1,045	0.00
Satellite	188	0.00	7,260	0.01	9,610	0.02	10,283	0.02	13,984	0.02	15,703	0.02
Remote	253,436	0.43	238,694	0.39	242,341	0.40	235,910	0.39	232,231	0.36	222,789	0.31
Arctic	247,876	0.42	230,368	0.38	225,269	0.38	224,304	0.37	228,317	0.35	218,007	0.30
Total*	59,275,916	100.00	60,643,242	100.00	59,866,053	100.00	60,809,601	100.00	64,677,735	100.00	72,484,497	100.00

Note: * Excludes other airports not included in NAP – July 1994.
Whitehorse and Yellowknife are included in NAS category only.

Source: Statistics Canada, Statements 2, 4 and 6.

traffic increasing by 12.8 per cent. Of these, Pearson experienced 8.4 per cent growth, Edmonton 63 per cent (as a result of re-structuring of the city's airports), Calgary 25.9 per cent, Winnipeg 23.1 per cent, and Victoria 21 per cent. However, Gander experienced a decrease of 16 per cent. Table 5-2 shows passenger traffic at Canadian airports. For more detail on passenger traffic at National Airports System airports, see Appendix 5-2.

Cargo traffic at Canadian airports has also tended to increase since the recession in the early 1990s. In 1996, cargo traffic increased by 4.8 per cent from 1995. There were notable variations in this growth, with Gander experiencing a 72 per cent increase, followed by London with 66.6 per cent, Victoria with 22.4 per cent, Calgary with 21.8 per cent and St. John's with 15.9 per cent. Pearson International experienced growth of 5.1 per cent, while airports such as Quebec (-43.5 per cent) and Thunder Bay (-40.4 per cent) faced large declines in cargo traffic. Table 5-3 shows cargo traffic at Canadian airports. For more detail on cargo traffic at National Airports System airports, see Appendix 5-3.

FINANCIAL PERFORMANCE

In 1997/98, Transport Canada forecasts spending $227.4 million on the operation of airports, including operating costs, subsidies and capital, while taking in revenues of $84.0 million. The department also forecasts receiving an additional $69.4 million in rent from the 10 airport authorities.

Local Airport Authorities Revenues and Expenses

National Airports System airports are expected to be fully self-sufficient. The airport authorities, which are incorporated as not-for-profit organizations with no equity shareholders, fund their operations and any expansions/improvements from revenues derived from airport users (airlines, concessionaires, passengers, etc.) and private investors. The airport authorities also pay rent to the federal government, as the owner of the airport. All net earnings are reinvested in airport operations and assets. Airport authorities are required to issue annual reports, including financial statements. Table 5-4 summarizes financial results reported by the four Local Airport Authorities created in 1992 (Vancouver, Calgary, Edmonton and Montreal).

Airport authorities' revenues are derived from four main sources: concession fees, airside fees, airport improvement fees and miscellaneous revenues. Airports incur expenses mainly for materials and services, rent, and staff wages and benefits.

In recent years, airport improvement fees collected from passengers have become an important and growing contribution to cash flow, used to fund capital improvements, e.g. the new terminal at the Vancouver airport. Edmonton and Calgary added airport improvement fees in 1997, and similar fees are expected at other airports in the future.

From 1993 to 1996, the four local airport authorities increased revenues from $264 million to

TABLE 5-3
CARGO TRAFFIC AT CANADIAN AIRPORTS
1991 – 1996

Total Enplaned/Deplaned Cargo (kg) by Airports Category – (as defined in NAP – July 1994)

Airports Category	***1991***	*% of Total*	***1992***	*% of Total*	***1993***	*% of Total*	***1994***	*% of Total*	***1995***	*% of Total*	***1996***	*% of Total*
NAS	690,258,256	97.28	675,025,540	98.42	701,796,167	98.73	701,340,112	98.20	709,907,815	97.98	749,122,057	98.60
Regional/Local	12,649,988	1.78	4,930,111	0.72	4,451,785	0.63	7,951,874	1.11	9,376,349	1.29	6,584,645	0.87
Small	260,500	0.04	132,000	0.02	214,100	0.03	88,600	0.01	146,900	0.02	97,100	0.01
Satellite	-	-	-	-	-	-	-	-	-	-	-	-
Remote	1,531,806	0.22	1,170,245	0.17	694,055	0.10	544,302	0.08	558,330	0.08	795,143	0.10
Arctic	4,846,954	0.68	4,635,594	0.68	3,662,166	0.52	4,294,342	0.60	4,533,660	0.63	3,131,005	0.41
Total*	**709,547,504**	**100.00**	**685,893,490**	**100.00**	**710,818,273**	**100.00**	**714,219,230**	**100.00**	**724,523,054**	**100.00**	**759,729,950**	**100.00**

Note: * Excludes other airports not included in NAP – July 1994
Whitehorse and Yellowknife are included in NAS category only.

Source: Statistics Canada, Statements 2 and 6.

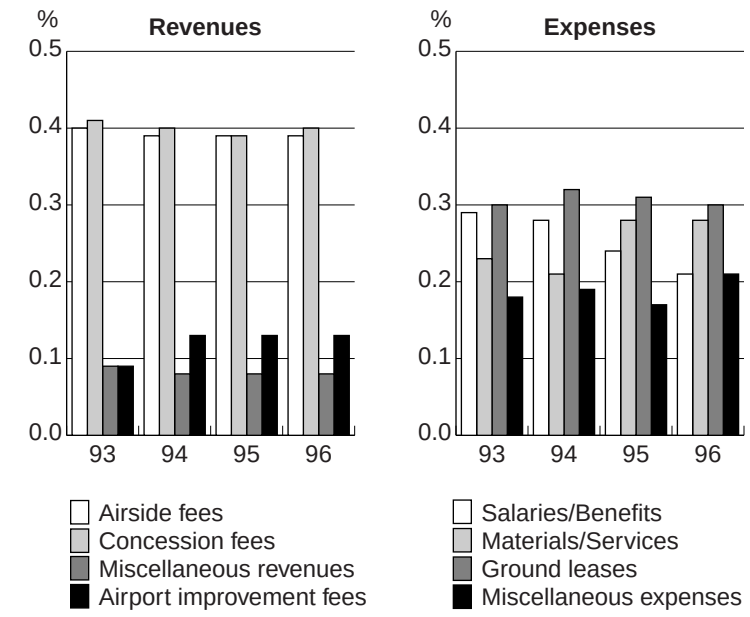
TABLE 5-4
TOTAL REVENUES AND EXPENSES
OF CANADA'S AIRPORT AUTHORITIES
1993 – 1996

Airports		*Operating*				*Net Income*	*Net Income/ Net Fixed Assets*
		Revenues	*Expenses*	*Income*	*Ratio*		
Vancouver	1993	107.0	71.0	36.1	0.66	36.0	0.51
	1994	128.4	75.2	53.1	0.59	53.4	0.32
	1995	146.4	87.6	58.9	0.60	58.5	0.16
	1996	189.7	122.2	67.5	0.64	41.2	0.09
Calgary	1993	39.9	30.4	9.5	0.76	9.3	0.68
	1994	40.9	32.7	8.2	0.80	8.1	0.40
	1995	46.9	38.9	8.0	0.83	7.7	0.28
	1996	53.2	43.0	10.2	0.81	10.0	0.24
Edmonton	1993	15.0	16.5	-1.5	1.10	3.2	0.65
	1994	15.9	17.3	-1.4	1.09	3.8	0.38
	1995	18.1	18.4	-0.2	1.01	5.1	0.36
	1996	24.3	26.0	-1.7	1.07	2.7	0.08
Montreal/Mirabel	1993	101.9	73.4	28.5	0.72	26.7	1.55
	1994	103.0	77.5	25.6	0.75	24.5	0.47
	1995	109.9	88.2	21.8	0.80	21.0	0.27
	1996	113.3	94.4	18.9	0.83	18.4	0.15
Total Major LAA's	1993	263.8	191.3	72.5	0.73	77.1	0.71
	1994	288.2	202.7	85.5	0.70	89.8	0.36
	1995	321.4	233.1	88.4	0.73	92.3	0.19
	1996	380.5	285.6	94.9	0.75	72.3	0.11

Note: With the exception of ratios, the unit is millions of dollars. Only the airports transferred in 1992 to Airport Authorities are covered here.

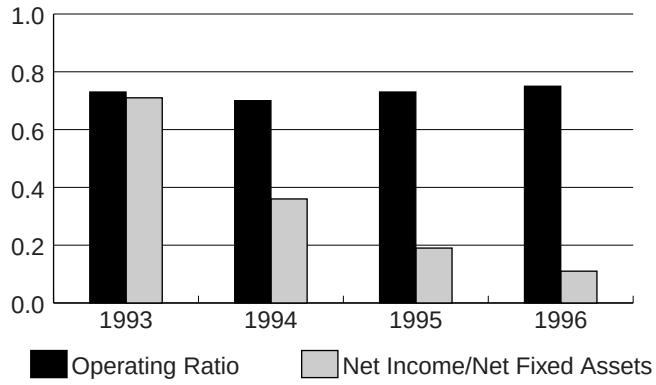
Source: Airports Authorities Annual Reports

FIGURE 5-3
FINANCIAL RESULTS OF AIRPORT AUTHORITIES
1993 – 1996



Source: Airports Authorities Annual Reports

FIGURE 5-4
FINANCIAL RATIOS OF AIRPORT AUTHORITIES
1993 – 1996



Source: Airports Authorities Annual Reports

$381 million, or 44 per cent. This increase was not distributed evenly among the airports, but ranged from 11 to 77 per cent. As revenues were increasing, concession and airside fees remained steady, contributing 40 per cent each to total revenues, a proportion which varied widely from airport to airport.

Airport improvement fees contributed about one quarter of Vancouver's revenues in 1996. The other airports did not have such fees in place as of the end of 1996.

As a group, the distribution of expenses at the four airports shifted only slightly from 1993 to 1996.

For the most part, changes in revenues and expenses at the four airport authorities occurred as passenger volume increased from just under 24 million in 1993 to just under 32 million in 1996, a growth of 34 per cent. For the National Airports System airports as a whole, passenger volume increased in fact by 46 per cent.

For the group, revenue per passenger also increased by eight per cent from $11 in 1993 to $12 in 1996. Expenses per passenger rose slightly more from $8 in 1993 to $9 in 1996, or by 12 per cent. Comparatively speaking, inflation was slightly more than six per cent for the air industry from 1993 to 1996, compared with about nine per cent in the economy as a whole.

For the four airport authorities, operating expenses increased by 49 per cent over the same period, slightly more than revenues. Again the distribution was not uniform.

Overall, the operating ratio for the group increased by less than four per cent to 75 per cent, and net income declined by four per cent. Figure 5-4 shows stable operating ratios and declining returns on assets over the same period.

A noticeable change from 1993 to 1996 was the rise in their cash flows and capital expenditures. Overall, funds from operations increased by 61 per cent.

As cash flow improved and borrowing capacity increased, their capital expenditures also grew substantially.

Overall, their total assets almost tripled from 1993 to 1996, although the return on assets

FIGURE 5-5
CANADA'S MAJOR PORTS

Source: Transport Canada

declined because increased cash flows were directed toward airport improvements.

Airport Capital Assistance Program

An integral part of the National Airports Policy is the Airport Capital Assistance Program. Transport Canada established this contribution program in April 1995 to assist eligible airports in financing capital projects related to safety, asset protection and operating-cost reduction. To be eligible, the airports must receive regularly scheduled passenger service, meet airport certification requirements and not be owned by the federal government.

In 1997, 46 projects at 39 airports were approved for funding. The total estimated cost was approximately $40 million, with some of the projects to be implemented over two- and three-year periods. Approved projects included the rehabilitation of runway, taxiway and apron pavements; the purchase of mobile equipment, such as runway sweepers and snowblowers; the purchase and installation of visual aids; the repair of airport terminal building roofs; and the installation of security fencing. Appendix 5-4 details approved projects and their costs.

MARINE TRANSPORTATION INFRASTRUCTURE

Canada's marine infrastructure services three coastlines and the Great Lakes/St. Lawrence Seaway system. Figure 5-5 shows the locations of Canada's major marine infrastructure.

PORTS

Each of Canada's major ports is a terminus for railways and roads that carry goods for export or import, and passengers to or from their destinations throughout the country and even the continent. Cargo and passengers move through marine terminals that contain a variety of

facilities and organizations related to the loading and unloading of vessels berthed at the wharf. In some cases, port authorities operate marine terminals, although often they are owned and operated by independent companies that rent space from the port.

Current Port System

At the end of 1997, Canada's ports system comprised a variety of facilities that fell under different jurisdictions: 13 ports operated by local port corporations and divisional ports that form Ports Canada; nine Harbour Commissions; 272 sites administered by Transport Canada; 2,000 recreational and fishing harbours operated by the Department of Fisheries and Oceans; and 37 ports operated by municipal governments and private interests.

Proposed Ports Structure

Under the National Marine Policy announced in December 1995, Canada's ports system and the operations of the St. Lawrence Seaway are being commercialized. The federal government is moving out of direct operation of ports, giving local users more say in the port services they pay for and receive. The National Marine Policy calls for three categories of ports: Canada Port Authorities, regional/local ports, and remote ports.

The proposed *Canada Marine Act* provides the framework under which the National Marine Policy will be implemented. Transport Canada began commercializing ports under its control in 1996, prior to the introduction of the Act, because legislative authority was not required for this process to begin.

Called **Canada Port Authorities** under the proposed *Canada Marine Act*, the 18 self-sufficient ports in the system that are critical to domestic and international trade will include Ports Canada local port corporations, major Canada Ports Corporation divisional ports, and most harbour commissions.

A second category of ports under the *Canada Marine Act*, called **regional/local ports**, includes Transport Canada facilities not considered to be remote facilities, as well as any Canada Ports Corporation facilities or harbour commissions not incorporated as Canada Port Authorities. Regional/local ports are being transferred to other federal departments or to provincial governments, municipal authorities, community organizations or private interests.

The transfer of regional/local ports began in 1996 under the National Marine Policy with the devolution of 277 sites and continued in 1997. In that year Transport Canada divested 34 facilities including: 16 to the Province of Newfoundland, two to the Province of New Brunswick, five to municipal authorities, seven to other local private interests, and two to other federal departments. In addition, two sites were demolished.

By the end of 1997, a total of 311 public ports had been transferred, deproclaimed or demolished. A total of 238 remain.

The federal government will continue to maintain **remote ports** that serve the basic transportation needs of isolated communities unless the department finds ways to make operations more efficient and opportunities to transfer these sites. At the end of 1997, Transport Canada administered 34 remote ports in Quebec, Ontario, Manitoba and British Columbia.

A growing number of **"other" ports** are to be operated by provincial or municipal governments and private interests as Transport Canada divests itself of its facilities. The Department of Fisheries and Oceans, for example, owns over 2,000 harbours used for commercial and recreational boating under the *Fishing and Recreational Harbours Act*. At the end of 1997, there were an additional 77 of these "other" ports, including 30 private, 31 provincial and 16 municipal.

Port Traffic

Preliminary 1997 traffic data has been released by a number of individual ports:

- The Port of Vancouver handled 73.5 million tonnes and 816,537 passengers.
- The Port of Prince Rupert handled 13.1 million tonnes.
- The Port of Montreal reported total traffic of 20.7 million tonnes, with container traffic increasing 3.4 per cent over that of 1996.
- At the Port of Sept-Îles, a total of 24.5 million tonnes of traffic was reported.
- Halifax Port Corporation handled 14.1 million tonnes.
- At the Port of Saint John, total traffic exceeded 21 million tonnes.

Port Traffic Statistics

Based on Statistics Canada data, which is available only up to 1996, Canada's ports handled a total of 357.7 million tonnes of cargo in 1996, a slight decrease from the 361 million tonnes handled in 1995.

Ports Canada's ports handled the largest share (51 per cent) of Canada's 1996 commercial port traffic, while 12 per cent was transported through harbour commissions' ports. Another 20 per cent of the cargo was moved through Transport Canada facilities. The remaining 17 per cent was handled by other facilities, including those managed privately and those managed by or on behalf of the Department of Fisheries and Oceans and provincial and municipal governments.

Table 5-5 provides details of tonnage handled at Canada's ports, harbour commissions, and selected Transport Canada and "other" facilities. See also Appendix 5-5.

In percentages that compare 1995 with 1996 traffic, Ports Canada ports, harbour commissions and "other" ports saw traffic increase by one per cent, while Transport Canada ports saw a decrease of seven per cent. Overall, total tonnage decreased by one per cent in 1996 compared with 1995.

At those declared public harbours where Transport Canada has no facilities and cargo is transported across private wharves, cargo shipped totaled 21.9 million tonnes, or 31 per cent of the total traffic handled by Transport Canada's ports.

In total, 62.2 million tonnes crossed "other" ports. In the "other" category, Port Cartier with 26.7 million tonnes handled the most cargo.

TABLE 5-5
TOTAL TONNAGE HANDLED IN CANADA'S PORT SYSTEM
1995 – 1996

(Thousands of tonnes)

Port System	*1995 Total*	*1996 Total*	*% Change*
Ports Canada*	178,972	180,207	1.0
Harbour Commissions	43,020	43,487	1.0
Transport Canada*	77,199	71,820	-7.0
Other	61,689	62,234	1.0
Total	**360,880**	**357,748**	**-1.0**

Note: * Tonnage statistics include cargos shipped across private facilities.

Source: Statistics Canada, Cat. 54-205-XPB

TABLE 5-6
CONTAINERS HANDLED AT CANADIAN PORTS
1988 – 1997

(Thousands of tonnes)

Year	*Montreal*	*Vancouver*	*Halifax*	*Other Ports*	*Total*
1988	5,732	2,732	3,537	468	12,469
1989	5,365	2,645	3,889	526	12,425
1990	5,764	2,708	3,909	521	12,902
1991	5,790	3,290	3,066	448	12,594
1992	5,781	3,623	2,463	438	12,305
1993	5,948	3,458	2,519	557	12,482
1994	7,073	4,246	2,565	549	14,433
1995	7,142	4,320	3,135	535	15,132
1996	7,948	5,098	3,178	577	16,801
1997	8,218	5,937	3,810	640	18,605

Source: Canada Ports Corporation

Container Traffic

Table 5-6 looks at the level of container traffic at Canadian ports.

Over the past decade, Vancouver has displaced Halifax as the second largest container port in Canada. The drop in Halifax traffic was due to service adjustments by container lines, such as those serving the Australia trades, who opted to reduce the sailing time for their vessels by dropping Halifax as a port of call and to route Canadian cargo via US ports. Meanwhile, Vancouver has benefited from decisions by most of the major liner operators serving the transpacific to add or maintain calls in Vancouver. In the process, it has regained a portion of the Canadian traffic which was being routed via US west coast ports.

Montreal has continued as the top container port in Canada with much of its traffic moving to and from Europe. The liner operators serving Montreal continue to rely on US Midwest traffic to supplement their Canadian cargo base.

The higher container traffic levels overall for the 1994 – 1996 period reflect the strong performance of the Canadian economy during those years.

Transshipments of Canadian container traffic through US ports amounted to nearly 24 per cent of the total container traffic with Canadian origin or destination in 1995, up slightly from 22.6 per cent of the total in 1994. In tonnage terms, transshipped imports and exports were little changed from

TABLE 5-7
CANADA'S CONTAINER TRAFFIC TRANS-SHIPPED THROUGH THE US PORT SYSTEM
1989 – 1996

(Thousands of tonnes)

Year	Exports	% of Total Exports*	Imports	% of Total Imports*	Total
1989	1,217	23.8	1,125	27.6	2,342
1990	1,241	20.2	1,076	23.4	2,316
1991	1,220	18.9	1,124	25.9	2,344
1992	1,214	17.7	1,059	23.0	2,273
1993	1,251	19.2	1,209	23.2	2,460
1994	1,473	19.7	1,375	26.8	2,848
1995	1,809	20.9	1,480	28.3	3,288
1996	1,801	N/A	1,389	N/A	3,189

* Total traffic = traffic at Canadian ports + Canadian transshipments – US transshipments
Source: Journal of Commerce, PIERS Databases.

TABLE 5-8
US CONTAINER TRAFFIC TRANS-SHIPPED THROUGH CANADA'S PORT SYSTEM
1990 – 1995

(Thousands of tonnes)

Year	Exports	Imports	Total Traffic
1990	2,147	1,676	3,823
1991	2,138	1,578	3,716
1992	1,742	1,723	3,466
1993	1,935	2,087	4,022
1994	2,269	2,697	4,965
1995	2,394	2,596	4,990

Source: US Department of Transportation, Maritime Administration (MARAD)

the 1995 levels in 1996. Since 1989, the tonnage of transshipped exports has grown by nearly 50 per cent and the tonnage of imports by 36 per cent. Overall use of US ports by Canadian importers and exporters, however, is not growing in relative terms. Table 5-7 shows Canadian containerized transshipments through US ports from 1989 to 1996.

The major points of entry and exit for Canadian containerized transshipments are New York, Tacoma and Seattle.

Approximately 72 per cent of Canadian transshipped imports and 61 per cent of exports, measured in Twenty-Foot Equivalent Units, moved though these US ports in 1996.

More US traffic moved through Canadian ports than Canadian traffic through US ports: 5 million tonnes in 1995 compared with Canada's 3.3 million tonnes. The proportion of total US liner traffic that is transshipped via Canada is much lower, with the percentage declining. In 1989, approximately 5.3 per cent of total US liner traffic moved via Canadian ports. By 1995, this percentage was down to 3.8 per cent. Table 5-8 shows US containerized shipments through Canadian ports.

Most US transshipments move through Eastern Canada on their way to and from Europe. In 1995, such transshipments accounted for nearly 82 per cent of all US transshipments through Canadian ports. Movements through Western Canada account for only a small percentage of US trade.

Financial Performance

Ports Canada

In 1996, Ports Canada posted total revenues of $235 million, with a net income of $32 million and operating cash flows of $102 million. Table 5-9 illustrates 1996 revenues, expenses and some key ratios for Ports Canada ports, and for divisional ports as a whole. In 1996, the seven major ports handled 83 per cent of the volume and generated roughly 75 per cent of the total revenues of Ports Canada ports. Audited financial statements for 1997 were not available.

The overall operating ratio (expenses/revenues) for Ports Canada ports was 75 per cent in 1996. Taken together, the major ports had a ratio of 81 per cent, with individual ratios ranging from 68 to 99 per cent. Except for Vancouver, all were above 83 per cent. For divisional ports, the operating ratio as a whole was 56 per cent.

The return on assets (net income/net fixed assets) for Ports Canada ports was three per cent in 1996. Montreal had the highest return on assets with seven per cent, with its investment income almost as large as its operating income. Taken together, the major ports' return was two per cent, compared

TABLE 5-9
FINANCIAL PROFILE, PORTS CANADA PORTS
1996

(Millions of dollars)

Item	Vancouver	Montreal	Halifax	Quebec	Saint John	St. John's	Prince Rupert	Divisional Ports*	Total All Ports
Operating revenues	64.8	56.2	13.2	12.7	13.5	3.1	12.5	59.0	235.0
Operating expenses	44.3	50.1	10.9	12.6	11.2	2.7	11.4	33.3	176.6
Operating income	20.5	6.1	2.2	0.1	2.2	0.3	1.1	25.8	58.7
Ratio: Expenses/Revenues	0.68	0.89	0.83	0.99	0.84	0.89	0.91	0.56	0.75
Net income	(0.5)	11.8	3.1	0.5	2.1	0.6	0.7	13.2	31.5
Net fixed assets	427.7	158.7	59.3	51.0	57.9	11.8	94.3	108.1	967.9
Ratio: Net income/Net fixed assets	(0.00)	0.07	0.05	0.01	0.04	0.05	0.01	0.12	0.03
Funds from operations	38.6	23.5	5.6	3.4	5.5	1.5	3.2	21.0	102.1
Investment income	4.2	5.8	0.5	0.5	0.4	0.3	0.8	4.0	16.5
Total assets	533.7	250.9	74.7	61.9	69.5	17.6	112.3	271.6	1,392.2
Net capital expenditures	97.4	10.8	5.0	1.5	0.3	0.6	0.4	11.9	128.0
Retained earnings	210.8	77.4	17.4	0.9	2.3	6.6	16.1	(191.6)	139.8
Contributed capital	150.3	153.9	50.9	58.2	61.7	10.1	84.6	111.7	681.3

* Ridley Terminals is included in Divisional Ports, yet it is operated independently of Divisional Ports.

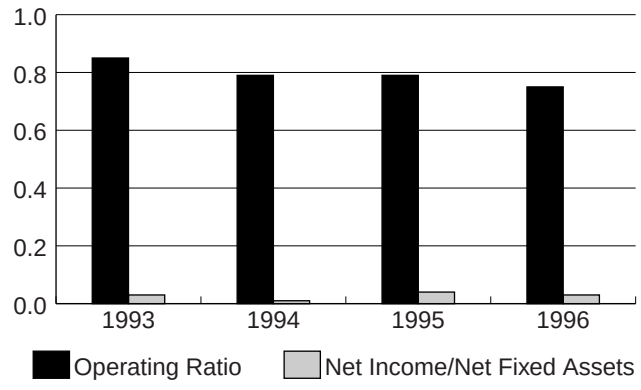
Source: Annual Reports, Corporate Plans

with 12 per cent for divisional ports. Figure 5-6 shows operating ratios and returns on assets for Canada's major ports from 1993 to 1996, while Figure 5-7 shows similar data for divisional ports.

From 1993 to 1996, the financial profile of most ports has consistently improved. Revenues have risen from $213 million to $235 million, an increase of 11 per cent. Most of that growth occurred at major ports. Due to lower expenses at major ports, operating costs have either remained steady or declined, moving from $181 million to $177 million, a drop of two per cent. As a result, operating income has improved.

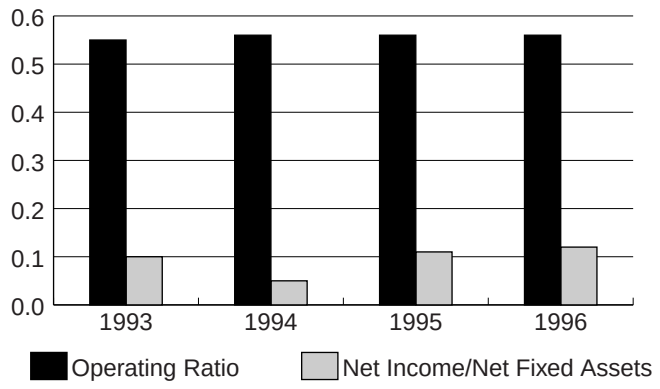
Expenses at the divisional ports increased slightly. The overall net effect was that operating income almost doubled, with 1996 major port income more than four times what it was in 1993. Divisional port income remained relatively stable. Table 5-10 shows revenues, expenses and incomes for all Ports Canada ports from 1993 to 1996.

FIGURE 5-6
OPERATING RATIOS AND RETURNS ON ASSETS
FOR CANADA'S MAJOR PORTS
1993 – 1996



Source: Annual Reports of Ports Canada Ports

FIGURE 5-7
OPERATING RATIOS AND RETURNS ON ASSETS FOR CANADA'S DIVISIONAL PORTS
1993 – 1996



Source: Annual Reports of Ports Canada Ports.

These financial changes occurred as traffic volumes grew more than 11 per cent between 1993 and 1996. Revenue per tonne at $1.27 in 1996 was down by less than one per cent from 1993. Expenses per tonne dropped from $1.09 in 1993 to $0.95 in 1996, a decrease of more than 12 per cent.

Harbour Commissions

With the exception of Toronto and Oshawa, all harbour commissions reported positive net incomes in 1996. The Hamilton and Fraser Harbour Commissions posted the largest at just over $2 million. Total revenues were $50.9 million and expenses $49.7 million, creating an operating ratio of 98 per cent. Traffic volume was 43.5 million tonnes, while net income came in at $4.7 million, providing a return on total assets of 1.4 per cent.

TABLE 5-10
REVENUES, EXPENSES AND INCOMES OF THE PORTS CANADA SYSTEM
1993 – 1996

(Millions of dollars)

		Operating				*Net Income*	*Net Income/ Net Fixed Assets*
		Revenues	*Expenses*	*Income*	*Ratio*		
Major Ports	1993	157.6	150.5	6.9	0.95	18.7	0.02
	1994	170.7	149.8	20.9	0.88	3.8	0.00
	1995	169.8	148.3	21.4	0.87	24.3	0.03
	1996	175.9	143.4	32.9	0.81	18.3	0.02
Divisional Ports	1993	54.8	30.4	24.5	0.55	10.5	0.10
	1994	60.8	33.8	27.0	0.56	5.3	0.05
	1995	60.1	33.9	26.2	0.56	11.3	0.11
	1996	59.0	33.3	25.8	0.56	13.2	0.12
Total – All Ports	1993	212.5	180.9	31.3	0.85	29.2	0.03
	1994	231.5	183.7	47.9	0.79	9.2	0.01
	1995	229.9	182.3	47.6	0.79	35.6	0.04
	1996	235.0	176.6	58.7	0.75	31.5	0.03

Note: With the exception of ratios, the measurement unit is millions of dollars.
Net fixed assets does not include value of projects under construction included in audited statements.

Source: Annual Reports

TABLE 5-11
FINANCIAL PROFILE OF CANADA'S HARBOUR COMMISSIONS
1996

(Millions of dollars)

Item	Port Alberni	Fraser	Hamilton	Nanaimo	North Fraser	Oshawa	Thunder Bay	Toronto	Windsor	Sum of All Commissions
Operating revenues	4.2	8.3	10.3	9.0	4.4	0.4	3.2	9.8	1.3	50.9
Operating expenses	3.9	6.6	8.7	8.8	3.8	0.6	3.2	13.2	1.0	49.7
Operating income	0.3	1.7	1.5	0.2	0.6	-0.2	0.0	-3.4	0.4	1.2
Ratio: Expenses/Revenues	**94.0%**	**79.0%**	**85.0%**	**97.5%**	**86.4%**	**137.8%**	**100.0%**	**134.2%**	**72.2%**	**97.6%**
Net income	0.5	2.2	2.2	0.4	0.5	-0.6	0.9	-2.0	0.4	4.7
Total assets	15.0	97.0	71.8	34.5	10.4	7.0	25.6	68.0	7.0	336.4
Ratio: Net income/Total assets	**3.6%**	**2.3%**	**3.1%**	**1.3%**	**5.2%**	**-7.9%**	**3.5%**	**-3.0%**	**6.1%**	**1.4%**

Source: Harbours and Ports Directorate, Transport Canada

A review of harbour commissions' financial data between 1992 and 1996 shows both revenues and expenses declining during this period. The decline in expenses is more significant. As a result, operating income has almost doubled to $1.2 million, and the operating ratio (expenses/revenues) has improved. Overall, tonnage handled at harbour commission ports rose by two per cent over the five-year period, with year-to-year fluctuations. Comparing 1996 with 1992, revenues and expenses expressed on a per-tonne basis were about 11 per cent and 15 per cent lower, respectively. Net income more than doubled over the same period.

Table 5-11 details financial results for all harbour commissions.

Transport Canada Ports

Of the ports remaining under Transport Canada's control, approximately 12 per cent generated almost three quarters of the total revenues for 1996/97. For this fiscal year, the gross revenues of these facilities were $20.3 million and expenses were $28.5 million, leaving an operating revenue shortfall of $8.2 million. The overall operating ratio (expenses/revenues) was 140 per cent. Capital expenditures for the year were roughly $12 million, and an additional $13 million came from grants and contributions related to transfers associated with ports divestitures.

TABLE 5-12
FINANCIAL PROFILE OF PORTS
REMAINING UNDER TRANSPORT CANADA CONTROL
1996

(Millions of dollars)

	92/93	93/94	94/95	95/96	96/97
Revenue[1]	12.3	13.1	12.9	17.1	20.3
Expenses[2]	31.4	28.5	28.7	33.6	28.5
Operating income	-19.1	-15.4	-15.8	-16.4	-8.2
Capital expenditures	16.9	23.8	23.1	11.3	11.9
Grants & contributions[3]				10.0	13.1
Ratio: Expenses/Revenues	**255%**	**218%**	**222%**	**196%**	**140%**

1 This represents gross revenues
2 This represents operating and maintenance expenses including commissions
3 This item represents transfers related to the devolution of port facilities

Source: Annual reports, and Transport Canada

Table 5-12 summarizes the financial details of ports and harbours remaining under Transport Canada's control from 1992/93 to 1996/97. Revenues increased by 65 per cent during this time, mostly in the last two years. A combination of growth in traffic and fee increases over the last three years are the primary reasons for the increases; expenses fluctuated over this period.

Between 1992 and 1996, revenues per tonne rose from $0.14 to $0.20, or 38 per cent, while expenses per tonne declined from $0.37 to $0.28, or 24 per cent. Capital expenditures dropped by 30 per cent in 1996/97, compared with 1992/93.

St. Lawrence Seaway

The St. Lawrence Seaway runs between Lake Erie and the Port of Montreal, and falls under the mandate of the Canadian St. Lawrence Seaway Authority,

TABLE 5-13
ST. LAWRENCE SEAWAY CARGO MOVEMENTS
1990 – 1997

(Thousands of tonnes)

	Montreal-Lake Ontario Section	*Welland Canal Section*
1990	36,656	39,398
1991	34,910	36,919
1992	31,360	33,174
1993	31,970	31,815
1994	38,422	39,703
1995	38,684	39,376
1996	38,075	41,145
1997	36,901	40,898

Source: St. Lawrence Seaway Authority

which operates eight locks in the Welland Canal and five of the seven locks between Montreal and Lake Ontario. The US Saint Lawrence Seaway Development Corporation operates the remaining two locks in the Montreal–Lake Ontario segment.

Seaway Commercialization

In July 1996, the Minister of Transport signed a Letter of Intent with the Seaway Users' Group, composed of the system's main users, containing the parameters of a commercialization agreement. Negotiations on remaining aspects of the deal are ongoing, and actual transfer of Seaway operations to a not-for-profit corporation is planned for 1998, dependent on the passage of the proposed *Canada Marine Act*.

Commercialization is vital to the Seaway's future viability. Rationalization and downsizing of heavy industry in the Great Lakes–St. Lawrence Seaway region, as well as the shift of grain markets to the Asia–Pacific area, are making it difficult for the Seaway to remain self-sufficient without revenue increases and cost reductions.

The Users' Group has a transition team working with the federal government to develop the complete management agreement. In addition, the team is working with the Seaway Authority to develop implementation strategies for cost reductions.

Seaway Traffic

Grain, iron ore, steel products and coal are the main products moved along the Seaway, accounting for over 70 to 80 per cent of cargos on average. There are also important movements of petroleum products, salt and potash, as well as low-value bulk construction materials, such as limestone, cement and gypsum.

The number of vessel transits on the Seaway increased by 3.8 per cent in 1997 to 2,809 on the Montreal – Lake Ontario section and by 2.3 per cent to 3,384 on the Welland Canal section.

Total traffic on the Montreal–Lake Ontario section decreased by 3.1 per cent to 36.9 million tonnes, while traffic on the Welland Canal section decreased by 0.6 per cent to 40.9 million tonnes. Grain shipments increased for both sections – to 13.5 million tonnes for the Montreal–Lake Ontario section and 13.7 million tonnes for the Welland Canal section, increases of 9.6 and 7.8 per cent, respectively.

Shipments of iron ore decreased to 10.1 million tonnes on the Montreal–Lake Ontario section and 7.9 million tonnes on the Welland Canal section, decreases of 12.7 and 1.2 per cent respectively. Shipments of coal increased by 5.1 per cent to 0.5 million tonnes on the Montreal–Lake Ontario section, as well as on the Welland Canal by 2.4 per cent to 4.6 million tonnes.

Shipments of general cargo – predominantly iron, steel products and slabs – decreased for both sections. On the Montreal–Lake Ontario section, general shipments dropped to 5.1 million tonnes, a decrease of 13.2 per cent, while on the Welland Canal section, general shipments reached 4.1 million tonnes, an increase of 15.1 per cent.

Table 5-13 shows cargo movements on the St. Lawrence Seaway system.

Financial Performance

Total operating revenues in 1996/97 reached $83.4 million, an improvement of $5.3 million over 1995/96. Toll revenues from commercial cargos reached a total of $75.3 million in 1996/97, an improvement of $4 million over the previous year. This accounted for 85 per cent of the Seaway Authority's income in 1996/97. Tolls again stayed at the 1993 level.

Operating expenses totaled $80.1 million in 1996/97, down slightly from their 1995/96 level. The Seaway Authority has been able to contain inflationary cost

increases by gradual downsizing, cutting established positions by 243, or 25 per cent, from 1990 to 1996. Operating expenses in 1996/97 were $53.6 million, down slightly from the previous year's costs of $53.8 million.

The operating income of $3.3 million for 1996/97 was an improvement over the loss of $2.4 million in 1995/96.

Table 5-14 shows the Seaway Authority's financial statistics for the past ten years.

Net Income

Examining net income yields a more complete view of annual financial results. This includes investment income, averaging $5.1 million per year; unusual items, such as claims; and the large corporation tax, averaging $1.3 million annually since 1989/90.

The net result is an improvement in the financial results at an average of $5 million a year, while net loss averaged $2.8 million over the 10-year period. Losses were recorded in each of the first eight years, a large net income of $15.5 million was reported for 1994/95, and a much smaller net income of $1.9 million reported for 1995/96.

The net income of $0.2 million in 1996/97 is to be compared to a net income of $1.9 million in 1995/96. Some unusual charges of $7.2 million were incurred in 1996/97 in relation to the dismantling of two railway bridges in the Niagara region and to the upcoming commercialization.

The St. Lawrence Seaway Authority funded all its 1996/97 capital expenditures out of its cash flow and added $1.9 million to its reserve fund, as Table 5-15 shows.

TABLE 5-14
ST. LAWRENCE SEAWAY FINANCIAL PERFORMANCE
1986/87 – 1996/97

(Millions of dollars)

	Operating Revenues	*Operating Expenditures*	*Operating Income*	*Net Income*
1986/87	56.3	65.3	-9.0	-4.4
1987/88	60.5	70.5	-10.0	-5.5
1988/89	64.7	72.0	-7.3	-1.9
1989/90	64.5	75.5	-11.0	-5.1
1990/91	65.6	80.8	-15.2	-9.9
1991/92	65.4	76.8	-11.4	-1.8
1992/93	65.0	78.7	-13.7	-11.0
1993/94	69.6	78.0	-8.4	-6.1
1994/95	83.9	74.1	9.9	15.5
1995/96	78.1	80.6	-2.4	1.9
1996/97	83.4	80.1	3.3	0.2

Source: St. Lawrence Seaway Authority, Annual Report

TABLE 5-15
ST. LAWRENCE SEAWAY AUTHORITY RESERVE FUND
1986/87 – 1996/97

(Millions of dollars)

Year	*Cash provided from Operations*	*Capital Additions ex govt. funded Rehab.*	*Welland Canal & Valleyfield Bridge Rehab.*	*Capital Fund*
1986/87	-1.6	3.5	13.2	17.6
1987/88	6.8	2.1	24.5	19.9
1988/89	11.2	0.9	25.4	28.4
1989/90	6.9	2.4	26.9	31.9
1990/91	4.0	9.5	27.3	23.9
1991/92	12.0	14.2	28.7	19.1
1992/93	-3.9	4.4	37.4	16.1
1993/94	6.6	7.0	--	14.8
1994/95	29.1	8.6	--	36.3
1995/96	17.4	8.1	--	44.7
1996/97	19.6	11.02	--	46.6

Source: St. Lawrence Seaway Authority, Annual Report

TABLE 5-16
PILOTAGE ASSIGNMENTS
1992 – 1997

Pilotage Authority	*Indicators*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Atlantic (APA)	Total Assignments	9,008	8,867	8,655	8,668	8,576	9,608
	Assignments per Pilot	188	177	188	180	186	209
Laurentian (LPA)	Total Assignments	20,399	19,218	22,550	21,973	21,342	20,941
	Assignments per Pilot	99	99	122	121	121	120
Great Lakes (GLPA)	Total Assignments	5,091	5,481	7,787	6,091	6,903	7,192
	Assignments per Pilot	76	91	148	107	121	114
Pacific (PPA)	Total Assignments	13,814	12,871	14,053	13,199	13,403	14,212
	Assignments per Pilot	121	114	128	115	113	121

Source: Pilotage Authorities, Annual Reports

MARINE PILOTAGE

The *Pilotage Act* of 1972 governs marine pilotage in Canada. The Act established four regional pilotage authorities: Atlantic, Laurentian, Great Lakes and Pacific. Three of the authorities are parent Crown corporations while the Great Lakes Pilotage Authority has been incorporated as a subsidiary of the St. Lawrence Seaway Authority. Notwithstanding this structural anomaly, the Great Lakes Authority is considered a parent Crown corporation for the purposes of the *Financial Administration Act*. All authorities report directly to the Minister. The authorities are not, however, agents of the Crown.

Each authority has a mandate to provide safe and efficient pilotage services that respond to its particular traffic requirements and the varied geography and climactic conditions of the waterways concerned. To carry out this mandate, the Authorities:

- train and license suitably qualified persons to act as pilots;
- issue pilotage certificates to persons qualified to pilot ships on which they are bona fide crew members;
- operate pilot boats; and
- enter into negotiated agreements with pilot corporations and unions representing employees of the authorities.

The authorities, with Governor-in-Council approval, are permitted to make regulations that:

- establish compulsory pilotage areas;
- prescribe ships, or classes of ships, that are subject to compulsory pilotage and the circumstances under which this requirement may be waived;
- prescribe classes of pilots' licences and pilotage certificates, and the related qualifications and examinations; and
- set tariffs for pilotage charges intended to make the Authority a self-sustaining operation.

Changes Under *Canada Marine Act*

In October 1997, the federal government proposed changes to the *Pilotage Act* as part of the *Canada Marine Act*. These changes are expected to exert further downward pressure on pilotage costs, while forcing the pilotage authorities to be more financially accountable by denying them access to Parliamentary appropriations and setting limits on the amounts the authorities can borrow. Under the proposed changes, the Minister of Transport will review progress on all major pilotage issues within one year and report back to Parliament.

Financial Performance

The number of assignments per pilot for each pilotage authority are shown in Table 5-16. In general, efficiency is holding steady with some improvement noted at three authorities in 1997. In addition, all authorities have improved their bottom line despite fluctuating traffic levels.

In 1997, for the first time in the past 14 years, the pilotage system across the country covered its expenditures. Table 5-17 shows that three of the authorities managed to return modest surpluses, while the Laurentian Pilotage Authority reduced its deficit by more than 60 per cent. In accordance with the December 1995 National Marine Policy, the Laurentian Authority financed its loss through a commercial loan with a financial institution.

CANADIAN COAST GUARD

Responsibilities

On April 1, 1995, the Department of Fisheries and Oceans took over operation of the Canadian Coast Guard to combine the federal government's two main civilian marine fleets and to create one integrated fleet offering a broad array of ocean programs.

As a result of this merger, the Coast Guard's mandate now includes supporting sustainable ocean management, as well as providing a safe, environmentally sustainable marine transportation system. The Coast Guard now offers marine navigation services; marine communications and traffic services; icebreaking operations; rescue, safety and environmental response activities; and fleet management.

TABLE 5-17
PILOTAGE AUTHORITIES
REVENUES AND EXPENDITURES
1997

(Millions of dollars)

		Revenues	*Expenditures*	*Surplus/ (deficit)*
	1997	9,638	8,618	1,020
APA	1996	8,030	7,538	492
	% change	20.0	14.3	107.3
	1997	38,185	39,019	(834)
LPA	1996	36,018	38,846	(2,828)
	% change	6.0	0.4	70.5
	1997	13,120	11,910	1,210
GLPA	1996	12,659	11,644	1,015
	% change	3.6	2.3	19.2
	1997	39,802	38,519	1,283
PPA	1996	36,039	35,859	180
	% change	10.4	7.4	612.8
	1997	100,745	98,066	2,679
Totals	1996	92,746	93,887	(1,141)
	% change	8.6	4.5	334.8

Source: Pilotage Authorities, Annual Reports

The Coast Guard's clients are well defined, including the Canadian public; the fishing industry; the marine commerce sector, including commercial shipping carriers, ferry operators and the cruise ship industry; the recreational boating sector; Department of Fisheries and Oceans; other government departments; and the international marine community.

Marine Navigation Services (MNS)

The Marine Navigation group provides, operates and maintains a system of navigational aids to help mariners in determining their position in relation to land and hidden dangers. Its objective is to reduce navigation risk and transit time in support of an environmentally sound transportation system.

The group's navigational infrastructure consists of 264 automated light stations, 52 of which are staffed; four LORAN C communication stations that operate on a bandwidth used by airports and light stations; over 6,080 land-based fixed marine aids to navigation; and more than 13,640 floating aids.

Marine Communications and Traffic Services (MCTS)

The Marine Communications and Traffic group ensures the safety at sea of both the marine community and the general public. The group works to uphold international agreements, protect the environment through traffic management, facilitate efficient ship movement, and provide business information.

The group's supporting infrastructure includes staffed communications centres and remote transmitter and receiver sites. Program Review will reduce operational centres from 44 to 22 by the end of 1998/99, integrating facilities wherever possible.

Icebreaking Operations (Ice)

Five seasonal ice operation centres provide ice-routing information and route assistance for vessels operating in ice-covered waters in the Arctic, along the East Coast and in the Great Lakes. The centres also support flood-control services in areas prone to flooding or threatened with flooding from ice build-up. In addition, the centres ensure the annual resupply to Northern settlements and military sites.

Rescue, Safety and Environmental Response (RSER)

The objective of the Rescue, Safety and Environmental Response group is to save lives and protect the marine environment. The group provides marine search and rescue services and emergency preparedness capabilities. It also

TABLE 5-18
CANADIAN COAST GUARD FLEET AND FACILITIES
1997

Vessels and Aircraft		*CCG Facilities*	
120	major ships	24	bases and sub-bases
307	small craft*	11	helicopter hangars
29	inshore rescue boats	2	hovercraft facilities
3	air cushion vehicles		
29	rotary wing aircraft		
2	fixed wing aircraft**		

* Includes lifeboats, surfboats, self-propelled barges, small craft carried on larger ships, shore-based work boats, floating spill boats, "oil slick-lickers" and other small craft at CCG bases and light stations
** Owned by Transport Canada

Source: Department of Fisheries and Oceans

TABLE 5-19
REVENUES AND BUDGETED EXPENDITURES
OF THE CANADIAN COAST GUARD
1997/98

(millions of $)

Business line	*MNS*	*MCTS*	*Ice*	*RSER*	*Fleet Mgmt.*	*CCG Total*
Gross expenditures	159.6	60.2	53.8	137.2	125.6	536.4
Revenues	27.2	0.7	9.3	0.1	-	37.3
Net expenditures	132.4	59.5	44.5	137.1	125.6	499.1

Source: Department of Fisheries and Oceans

promotes boating safety, and responds to pollution incidents.

The group's supporting infrastructure includes 22 search-and-rescue stations with in-shore rescue boats, 31 regular search-and-rescue stations, and 72 spill-response equipment depots.

Fleet Management

The Coast Guard is responsible for managing a large, integrated, multi-tasked fleet that provides efficient sea and air support to several Department of Fisheries and Oceans programs. These programs include fisheries management, hydrography, fisheries and oceans science as well as the four previously mentioned.

This job includes acquiring, maintaining and scheduling the department's vessel and air fleet, and augmenting fleet capabilities when necessary with additional sea and air support from other government departments and the private sector.

Table 5-18 lists the Coast Guard's 1997 vessel, aircraft and facility assets.

Financial Situation
- Canadian Coast Guard

The Coast Guard will permanently reduce its gross operations and maintenance expenditures by $140 million, or 30 per cent, over the four-year period ending in 1998/99. Cumulative reductions implemented to date amount to $124 million. Capital funding levels have also been reduced during this period through a combination of temporary cuts to offset revenue shortfalls and a permanent ongoing reduction of $31 million effective in 1997/98. The Coast Guard has significantly reduced expenditures while delivering the same quality service to a broader client group.

The Coast Guard has implemented user fees for some programs. The objective behind user fees is to obtain a fair contribution from users for programs from which they directly benefit. The first, the Marine Navigation Services Fee, was introduced in June 1996. It offsets, on average, 27 per cent of full costs of providing marine navigational services to the commercial shipping industry.

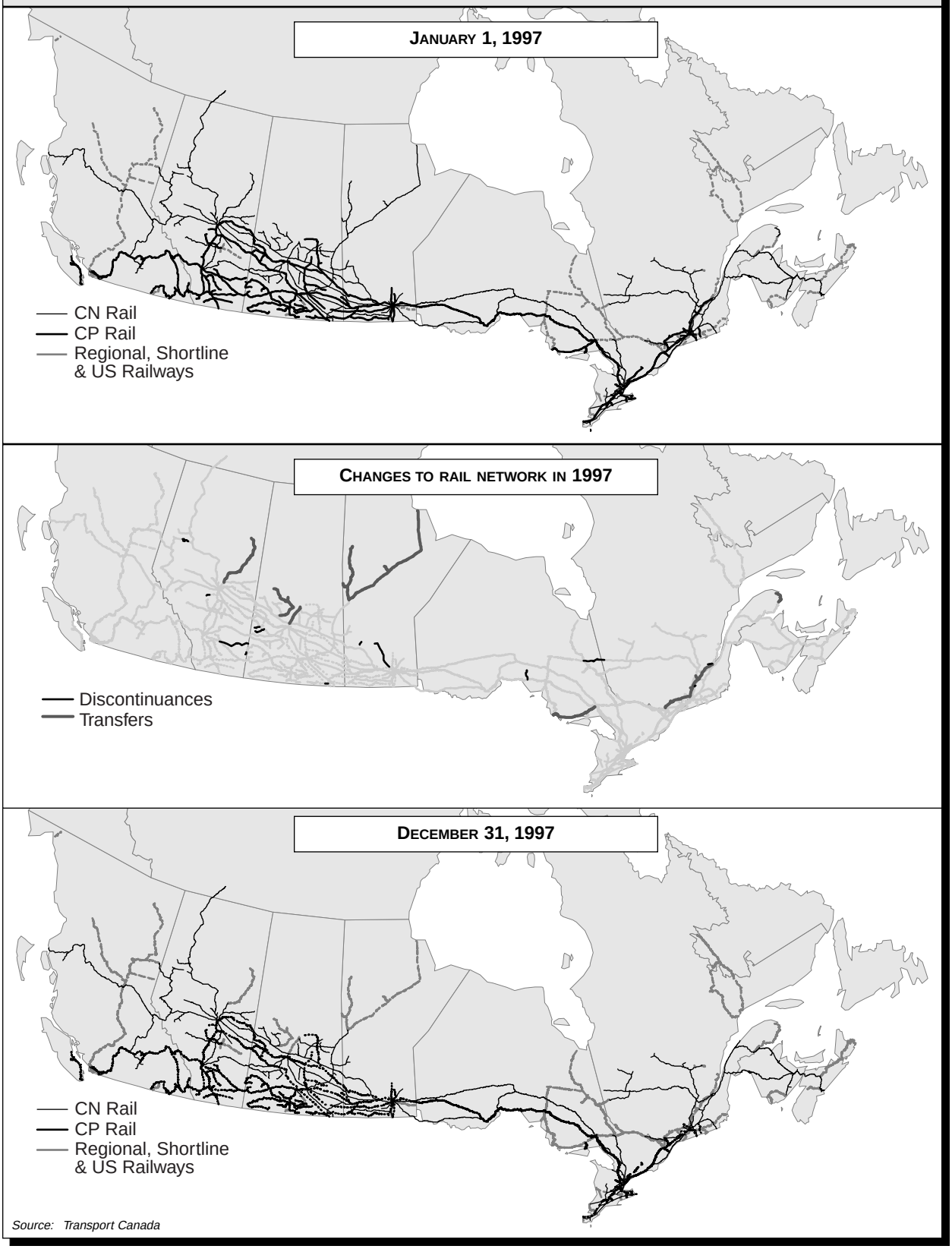
After industry consultation, a Maintenance Dredging Services Tonnage Fee for the St. Lawrence Ship Channel came into effect in September 1997. The fee is only an interim measure to address the maintenance dredging contracts and management costs until the longer-term issues associated with the transfer of responsibilities to beneficiaries can be resolved.

Table 5-19 lists the Coast Guard's revenues and budgeted expenditures for 1997/98.

RAIL TRANSPORTATION INFRASTRUCTURE

Canadian railways operate approximately 50,000 route-kilometres of track across the country, the total trackage owned or otherwise operated under lease, contract or trackage rights. Figure 5-8 shows Canada's rail network.

FIGURE 5-8
CANADA'S RAIL NETWORK



Source: Transport Canada

TABLE 5-20
CANADA'S RAILWAY INFRASTRUCTURE
1996 and 1997*

	1997 Owned – Leased Route-kilometres	*1996 Owned – Leased Route-kilometres*
Transcontinental		
CN Rail	23,731	26,560
CP Rail	15,749	16,724
Sub-total Transcontinental	**39,480**	**43,284**
Regional and Shortline		
BC Rail	2,174	2,174
Hudson Bay Railway (OmniTRAX)	1,308	
Ontario Northland	1,074	1,074
Quebec North Shore & Labrador	645	645
RaiLink Ottawa Valley	554	554
Algoma Central (Wisconsin Central)	474	474
Chemin de fer Québec-Gatineau (Genessee Rail-One)	449	
Carleton Trail (OmniTRAX)	448	
Cartier	426	426
Cape Breton & Central Nova (Railtex)	371	371
RaiLink Lakeland & Waterways	325	
Huron Central (Genessee Rail-One)	296	
Chemin de fer Baie des Chaleurs (Quebec Railway Corp.)	237	237
Quebec Southern (Iron Road)	195	195
New Brunswick Southern	195	195
RaiLink Central Western	174	195
Chemin de fer Charlevoix (Quebec Railway Corp.)	147	147
Greater Winnipeg Water District	145	145
Canadian American (Iron Road)	110	110
Goderich & Exeter (Railtex)	96	96
Chemin de fer de la Gaspésie	90	
Windsor & Hantsport (Iron Road)	85	85
Southern Rails Co-operative	68	68
Southern Railway of BC	66	66
Devco	64	64
RaiLink Southern Ontario	63	
Roberval & Saguenay	56	56
L'Orignal (Railtex)	42	34
Sub-total Regional and Shortline	**10,376**	**7,512**
Terminal or Switching		
Arnaud	36	36
Essex Terminal	27	27
Port Colbourne (Caledonia Hamilton Southern Railway Ops)	11	
Wabush	2	2
Sub-total Terminal or Switching	**76**	**65**
US Railways		
CSX	97	97
Burlington Northern	105	105
Conrail	87	87
Wisconsin Central	2	2
Sub-total US Railways	**290**	**290**
Passenger and Commuter Railways		
GO Transit	14	14
VIA	102	102
Sub-total Passenger and Commuter Railways	**116**	**116**
TOTAL	**50,339**	**51,154**

* Note: A number of small bridge, tunnel, running rights and subsidiary operations are not shown here. During the past five years, Class I trackage decreased by over 15 per cent, while Class II trackage increased by almost 36 per cent due to the transfer of lines from Class I to Class II railways.

Source: Transport Canada

CANADA'S RAIL SYSTEM

The Canadian rail network system continues to be dominated by two Class I freight railways, Canadian National Railways (CN) and Canadian Pacific Railway Company (CP). VIA Rail Canada is also a Class I railway which operates primarily on CN tracks. Class II railways include regional and shortline railways, while Class III railways include terminal railway operations.

CN and CP accounted for about 78 per cent of Canadian rail infrastructure in 1997, measured by route-kilometres. Their share has dropped by almost six per cent in the past year, however, due almost entirely to transfers of some of their lines to new carriers. Consequently, Class II and III railways now operate on over 20 per cent of the Canadian rail system that they own or lease. A few railways operating in Canada do not own trackage, but instead have trackage rights on other railways.

Table 5-20 lists all railways that operated on trackage they owned or leased in Canada during 1997, as well as the route-kilometres of track on which they operated. For comparison, the table also shows the corresponding figures for 1996.

Shortlines

Five shortline corporations currently dominate the growing shortline industry in Canada. Three of these, Railtex, Iron Road and OmniTRAX, are headquartered in the US. Another, RaiLink, is based in Alberta, and the last, Genessee Rail-One, is based in Quebec, although largely financed by US-based Genessee Wyoming. These corporations control a growing percentage of Class II operations in Canada, as represented by trackage.

Table 5-21 illustrates the amount of track these five shortline corporations control.

During 1997, the five shortline corporations added approximately 63 per cent, or over 3,000 kilometres, to their total owned or leased trackage. They controlled about 46 per cent of Class II trackage by the end of 1997. Almost all Class I railway trackage transferred during the year involved these five companies.

RaiLink also recently completed a transaction with CN that will see the company acquire over 1,000 kilometres of line in northern Alberta and the Northwest Territories, making it, in aggregate the largest Class II operator in Canada. RaiLink will begin operations over this track in April 1998.

In addition to owning or leasing trackage for its operations, RaiLink has a 25 per cent interest in Quebec Railway Corporation (Société des Chemins de fer du Québec), which currently owns approximately 385 kilometres of track in Quebec.

TABLE 5-21
MAJOR SHORTLINE CORPORATIONS OPERATING IN CANADA

Corporation	*Owned / Leased Kilometres*	*Number of Canadian Railways Controlled*
Railtex	500	3
Iron Road*	390	3
OmniTRAX	1,780	2
RaiLink	1,280	5
Genessee Rail-One	865	2

* Note: The Northern Vermont, which is also owned by Iron Road, does not own trackage in Canada, but operates over the trackage of its affiliate, Quebec Southern. Northern Vermont is not included above.

Source: Transport Canada

TABLE 5-22
CN AND CP RATIONALIZATION BY PROVINCE
1997

(Route-kilometres)

		ALTA	*SASK*	*MAN*	*ONT*	*QUE*	*Total*
Discontinuances	CP	226	80	0	64		370
	CN	41	7	370	2	165	585
	Total	**267**	**87**	**370**	**66**	**165**	**955**
Transfers	CP	0	0	0	296	350	646
	CN	325	448	1,308	74	90	2,245
	Total	**325**	**448**	**1,308**	**370**	**440**	**2,890**

Note: CP also formed a 263 kilometre internal shortline in B.C.

Source: Transport Canada

RAIL RATIONALIZATION

Originally synonymous with rail line abandonment, railway rationalization now describes a range of alternatives for track disposal, including sale of track and operations to new or existing carriers; lease of track to other carriers; and service discontinuation.

The overall goals of rationalization are to alter the cost structure of providing rail service. In the case of line transfers to other carriers, usually shortline, the goal is to improve the level of support for shippers by retaining rail service over lines that might otherwise be discontinued. In fact, shortline operators typically increase traffic, revenues and service on the line.

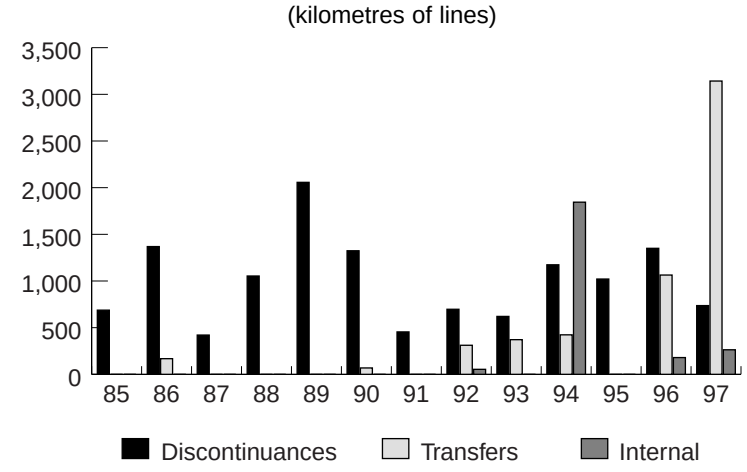
In 1997, a significant increase took place in the number of Class II railways in Canada, as eight new railways with some 2,978 kilometres of track began operations. In contrast, about 2,400 kilometres of track were transferred to 12 operators over the previous 10 years, excluding internal shortlines that remain under CN and CP ownership and operation. Table 5-22 shows the locations of rail line transfers and discontinuances that occurred over the past year.

RAIL RATIONALIZATION

The *Canada Transportation Act*, enacted in 1996, was intended, among other things, to encourage railway financial viability. Recognizing the significant regulatory burden on railways and the pressing need of the industry to restructure, the Act was also intended to facilitate the process of railway rationalization.

Rationalization was to be accomplished while allowing the greatest possible opportunity for line retention through transfer to other operators. For those lines that could not continue operations, the Act specifies a process under which federal, provincial/territorial, and municipal governments are offered lines. Only after all avenues are explored for continued operation are lines discontinued.

FIGURE 5-9
CN AND CP DISCONTINUANCES AND TRANSFERS OF LINES
1985 – 1997



Source: Transport Canada

TABLE 5-23
CN AND CP THREE-YEAR RATIONALIZATION PLANS
BY PROVINCE

(Route-kilometres)*

		B.C.	*Alta*	*Sask*	*Man*	*Ont*	*Que*	*N.B.*	*Total*
Discontinue	CP	0	213	640	0	399	1	0	1,253
	CN	0	0	393	60	451	3	0	907
	Total		213	1,033	60	850	4	0	2,160
Transfer	CP	75	0	407	112	136	81	13	823
	CN	0	1,029	59	233	10	301	333	1,964
	Total	75	1,029	466	345	146	382	346	2,787

* Net of rationalization to December 31, 1997
Source: Transport Canada

Figure 5-9 shows the CN and CP rationalization activity from 1985 to 1996. Although they fluctuated considerably, discontinuances were the major method of rationalization during this time. In the early 1990s, however, a number of shortlines were formed, which culminated in an increase in the transfer of lines to shortline operators during the past two years. These changes are a direct result of the new rationalization policy and process introduced in mid-1996 with the new *Canada Transportation Act*.

Because the rail network in Western Canada has been protected from abandonment, the focus of past rationalization activity has been in Eastern Canada. This arrangement has changed, however, and the balance of current railway plans includes substantially greater amounts of track to be rationalized in the West.

Transfers

The greatest number of transfers occurred in Eastern Canada, but the greatest percentage of trackage transferred actually occurred in Western Canada: approximately 67 per cent.

CN accounted for over 70 per cent of the trackage transferred during the past year, although the 1,300 kilometres of line transferred to the Hudson's Bay Railway, which is part of OmniTRAX, was an influencing factor. CN also made the greatest number of transactions, with seven of the nine transfers.

With the sale of almost 570 kilometres of track in Quebec to the Chemin de fer Québec-Gatineau, CP no longer operates east of the Montreal region. The only exception is a very short segment of track in New Brunswick that CP owns but is expected to transfer to Bangor and Aroostook Railroad, a subsidiary of Iron Road Railways.[1]

CN and CP employ a variety of approaches when transferring track to new operators. Both prefer outright sales, although long-term leases are also common.

Discontinuances

In 1997, 920 kilometres of track were discontinued, which is a slightly lower figure compared with the more than 1,000 kilometres of track discontinued in each of 1994, 1995 and 1996. These lines were offered to other potential operators and then to governments before discontinuance, as prescribed in the *Canada Transportation Act*. In total, discontinuances accounted for 23 per cent of all track that CN and CP rationalized in 1997.

1 Iron Road also owns the Canadian–American Railroad, the Quebec Southern Railway, and the Northern Vermont Railroad, all of which connect directly or indirectly with the Bangor and Aroostook Railroad, which has trackage principally in Maine. Iron Road also owns a completely separate line, the Windsor & Hantsport in Nova Scotia.

Rationalization by Province

Provincially, Manitoba dominated rationalization activity during 1997, accounting for approximately 40 per cent of transfers and discontinuances. Again the transfer of 1,300 kilometres of track to OmniTRAX was a significant factor.

Relatively little rationalization activity took place in British Columbia during 1997. CP formed an internal shortline in the province.

Moderate amounts of rationalization took place in Alberta, Saskatchewan, Ontario and Quebec. The activity in these provinces was equal to roughly one third to one half the activity in Manitoba.

Internal Shortlines

Because ownership does not change with the creation of internal shortlines, these activities are not included in the rationalization statistics. Mention of their role should be made in the context of restructuring, however, as they represent an alternative to traditional operations with many of the same characteristics as "external" shortlines, such as reduced labour inputs, more flexible labour arrangements, improved revenue generation and a more favourable financial condition in general.

CN operates about 1,900 kilometres of internal shortlines, while CP operates about 510 kilometres. The main portion of CN's internal shortlines makes up the organization's Northern Quebec lines.

Railway Three-Year Plans

Under the *Canada Transportation Act*, the railways must each file publicly a three-year rationalization plan that is updated periodically.

Plans by Province

As of the end of 1997, CN and CP plan to transfer about 2,800 kilometres of track and discontinue a further 2,200 kilometres. Table 5-23 shows the proposed line transfers and discontinuances remaining in the current plan.

In western Canada, ongoing grain elevator rationalization over the past several years has had a strong influence on the pace and scope of rail network rationalization. The closure of large numbers of rural elevators in recent years, as well as grain companies' commitments to high-throughput facilities at strategic locations, has driven line rationalization and activities.

Consequently, about 60 per cent of proposed discontinuances and 70 per cent of transfers are slated to take place in Western Canada.

Alberta and Saskatchewan will see the greatest amount of proposed rationalization activity over the next three years. Almost 60 per cent of proposed discontinuances and over 50 per cent of proposed transfers are expected to occur in these two provinces.

About 35 per cent of proposed transfers remaining in the current three-year plans will occur in Alberta. The level of proposed transfer activity should be similar for the remaining provinces.

Of the proposed discontinuances remaining, almost 50 per cent will occur in Saskatchewan, and 40 per cent in Ontario.

Trends in Rationalization

If potential transfers and discontinuances continue as outlined, the share of rail lines operated by Class I carriers will shift from its current level of 78 per cent of the total rail network to approximately 71 per cent by the end of the current plan. Transfers proposed in the balance of the current plans are expected to be somewhat greater than discontinuances.

CLASS II RAILWAYS

The Class II rail system in Canada includes several large, provincially based, regional carriers and a growing number of smaller shortlines. The system's membership and operating trackage increased by 40 per cent between 1996 and 1997, going from 28 carriers with some 7,900 kilometres to 37 carriers with some 11,000 kilometres.[2]

The operations of these carriers are becoming increasingly varied as well: some perform feeder functions, others perform switch functions, and still others haulage functions. For example, the Caledonia Hamilton Southern performs switching functions in the Welland area; RaiLink Ottawa Valley performs haulage functions for CP (with RaiLink crews simply operating CP trains over the trackage leased by Ottawa Valley); and most other shortlines perform the classic feeder function in conjunction with Class I carriers.

For the most part, transactions between carriers do not involve government support. The sole exceptions were OmniTRAX's acquisition of CN's northern Manitoba lines to Churchill,

2 These figures do not include railways like the Norfolk Southern (which does not own trackage in Canada, but does have running rights arrangements with CN in southwestern Ontario) and subsidiaries of other railways whose activities were incorporated into those of the parent company.

TABLE 5-24
CANADA'S ROAD SYSTEM BY PROVINCE OR TERRITORY

(kilometres)*

Province/Territory	Total Length	Federal System	Provincial System	Municipal System	National Highway System
British Columbia	65,728	2,050	42,279	21,399	5,516.0
Alberta	181,437	3,973	18,292	159,172	3,396.0
Saskatchewan	201,903	3,181	26,200	172,522	2,114.0
Manitoba	87,868	1,740	21,628	64,500	861.7
Ontario	167,891	2,346	28,458	137,087	4,924.4
Quebec	119,878	534	29,344	90,000	2,869.0
New Brunswick	21,883	218	18,480	3,185	954.7
Nova Scotia	25,992	291	23,371	2,330	900.8
P.E.I.	5,686	56	5,128	502	118.0
Newfoundland	13,081	207	8,747	4,127	948.0
Yukon	5,069	94	4,697	278	1,092.0
NWT	5,487	390	4,307	790	562.0
Total	**901,903**	**15,080**	**230,931**	**655,892**	**24,256.6**

* A "two-lane equivalent" is a length of road measured as if there were only two lanes. For example, one kilometre of four-lane highway is the equivalent of two kilometres of two-lane highway. A route-kilometre, on the other hand, is the length of road measured by a vehicle travelling from one end to the other, regardless of the number of lanes over this segment.

Source: Transportation Association of Canada, Transportation in Canada: A Statistical Overview, 1995.

Thompson and Lynn Lake, which involved federal funding through Western Economic Diversification Canada, and the acquisition of a small portion of CN's Chandler subdivision to Gaspé with support from the Quebec Federal Office of Regional Development. Transport Canada did not provide any financial support for these transactions.

ROAD TRANSPORTATION INFRASTRUCTURE

Canada has over 900 thousand kilometres of roads and highways (referred to collectively as "roads" throughout the report). Responsibility for roads rests primarily with the provinces and territories.

The federal government has limited involvement in roads. Its responsibility covers four areas of activity: ownership of a small amount of federal infrastructure; financial contributions to other levels of government for highway construction; regulation of international crossings; and research and development.

Municipal governments also have significant responsibility for roads, under various types of arrangements that are specific to each province or territory.

Table 5-24 shows the total length of roads in each province or territory, as well as the amount of road under each jurisdiction.

RATIONALIZATION AND DEVELOPMENT

A trend has started in recent years for provincial governments to transfer some roads to municipal ownership. On January 1, 1997, Ontario, for example, transferred to municipalities 1,700 kilometres of provincial highways serving primarily local needs. The Ontario government planned to transfer a further 3,400 kilometres on January 1, 1998, as part of the "Who Does What" review of provincial and local responsibilities.

Bridge design and traffic signals no longer need provincial approval in Ontario, and municipalities have more freedom to manage their own roads. In addition, the province has eliminated the Municipal Roads Funding Program and continued its efforts to outsource construction and maintenance for the provincial highway network through alternative service delivery contracts and other measures.

Ontario has already outsourced the maintenance of 1,200 kilometres in the Chatham area, as well as 100 kilometres around Thunder Bay and 900 kilometres around Sault Ste. Marie. Similarly, Alberta has outsourced the engineering and maintenance of the primary highway system to the private sector.

MAJOR HIGHWAY PROJECTS

Progress was made across Canada on major highway projects in 1997. The following list summarizes road construction from information provided by provincial governments to the Transportation Association of Canada.

Prince Edward Island

The $840-million, 13-kilometre Confederation Bridge opened to traffic between New Brunswick and Prince Edward Island on June 1, 1997. The structure is the world's longest continuous marine-span bridge over ice-covered water. Strait Crossing Development Inc., a Canadian-French-Dutch consortium, built the bridge and will operate it over the next 35 years. After that, the structure will revert to the Federal Government.

Work was also under way on a $21.7-million project to widen Charlottetown's Hillsborough Bridge, an important part of the Trans-Canada Highway. In 1997, the bridge piers were modified and the structure's approach roads were widened at a cost of $13.6 million.

Nova Scotia

A new section of Highway 104, the Cobequid Pass, opened for traffic in 1997. The 45-kilometre section of the Trans-Canada Highway is the first segment of toll highway in Atlantic Canada. The $112-million project is a public-private initiative between the province, Atlantic Highways Corporation and the Newcourt Credit Group.

New Brunswick

New Brunswick opened 70.5 kilometres of new four-lane highway in the fall of 1997, as part of a 160-kilometres plus project under way since 1988.

Newfoundland and Labrador

The government of Newfoundland and Labrador is in the midst of a 10-year, $360-million program to upgrade and expand the Trans-Labrador Highway. In 1997, $20 million was spent on the project's first phase to upgrade the existing road between Churchill Falls and Happy Valley–Goose Bay to a high-standard gravel surface.

Quebec

Quebec is twinning Autoroute 55 to link the cities of Sherbrooke and Trois-Rivières. In 1997, 13 kilometres of new lanes parallel to the existing Autoroute 55 between St-François-Xavier-de-Brompton and Windsor were constructed at a cost of $5.3 million.

Ontario

The world's first completely electronic toll highway, Highway 407 ETR (Express Toll Route), opened for traffic in Ontario in 1997. The first 36-kilometre stretch of the highway opened in June north of Toronto, after four years under construction. The remaining 33 kilometres of the $929.8-million, 69-kilometre toll highway should be open to traffic by the end of 1998. Canadian Highways International Corporation of Mississauga is the builder and operator.

Manitoba

Manitoba is upgrading 98 kilometres of its Provincial Trunk Highway 59 to a four-lane, limited-access highway that will connect Winnipeg and the US border. In 1997, new lanes were graded along the first section of the highway to be twinned, and a new bridge was built over the Red River Floodway, all at a cost of approximately $15 million.

Saskatchewan

The Yellowhead Highway (Highway 16) Project involves twinning the 92 kilometres of existing roadway between Saskatoon and the Battlefords, as well as the construction of a new bridge over the North Saskatchewan River. The four-year $43-million project was completed and opened to traffic in 1997.

Alberta

Work continued on a $91 million project to twin a 97 kilometre stretch of Highway 4 from Coutts to Lethbridge and to open up a continuous four-lane route through Alberta from the US border to Edmonton. The project should be completed by the year 2000.

Work also continued on a $32 million Parks Canada project to twin the Trans-Canada Highway from Sunshine to Castle Mountain in Banff National Park. Unique to this project are the various environmental mitigation measures included to protect wildlife.

British Columbia

In 1997, work continued on the $1.2-billion Vancouver Island Highway Project, including improvements to 228 kilometres of highway and the "four-laning" of the Trans-Canada Highway approach to Victoria with five new interchanges and a bypass around Nanaimo. The Nanaimo Parkway and the Duke Point Interchange opened, and the Campbell River bypass and Victoria Trans-Canada Highway approaches were completed.

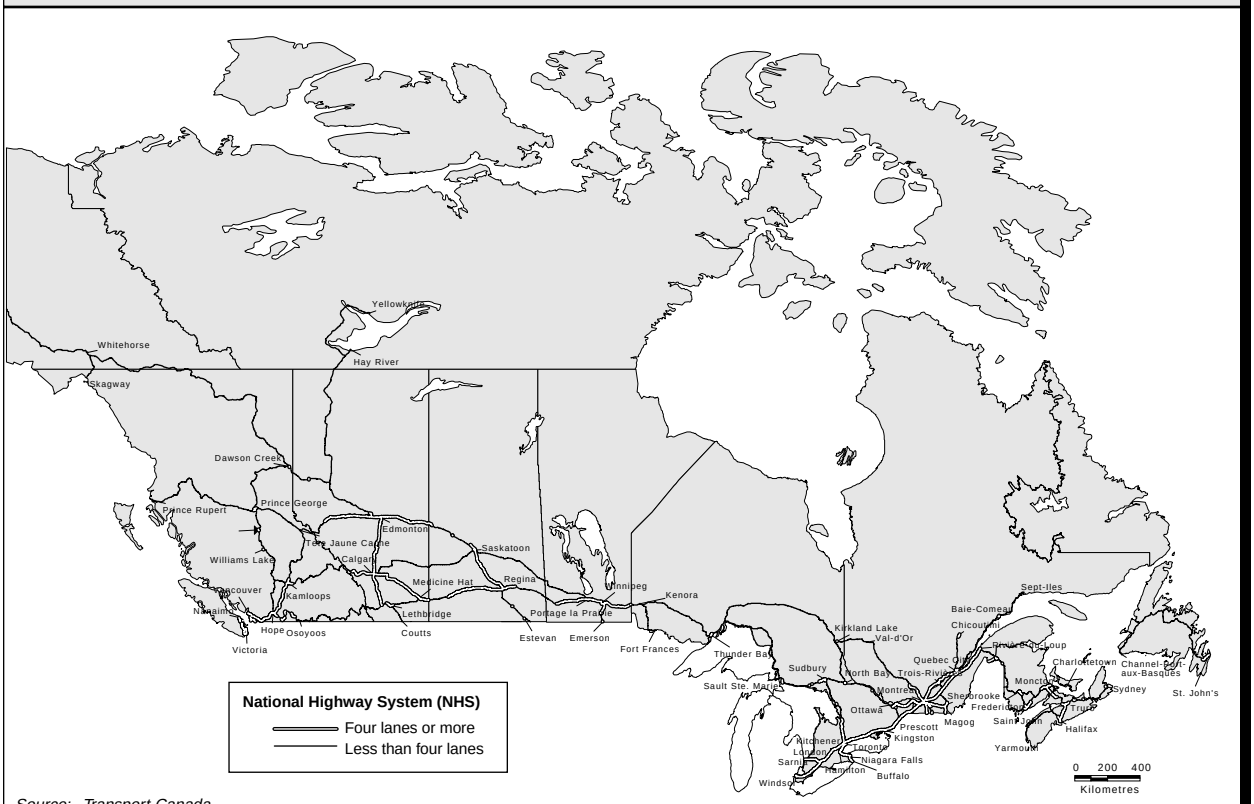
Yukon

In the Yukon, work continued on the Canada-US Shakwak Project, which involves the reconstruction of 520 kilometres of the Haines Road and the Alaska Highway. In 1997, five kilometres of road were reconstructed, 36 kilometres of bituminous surface were treated, and a bridge over the White River was completed. The cost for this work was about $11 million.

Northwest Territories

The Northwest Territories are reconstructing and paving Highways 1 and 3 from Yellowknife to the Alberta border, a 530 kilometre route that carries nearly half of the territory's highway traffic. Since the mid-1980s, construction has moved 410 kilometres northward from the border with Alberta at a cost of $108 million. In 1997, the NWT Department of Transportation spent $8.6 million to reconstruct and chip-seal an additional 30 kilometres. The estimated cost to complete the remaining 92 kilometres is $80 million.

FIGURE 5-10
CANADA'S NATIONAL HIGHWAY SYSTEM



Source: Transport Canada

FEDERAL CONTRIBUTION PROGRAMS

In fiscal year 1997/98, the federal government contributed $321.6 million to provincial and territorial highway construction, as well as repairs to federally financed structures, such as the CN-owned Victoria Bridge in Montreal.

Among these initiatives are the 1993 – 1999 Strategic Highway/ Transportation Improvement Programs. These include $845 million earmarked for cost-shared improvement projects across the country, the rehabilitation of the federally owned Jacques-Cartier and Champlain bridges in Montreal, the upgrading of the Trans-Canada Highway through the Banff, Yoho and Terra Nova national parks, and improvements to the Alaska Highway.

In addition, Highway Improvement Programs (1987 – 1999) are providing more than $300 million to create a more efficient and effective transportation system in New Brunswick and Nova Scotia, while the Newfoundland Transportation Initiative (1987–2002) is providing more than $700 million for upgrades to the Trans-Canada Highway and regional trunk roads, following the demise of the Newfoundland Railway.

Also on the East Coast, the Atlantic Freight Transition Program was instituted following the elimination of the *Atlantic Region Freight Assistance Act* and the *Maritime Freight Rates Act*. This 1995–2001 program provides $326 million to the four Atlantic provinces and Quebec for improvements to their freight transportation systems.

Finally, the $43-million Fixed Link Agreement (1994 – 1999) is assisting Prince Edward Island and New Brunswick as these provinces cope with increased traffic on their highways resulting from the new Confederation Bridge.

NATIONAL HIGHWAY SYSTEM

The National Highway System is over 24 thousand kilometres in length. In 1997, 26 per cent of the system was at least a four-lane divided highway, up from 21 per cent in 1988. Figure 5-10 shows Canada's National Highway System.

Table 5-25 shows the estimated costs for upgrading the National Highway System in each province and territory for 1988 and 1997. The table also presents two scenarios for repair.

As the table shows, the overall condition of the National Highway System has not improved. More highway kilometres have capacity problems, and pavement roughness is on the rise. However, the seriousness of the deficiencies, such as the magnitude of pavement rutting and structural deficiencies, and the number of bridges with load restrictions have all been reduced. In general, upgrading costs in Atlantic Canada have become lower than in 1988, while costs for Central and Western Canada have increased significantly.

Expenditures on National Highway System

While maintenance expenditures have remained relatively constant at about $300 million per year, capital expenditures have increased steadily to over twice as much as 10 years ago. Table 5-26 examines National Highway System expenditures in each province and territory over the past 10 years.

TABLE 5-25
UPGRADING COSTS FOR THE NATIONAL HIGHWAY SYSTEM
($'000)

	Scenario A		Scenario B		
Province/Territory	*1988 cost estimates*	*1997 cost estimates*	*1988 cost estimates*	*1997 cost estimates*	*System length (km)*
British Columbia	$ 2,181.8	$ 2,430.4	$ 2,852.1	$ 2,935.8	5,516.0
Alberta	1,991.7	3,030.0	2,049.2	3,239.1	3,396.0
Saskatchewan	608.8	929.3	652.7	929.3	2,114.0
Manitoba	549.5	576.6	565.0	576.6	861.7
Ontario	2,205.3	3,504.7	3,699.4	5,648.2	4,924.4
Quebec	1,330.2	2,763.6	1,749.3	3,388.6	2,869.0
New Brunswick	2,026.3	1,789.6	2,071.4	1,931.4	954.7
Nova Scotia	751.6	537.5	1,122.0	697.6	900.8
P.E.I.	88.8	93.4	186.9	197.6	118.0
Newfoundland	276.5	136.1	1,209.7	1,173.6	948.0
Yukon	394.5	370.1	394.5	370.1	1,092.0
NWT	239.1	253.5	239.1	253.5	562.0
Federal	319.8	278.8	794.6	646.6	562.0
Total	**$12,963.9**	**$16,693.6**	**$17,585.9**	**$21,988.0**	**24,818.6**

Note: Scenario A consists of expenditures required to upgrade the deficiencies of the system to minimum national engineering standards. Scenario B consists of the total costs of Scenario A with the addition of estimated costs to complete a continuous four lane route across Canada (largely the Trans-Canada Highway). Currently, almost 40 per cent of it is four lanes or more.

Source: Transportation Association of Canada

ROAD USE

Traffic on the National Highway System

As mentioned before, the National Highway System (NHS), although a small fraction of the total Canadian road network, carries a large proportion of the vehicle traffic. A breakdown of NHS traffic (as measured by the aggregate vehicle-kilometres) by province is shown in Table 5-27.

Traffic is heavily concentrated in the most populous provinces, Ontario and Quebec, which together account for about one-third of the NHS's route-kilometres, but over 60 per cent of the total vehicle-kilometres. The daily average for these provinces was nearly 16,000 vehicles per day in 1993, much higher than any other province. Traffic growth since 1986 was also highest in these two provinces, with Quebec's traffic growing the fastest of all, averaging over four per cent compound growth during the period. Outside of central Canada, no province had a traffic share greater than its share of the network. This is due to the fact that settlement patterns in Central Canada are very dense, particularly along the Great Lakes and St. Lawrence River. The close proximity of many large urban areas in Ontario and Quebec and the integration of economic activity and social interaction in these provinces are conducive to the generation of large traffic volumes. This is illustrated in Figure 5-11 which maps the daily vehicle traffic volumes. Traffic clusters around the largest urban centres, especially Toronto, Montreal, and Vancouver, and is distributed heavily along a few discrete highway corridors. It is important to note that road traffic is predominantly short-haul, with most car and truck trips well under 200 km in one-way length.

TABLE 5-26
NATIONAL HIGHWAY SYSTEM SPENDING ESTIMATES
1987/88 – 1996/97

Capital Expenditures (Millions of dollars)

	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
British Columbia	134.0	53.0	101.0	166.0	169.0	92.1	131.5	197.5	208.3	271.6
Alberta	117.8	102.5	89.8	91.2	72.5	67.4	76.0	72.0	100.0	89.0
Saskatchewan	16.6	27.1	28.1	25.8	12.3	10.1	26.4	23.6	18.1	10.9
Manitoba	16.3	17.5	23.4	30.0	24.5	24.8	33.5	26.2	18.9	11.1
Ontario	149.6	152.8	130.2	228.9	266.9	263.7	305.1	371.6	324.0	508.7
Quebec	65.9	64.8	85.1	150.6	139.1	148.1	225.4	212.7	184.5	182.1
New Brunswick	20.5	18.1	30.0	57.0	58.0	46.7	86.1	72.9	134.9	147.1
Nova Scotia	1.3	16.6	25.7	39.0	46.6	46.7	42.0	41.8	35.6	46.7
Prince Edward Island	1.5	2.2	0.9	2.9	7.9	6.7	5.4	3.2	4.7	4.6
Newfoundland	25.2	22.2	25.9	36.4	33.4	34.8	35.0	35.0	35.0	30.0
Yukon	5.3	7.0	9.7	12.6	7.1	13.9	25.3	41.8	44.5	36.9
Northwest Territories	3.2	3.4	8.1	10.1	18.6	16.7	13.6	15.4	13.3	13.1
Total	**557.2**	**487.2**	**557.9**	**850.5**	**855.9**	**771.7**	**1,005.3**	**1,113.7**	**1,121.8**	**1,351.8**

Maintenance Expenditures (Millions of dollars)

	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
British Columbia	58.1	63.2	68.0	74.0	79.0	74.6	78.2	79.5	81.6	83.2
Alberta	33.5	25.0	22.5	23.2	23.3	24.0	24.0	24.0	25.0	25.0
Saskatchewan	11.1	12.0	13.2	13.0	13.0	8.1	6.1	5.4	6.3	6.9
Manitoba	6.5	7.2	7.8	8.2	8.4	8.6	7.8	7.7	7.6	6.8
Ontario	80.2	85.0	89.7	94.4	99.0	98.4	78.1	74.0	77.2	77.5
Quebec	46.4	48.0	50.0	52.0	54.0	55.0	117.0	115.3	114.8	113.6
New Brunswick	11.5	11.0	11.7	12.0	10.9	10.4	10.3	10.6	10.8	11.2
Nova Scotia	16.8	8.9	9.8	9.4	9.2	10.4	13.4	13.3	19.5	12.4
Prince Edward Island	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.6
Newfoundland	9.1	8.7	8.6	8.9	9.3	9.3	10.3	10.3	10.3	10.3
Yukon	10.6	13.8	13.1	15.0	15.7	13.3	9.3	9.6	9.6	9.1
Northwest Territories	3.4	3.9	4.4	4.0	3.3	4.2	3.9	4.9	4.7	4.6
Total	**287.9**	**287.4**	**299.6**	**314.9**	**325.9**	**317.1**	**359.2**	**355.5**	**368.3**	**362.2**

Source: Transportation Association of Canada

The busiest corridor of all is the Highway 401 – Highway 20 corridor running from Quebec City to Windsor. Traffic levels routinely average over 30,000 vehicles per day, but rise significantly as one approaches Toronto and Montreal. Traffic through the Montreal core exceeds 150,000 vehicles per day, while traffic through the Toronto area is busiest of all, exceeding 350,000 vehicles per day.

The busiest corridor outside Central Canada, is the Trans-Canada Highway in the lower mainland of B.C., running from Chilliwack to Vancouver. Traffic exceeds 50,000 vehicles per day over many sections of this road and exceeds 100,000 per day as one enters the Greater Vancouver area. The next busiest corridor is Highway 2, running between Calgary and Edmonton. Traffic levels average almost 15,000 vehicles per day over this 300-km stretch of highway. The busiest corridor in Atlantic Canada is the stretch along Highway 102 between Truro and Halifax, N.S. Average daily traffic volumes exceed 15,000 vehicles over most sections of this highway.

TABLE 5-27
DAILY TRAFFIC LEVELS ON THE NATIONAL HIGHWAY SYSTEM

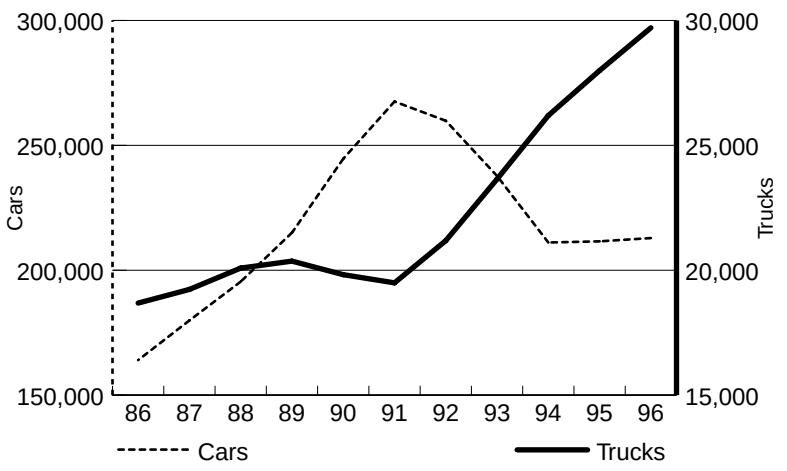
Province/ territory	1993 Route-kilometres (000s)	Vehicle-kilometres (billions) 1993	Vehicle-kilometres (billions) 1986	Average annual growth in veh-km	Average annual daily traffic (AADT) 1993	Average annual daily traffic (AADT) 1986	Percentage distribution Route-km	Percentage distribution Vehicle-km 1993	Percentage distribution Vehicle-km 1986
Newfoundland	0.9	0.8	0.7	1.4%	2,400	2,100	3.6	1.0	1.2
Prince Edward Island	0.1	0.2	0.1	3.2%	4,200	3,300	0.5	0.2	0.2
Nova Scotia	0.9	2.2	1.8	3.1%	7,100	5,700	3.6	3.0	3.1
New Brunswick	0.9	2.2	2.0	1.4%	6,400	5,800	4.0	3.0	3.4
Quebec	2.8	18.5	13.9	4.1%	18,000	13,600	11.7	25.2	23.8
Ontario	5.0	27.1	21.5	3.3%	14,800	11,800	20.9	36.9	36.8
Manitoba	0.9	1.3	1.2	1.8%	4,300	3,800	3.6	1.8	2.0
Saskatchewan	2.1	2.8	2.4	2.4%	3,700	3,100	8.8	3.8	4.1
Alberta	3.5	7.6	6.3	2.8%	5,900	4,900	14.7	10.4	10.7
British Columbia	5.3	10.5	8.3	3.3%	5,400	4,300	22.3	14.2	14.3
Yukon	1.0	0.2	0.2	1.5%	600	500	4.1	0.3	0.3
Northwest Territories	0.6	0.04	0.04	0.3%	200	200	2.3	0.1	0.1
Total	**24.0**	**73.5**	**58.5**	**3.3%**	**8,400**	**6,700**	**100.0**	**100.0**	**100.0**

Source: Traffic Statistics: Provincial Highways Departments; Other: Transport Canada calculations

FIGURE 5-11
TRAFFIC ON THE NATIONAL HIGHWAY SYSTEM

Source: Transport Canada

FIGURE 5-12
DAILY TRAFFIC LEVELS BETWEEN CANADA AND THE US
1986 – 1996



Source: Revenue Canada

TABLE 5-28
ANNUAL CAR AND TRUCK TRAFFIC
FOR MAJOR BORDER CROSSINGS
1996

Crossing	*Province*	*Total Annual Traffic (mill.)*	*Share %*
Ambassador Bridge	Ontario	10.3	12
Pacific Highway	B.C.	8.9	10
Windsor Tunnel	Ontario	8.9	10
Fort Erie	Ontario	7.6	9
Sarnia	Ontario	4.9	6
Queenston Bridge	Ontario	4.6	5
Rainbow Bridge	Ontario	3.2	4
Sault Ste. Marie	Ontario	3.0	3
Lacolle	Quebec	2.9	3
Huntingdon	B.C.	2.4	3
Boundary Bay	B.C.	2.1	2
Cornwall	Ontario	2.0	2
St. Stephen	New Brunswick	1.9	2
Edmundston	New Brunswick	1.7	2
Aldergrove	B.C.	1.6	2
Lansdowne	Ontario	1.6	2
Rock Island	Quebec	1.5	2
Whirlpool Bridge	Ontario	1.3	1
Philipsburg	Quebec	1.0	1
Fort Frances	Ontario	1.0	1
Sub-total		**72.5**	**82**
Total		**88.5**	

Source: Revenue Canada

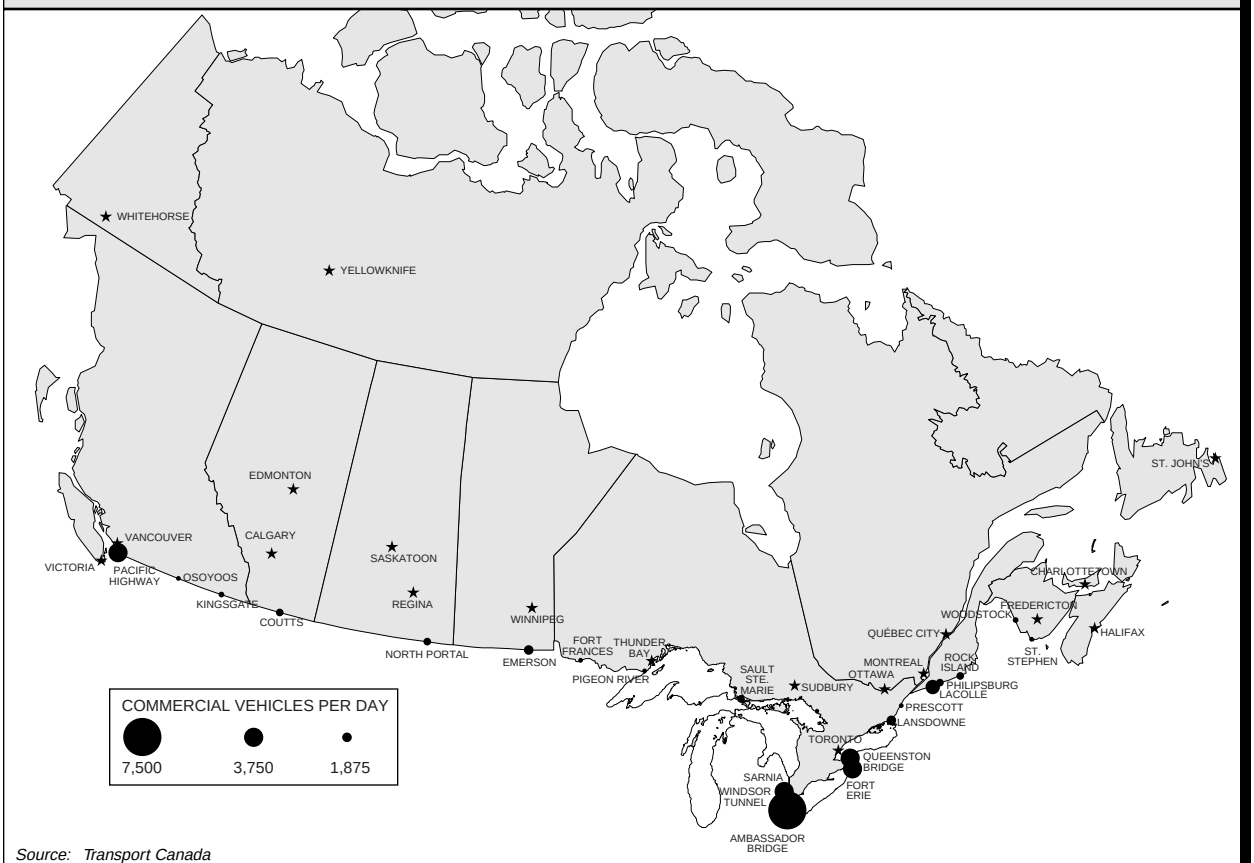
Traffic between Canada and the United States

Although traffic on the NHS has grown at an average annual rate of 3.3 per cent between 1986 and 1993, traffic growth between Canada and the US has been even stronger averaging over 4.5 per cent per annum. As Figure 5-12 shows, the two-way movements across the border have fluctuated dramatically since the late-1980s. This was especially true of passenger car movements which grew by over 60 per cent between 1986 and 1991, from about 165,000 vehicles per day to nearly 270,000 vehicles per day. This huge growth in traffic was largely in response to the substantial appreciation of the Canadian dollar (to about US90¢), which made American-made goods relatively cheaper and spawned a massive cross-border shopping spree. With the recession of the early 1990s and the decline of the Canadian dollar, passenger car traffic fell dramatically by over 20 per cent by 1994 and has since stabilized at an average of about 210,000 vehicles per day.

Cross-border truck flows have been particularly strong during the 1990s. Between 1986 and 1991, truck traffic grew by less than five per cent from a daily average of 18,700 vehicles to 19,500 vehicles. Since 1991, though, growth has skyrocketed, leaping by over 50 per cent by 1996 to nearly 30,000 vehicles per day. Much of this increase can be attributed to the closer integration of the North American economy brought on by the signing of the North American Free Trade Agreement (NAFTA) in 1991.

The spatial distribution of cross-border traffic is heavily skewed to a small number of sites. In 1996, about 120 border crossings

FIGURE 5-13
ANNUAL CAR AND TRUCK TRAFFIC BY LARGEST BORDER CROSSING, 1996



Source: Transport Canada

handled at least some traffic, but over 80 per cent of the total car and truck traffic passed through just 20 sites. As Table 5-28 shows, eleven of the largest sites were located in Ontario, four were located in B.C., three were located in Quebec and the balance in New Brunswick. Almost all sites were located either along a major traffic corridor (e.g., the Windsor-area crossings, the Niagara region crossings, or the Pacific Highway) or in a city in close proximity to the US border (e.g., Cornwall, Edmundston) and thus a generator of cross-border shopping activity.

Table 5-28 and Figure 5-13 indicate the principal commercial vehicle border crossings which handle significant truck flows and which offer 24-hour-a-day customs facilities (so-called Designated Commercial Offices (DCO). The Windsor-area crossings were the busiest in Canada, handling nearly 7,500 heavy vehicles per day (2.7 million per year) in 1996. A further 3,000 trucks per day crossed at nearby Sarnia. The second busiest area was the Niagara region, which together handled over 6,000 trucks per day. The Pacific Highway crossing in B.C. was third largest, handling over 2,000 heavy vehicles per day. The largest commercial vehicle crossing in Quebec was the crossing at Lacolle near Autoroute 15. It handled 1,700 trucks per day in 1996.

Over 80 per cent of Canadian trade transported by road to and from the US or Mexico clears customs at one of Canada's 10 busiest border crossings. This trade is worth more than $200 billion annually.

The busiest border crossings have experienced double-digit growth rates in Canadian road trade over the period 1988 – 1996. The increase in the value of our road exports at the more than 100 remaining border crossings has been much more modest at slightly higher than two per cent a year over the same period.

TECHNOLOGY

A conceptual design for an Intelligent Transportation Border Crossing System is being tested at both the Canada - US and US - Mexico borders by the customs administration and transportation and immigration departments of the three countries. The Canada - US tests are being conducted at the Peace Bridge, between Ontario and New York, and the Ambassador Bridge, between Ontario and Michigan.

With 70 per cent of Canada's $1-billion-a-day trade with the US travelling by truck, intelligent transportation system technology could improve traffic flow, particularly for commercial vehicles. Such systems could, among other things, allow Customs and Immigration pre-clearance, and facilitate vehicle and driver inspection.

The International Standards Organization (ISO) has set up a technical committee to develop global standards for intelligent transportation systems and road telematics.

ANNEX 5-1
TOTAL AIRCRAFT MOVEMENTS
1991 – 1997

National Airports	1991	1992	1993	1994	1995	1996	1997	% Change 96/95
Calgary International	208,647	205,228	202,247	206,227	225,150	235,167	238,940	1.6
Charlottetown	29,302	26,287	31,152	24,565	23,709	24,472	22,024	-10.0
Edmonton International	69,289	66,168	56,248	59,292	65,821	90,804	107,362	18.2
Edmonton Municipal	124,038	118,564	116,063	111,371	102,881	84,448	78,816	-6.7
Fredericton	37,647	43,091	49,819	45,083	36,113	30,410	27,933	-8.1
Gander International	39,835	42,067	41,387	45,420	49,765	49,862	53,021	6.3
Halifax International	111,950	112,148	111,002	119,561	136,661	139,093	167,567	20.5
Kelowna	58,632	64,401	54,370	61,399	52,263	60,723	73,779	21.5
Lester B Pearson Int'l	322,278	327,526	305,352	307,023	341,976	372,418	395,755	6.3
London	108,239	103,761	95,746	98,704	104,790	106,642	107,135	0.5
Moncton	75,532	69,423	62,745	68,051	78,236	73,750	79,670	8.0
Montreal/Dorval Int'l	197,463	197,464	188,773	191,808	198,252	202,220	195,043	-3.5
Montreal/Mirabel Int'l	61,721	56,706	50,517	53,788	56,780	55,800	50,688	-9.2
Ottawa International	162,758	157,482	146,616	144,721	161,023	163,697	169,290	3.4
Prince George	56,464	51,425	54,380	58,607	59,692	58,262	62,451	7.2
Quebec	141,071	125,730	131,422	127,812	130,308	132,572	125,285	-5.5
Regina	81,440	75,838	72,196	67,265	62,658	66,745	69,773	4.5
Saint John	32,291	34,330	35,717	33,344	31,374	32,426	32,221	-0.6
Saskatoon	95,354	96,115	82,007	88,648	86,026	91,258	107,190	17.5
St. John's	68,272	63,692	59,307	58,502	58,583	62,607	75,711	20.9
Sudbury	107,179	96,476	70,597	69,201	72,273	62,225	60,548	-2.7
Thunder Bay	107,896	117,138	94,562	82,611	82,527	100,161	80,905	-19.2
Vancouver International	288,106	289,904	289,093	301,163	311,450	329,960	342,552	3.8
Victoria International	187,619	186,293	165,643	163,770	163,474	159,781	174,513	9.2
Whitehorse	39,707	45,794	45,714	51,496	50,933	42,575	40,197	-5.6
Winnipeg International	140,105	139,860	139,012	154,868	156,002	155,065	155,193	0.1
Yellowknife	46,719	56,376	71,914	83,281	65,340	62,881	55,058	-12.4
Total NAS	**2,999,554**	**2,969,287**	**2,823,601**	**2,877,581**	**2,964,060**	**3,046,024**	**3,148,620**	**3.4**

Source: Aircraft Movement Statistics, TP 577

ANNEX 5-2
ENPLANED AND DEPLANED PASSENGERS

National Airports	1991	1992	1993	1994	1995	1996	% Change 96/95
Calgary International	4,573,759	4,695,680	4,590,786	4,746,849	5,291,063	6,662,242	25.9
Charlottetown	178,700	192,085	171,905	174,688	178,902	185,561	3.7
Edmonton International	1,810,020	1,790,618	1,521,078	1,508,093	1,776,639	2,896,578	63.0
Edmonton Municipal	922,589	871,943	1,001,582	971,367	791,447	388,009	(51.0)
Fredericton	195,621	213,323	188,177	187,299	193,376	199,278	3.1
Gander International	100,754	100,968	92,472	97,657	93,137	78,192	(16.0)
Halifax International	2,292,429	2,310,146	2,253,156	2,258,581	2,338,364	2,462,256	5.3
Kelowna	302,143	297,609	286,167	293,026	317,330	539,352	70.0
Lester B Pearson Int'l	18,494,707	19,124,040	19,282,084	19,555,520	20,909,173	22,669,189	8.4
London	234,396	257,888	264,017	273,842	317,336	323,709	2.0
Moncton	220,840	230,303	222,418	220,587	223,667	221,629	(0.9)
Montreal/Dorval Intl	5,590,476	5,564,330	5,592,960	5,568,278	5,728,508	6,142,204	7.2
Montreal/Mirabel Intl	2,255,323	2,427,947	2,259,007	2,299,476	2,375,956	2,391,594	0.7
Ottawa International	2,420,548	2,497,673	2,377,324	2,344,035	2,458,162	2,763,420	12.4
Prince George	234,815	234,945	232,748	248,328	241,897	254,519	5.2
Quebec	684,377	679,785	662,128	602,210	652,915	640,304	(1.9)
Regina	556,549	578,917	507,260	494,246	534,372	639,512	19.7
Saint John	197,320	196,052	183,274	183,058	191,778	189,907	(1.0)
Saskatoon	562,423	571,286	504,263	493,081	545,798	632,968	16.0
St. John's	613,277	622,507	597,292	627,465	624,096	625,687	0.3
Sudbury	220,773	207,253	189,607	180,627	191,281	180,778	(5.5)
Thunder Bay	505,740	494,553	457,950	432,456	456,867	472,821	3.5
Vancouver International	8,996,196	9,449,939	9,678,953	10,205,784	11,107,284	13,090,057	17.9
Victoria International	666,543	697,478	662,625	696,490	726,873	879,367	21.0
Whitehorse	110,283	122,380	105,795	111,021	122,476	145,330	18.7
Winnipeg International	2,072,674	2,142,124	2,081,464	2,148,890	2,299,005	2,830,044	23.1
Yellowknife	197,372	191,042	198,988	192,498	217,169	213,287	(1.8)
Total NAS Airports	**55,210,647**	**56,742,814**	**56,165,480**	**57,115,452**	**60,904,871**	**68,717,794**	**12.8**

Source: Statistics Canada, Statements 2, 4 and 6

ANNEX 5-3
ENPLANED AND DEPLANED CARGO

(Kilograms)

National Airports	1991	1992	1993	1994	1995	1996	% Change 96/95
Calgary International	41,500,983	41,736,814	42,668,125	46,352,376	43,970,020	53,556,534	21.8
Charlottetown	210,198	116,322	111,159	151,280	82,597	76,162	(7.8)
Edmonton International	22,480,629	18,128,753	18,482,074	14,074,233	12,572,392	13,156,177	4.6
Edmonton Municipal	703,554	616,760	1,127,322	3,075,845	2,613,234	1,286,873	(50.8)
Fredericton	136,559	138,213	111,751	96,004	49,827	48,707	(2.2)
Gander International	95,592	172,843	240,977	52,000	140,580	241,850	72.0
Halifax International	25,598,082	21,545,518	18,898,584	18,097,918	20,129,025	17,926,385	(10.9)
Kelowna	6,062	-	-	415,282	700,939	724,107	3.3
Lester B Pearson Int'l	311,892,446	297,583,151	312,056,546	307,041,276	320,273,947	336,654,076	5.1
London	93,600	283,100	31,459	377,000	100,500	167,400	66.6
Moncton	6,080,386	4,304,521	4,778,069	1,731,331	798,858	486,375	(39.1)
Montreal/Dorval Intl	26,364,274	25,963,991	27,092,880	27,316,461	24,907,747	23,744,418	(4.7)
Montreal/Mirabel Intl	85,823,749	87,807,390	88,132,818	81,474,917	81,460,344	82,064,607	0.7
Ottawa International	7,198,851	6,706,015	5,802,464	7,153,909	6,024,249	4,890,115	(18.8)
Prince George	304,488	260,962	403,732	488,547	452,716	311,110	(31.3)
Quebec	425,071	394,644	207,067	184,793	171,953	97,091	(43.5)
Regina	1,946,882	1,089,613	778,248	1,516,782	1,833,706	1,966,251	7.2
Saint John	256,845	164,666	147,247	228,893	112,486	90,699	(19.4)
Saskatoon	1,067,227	783,104	796,922	1,703,890	2,053,566	2,380,833	15.9
St. John's	4,674,702	4,189,531	4,546,963	5,081,383	5,001,095	1,964,027	(60.7)
Sudbury	1,341	-	-	-	-	-	
Thunder Bay	786,686	703,251	673,800	845,509	850,610	506,748	(40.4)
Vancouver International	124,190,462	131,134,676	142,535,227	160,666,918	166,943,688	190,814,043	14.3
Victoria International	102,065	110,026	109,634	420,379	695,601	851,500	22.4
Whitehorse	831,768	812,735	731,085	739,176	825,946	860,856	4.2
Winnipeg International	25,543,287	28,406,951	29,680,145	19,733,467	14,884,851	12,112,518	(18.6)
Yellowknife	1,942,467	1,871,990	1,651,869	2,320,543	2,257,338	2,142,595	(5.1)
Total NAS Airports	**690,258,256**	**675,025,540**	**701,796,167**	**701,340,112**	**709,907,815**	**749,122,057**	**5.5**

Source: Statistics Canada, Statements 2 and 6

ANNEX 5-4
AIRPORTS CAPITAL ASSISTANCE PROGRAM
PROJECTS APPROVED IN 1997

Site	*Description*		*Funded*	*T.E.C. ($000)*
New-Brunswick				
St. Leonard	Mobile equipment		28.02.97	426.1
Miramichi	Various airport improvements		08.07.97	3,801.3
Bathurst	Purchase & install electronic door		08.07.97	25.0
Charlo	Resurface runway, taxiway and apron		14.11.97	2,015.8
		Sub-total		**6,268.2**
Québec				
La Grande Rivière	Rehab. maneuvering surfaces & visual aids		16.04.97	2,880.1
Chisasibi	Rehab. runway, lighting & related works		16.04.97	1,844.7
Alma	Rehab. drainage, machinery & roadway		04.07.97	996.3
		Sub-total		**5,721.1**
Ontario				
Wawa	Rehab. runway, taxiway, apron and lighting		12.03.97	3,149.5
Sioux Lookout	Mobile equipment		02.04.97	401.1
Geraldton	Mobile equipment		12.03.97	387.7
Nakina	Mobile equipment		02.04.97	262.8
Fort Frances	Lighting rehab. / approach path indicator		08.04.97	296.1
Marathon	Mobile equipment		03.07.97	394.0
Elliot Lake	Mobile equipment		03.07.97	407.0
Kirkland Lake	Mobile equipment		03.07.97	407.0
Wawa	Mobile equipment		03.07.97	388.0
Manitouwadge	Mobile equipment		27.08.97	411.0
Cochrane	Mobile equipment		13.08.97	411.0
Pelee Island	Mobile equipment		03.07.97	231.0
Kingston	Mobile equipment		03.07.97	561.0
Hornepayne	Air terminal building renovations		03.07.97	7.5
Hamilton	Runway/taxiway restoration		17.07.97	2,883.9
Hamilton	Mobile equipment		03.07.97	14.0
Chapleau	Mobile equipment		14.07.97	374.8
Fort Frances	Mobile equipment		14.07.97	167.0
Dryden	Mobile equipment		21.07.97	154.0
Sarnia	Mobile equipment		29.09.97	152.0
Hamilton	Approach path indicator installation		06.10.97	83.2
Hamilton	Apron reconfiguration		24.10.97	4,904.2
		Sub-total		**16,447.8**
Manitoba				
Pine Dock	Mobile equipment		28.07.97	686.0
Gillam	Mobile equipment		28.07.97	421.0
Dauphin	Overlay runway, taxiway and apron		08.07.97	2,645.0
Swan River	Replace rotating beacon		11.02.97	9.4
		Sub-total		**3,761.4**
Saskatchewan				
Wollaston Lake	Rehab. edge lighting, new approach path indicator, Wind sock		19.06.97	218.4
Stony Rapids	Approach path indicator		19.06.97	171.0
Prince Albert	Rehabilitate airfield lighting		28.02.97	1,009.8
		Sub-total		**1,399.2**
Alberta				
Medicine Hat	Restore taxis, visual aids, snowblower		17.06.97	1,275.7
Peace River	Rehabilitate runway and taxiways		18.06.97	864.4
High Level	Wildlife management fence		25.07.97	157.7
Grande Prairie	Air terminal building roof rehabilitation		10.10.97	58.5
		Sub-total		**2,356.3**
British-Columbia				
Nanaimo	Pavement rehab. – overlay runway and taxis		04.06.97	1,641.2
Campbell River	Replace security gates		18.06.97	12.0
Dawson Creek	Mobile equipment		16.10.97	160.3
Quesnel	Resurface pavement/airfield lighting improvement		16.02.97	1,857.5
Nanaimo	Gate replacement and decelerometer		14.11.97	18.8
		Sub-total		**3,689.8**
		TOTAL		**39,643.8**

T.E.C. = Total estimated cost

Source: Transport Canada

ANNEX 5-5a
PERCENTAGE CHANGE IN TOTAL TONNAGE HANDLED BY PORTS CANADA

Ports Canada ports	*1995 Total*	*1996 Total*	*% Change*
Local Ports Corporation			
Vancouver	69,440,822	71,405,265	3
Saint John	18,739,117	20,574,831	10
Montréal	18,603,596	19,207,872	3
Québec	17,386,413	16,986,969	-2
Halifax	13,353,421	13,587,006	2
Prince Rupert	11,366,897	9,451,141	-17
St. John's	842,519	814,093	-3
Divisional Ports			
Sept-Îles	23,152,515	22,583,930	-2
Trois-Rivières	2,614,235	2,184,201	-16
Belledune	1,452,230	1,388,874	-4
Port Colborne	780,535	992,379	27
Prescott	548,588	441,095	-20
Port Saguenay/Baie des Ha!Ha!*	452,251	284,374	-37
Churchill**	239,302	304,750	27
Total	**178,733,139**	**180,206,780**	**1**

Note: Tonnage statistics include cargos shipped across private facilities.
* includes Chicoutimi
** Churchill was a divisional port in 1996; transfer did not take place until 1997

Source: Statistics Canada, Cat. 54-205-XPB

ANNEX 5-5b
PERCENTAGE CHANGE IN TOTAL TONNAGE HANDLED BY HARBOUR COMMISSIONS

Harbour Commissions ports	*1995 Total*	*1996 Total*	*% Change*
Hamilton	11,928,731	12,756,879	7
Thunder Bay	11,499,559	10,100,099	-12
Fraser River*	7,303,138	7,526,313	3
Windsor	4,630,119	5,079,349	10
North Fraser	3,289,001	3,814,929	16
Nanaimo	2,568,814	2,070,062	-19
Toronto	1,048,251	1,428,808	36
Port Alberni	670,219	614,914	-8
Oshawa	82,308	95,518	16
Total	**43,020,140**	**43,486,871**	**1**

Note: Tonnage statistics include cargos shipped across private facilities.
* includes New Westminster

Source: Statistics Canada, Cat. 54-205-XPB

ANNEX 5-5c
PERCENTAGE CHANGE IN TOTAL TONNAGE HANDLED BY TRANSPORT CANADA AND OTHER PORTS

	1995 Total	*1996 Total*	*% Change*
Transport Canada ports			
Port Hawkesbury	11,890,623	7,884,561	-34
Baie-Comeau	7,552,242	5,866,556	-22
Come By Chance [1]	6,108,121	7,430,453	22
Nanticoke [1]	5,608,661	6,789,838	21
Sorel	5,594,775	5,579,475	0
Havre-Saint-Pierre	2,873,628	2,833,693	-1
Kitimat [1]	2,763,253	2,464,226	-11
Goderich	2,759,640	3,943,037	43
Sarnia	2,537,987	2,214,798	-13
Crofton	2,352,813	2,066,687	-12
Hantsport	1,648,088	1,514,400	-8
Blubber Bay	1,528,735	1,613,858	6
Dalhousie	1,462,207	1,252,342	-14
Squamish	1,136,638	1,000,471	-12
Victoria and Esquimalt	1,103,347	1,499,461	36
Total	**56,920,758**	**53,953,856**	**-5**
Other ports			
Port Cartier	24,911,581	21,729,367	-13
Howe Sound	5,329,557	4,864,546	-9
East Coast Vancouver	4,131,102	4,061,566	-2
Port Alfred	3,295,270	3,719,646	13
Meldrum Bay	2,254,749	2,823,508	25
Clarkson	1,523,548	2,389,072	57
Courtright	1,884,951	2,138,823	13
Colborne	1,086,657	1,823,570	68
Bécancour	1,274,787	1,472,413	16
Picton	1,223,282	1,252,433	2
Texada Island	1,231,986	1,236,437	0
Jervis Inlet	725,647	1,140,982	57
Bowmanville	1,175,245	1,137,720	-3
Cohasset	726,641	1,058,686	46
Total	**50,775,003**	**50,848,769**	**0**

Notes: Tonnage statistics include cargos shipped across private facilities.

1 The port is a declared public harbour under the control and administration of Transport Canada, Harbours and Ports. All facilities at the port are privately owned and operated.

Source: Statistics Canada, Cat. 54-205-XPB.

TRANSPORTATION SAFETY

Transportation safety in Canada continued to improve, accident and number of fatalities having declined generally in all modes.

In Canada, responsibility for transportation safety involves many stakeholders, including the federal, provincial, territorial and municipal governments; industry; and non-governmental organizations that focus on transportation safety.

The federal government regulates and co-ordinates safety-related issues in the following areas: aeronautics and airports; air and marine navigation; marine shipping facilities; commercial shipping; new motor vehicle standards; and railways and canals connecting provinces with each other or with the United States.

Transport Canada works closely with other federal government agencies to maintain nation-wide safety. These agencies include the Transportation Safety Board, an independent agency that investigates and reports to Parliament accidents and system failures in the air, rail and marine modes.

The transportation sector as a whole is composed of mature industries that are well represented through strong industry associations that deal with their constituents' concerns and that are equally interested in maintaining and promoting the safety of their operations and products. These stakeholders share the concerns of users, private consumer-oriented organizations, and the federal, provincial, territorial and municipal governments about maintaining the ongoing safety of Canada's transportation system.

This chapter reviews three aspects of transportation safety today: transportation occurrence statistics; an estimate of the total value of transportation accident losses; and the various levels of governments' initiatives for promoting transportation safety in 1997.

TRANSPORTATION OCCURRENCES

In general, statistics indicate that transportation safety in Canada is improving. In most modes, safety

TABLE 6-1
TRANSPORTATION OCCURRENCES
1997 vs. FIVE-YEAR AVERAGE

	Aviation	*Marine*	*Rail*	*Road*[1]
Accidents				
Five-year average	394	729	1,158	710,692
Most recent year	352	528	1,125	660,708
Fatalities				
Five-year average	88	33	121	3,482
Most recent year	76	24	107	3,082

1 Road accidents are for 1996 (the most recent statistics available) and for the 1991 – 95 period; all others are for 1997 and 1992 – 1996.

Source: Transportation Safety Board; Statistics Canada

TABLE 6-2
OCCURRENCES IN AVIATION TRANSPORTATION
1988 – 1997

Aviation	*Accidents*	*Accident Rate*[1]	*Fatalities*
1988	497	13.7	95
1989	482	12.9	155
1990	498	14.6	91
1991	453	13.7	373
1992	435	13.1	80
1993	422	12.1	102
1994	380	10.1	80
1995	390	10.3	107
1996	339	8.8	70
1997	352	9.0	76

1 Accident rate is the number of accidents per 100,000 hours flown.

Source: Transportation Safety Board

has increased considerably over the past 10 years; in every mode, it has improved over the past five years. In the area of road safety, for example, the total number of accidents in 1996 was approximately seven per cent lower than the average of the previous five years (660,708 accidents in 1996, compared with an average 710,692 from 1991 – 1995). The number of fatalities in 1996 was more than ten per cent lower than the previous five-year average (3,082 accidents in 1996 – 400 fewer than the 1991 – 1995 average of 3,482).

The accident rate, which takes into account the level of activity in each mode, also shows a general downward trend. Aviation statistics, for example, report an accident rate that is almost 17 per cent lower in 1997 than the 1992 – 1996 average, i.e. nine versus 10.8 accidents per 100,000 hours flown. Marine statistics indicate an accident rate of 3.9 per 1,000 arrivals or departures of vessels in 1997, as opposed to 4.2 average over the previous five years. For rail, the 1997 rate of nine was down slightly in comparison to the five year average rate of 9.3 accidents per million train kilometres.

In the aviation, marine and rail modes, the most recent data list some 2,005 accidents, with 207 aviation, marine and rail fatalities in 1997 – a year in which accidents decreased slightly in the rail and marine modes, but increased slightly in the aviation mode. Yet, despite the overall decrease in transportation occurrences, 1997 was marked by some major accidents: rail accidents at Biggar and Lytton; the aviation accident at the Fredericton airport; and the bus accident at Les Éboulements, Quebec.

Table 6-1 compares transportation occurrences with the five-year average.

AVIATION

Domestic Operations

In 1997, there were 352 accidents involving Canadian-registered aircraft (excluding ultralights). This figure is three per cent higher than in 1996, but well below the 1992 – 1996 average. Despite the slight increase, the long-term trend remains downward. It is estimated that the number of hours flown has increased slightly for 1997, resulting in an estimated accident rate of nine accidents per 100,000 flying hours. There were 76 fatalities in 1997, an increase of seven per cent over 1996, a figure 14 per cent lower than the 1992 – 1996 average.

Typically, private operators are involved in the majority of accidents. Most commercial accidents involve air taxi or specialty aircraft. To address this finding, Transport Canada and the aviation industry have established a Task Force on the Safety of Air Taxi Operations (SATOPS). Its objective is to propose ways to improve the safety record of the air-taxi segment of the aviation industry.

Table 6-2 summarizes transportation occurrences in aviation from 1988 to 1997.

Averaged over the five-year period from 1992 to 1996, there were 394 accidents per year, producing an accident rate of 10.8, and an average of 88 fatalities per year.

International Comparisons

There are significant differences in the accident and fatality rates of Canadian and American airline operations, as shown by the data reported in Tables 6-3 and 6-4.

Scheduled and Non-Scheduled Airline Operations

In 1996, large commercial carriers (Level I) and charter and regional carriers (Level II) accounted for two thirds of the total hours flown, but only five per cent of fatal and non-fatal accidents. In fact, there has not been a fatal accident involving Level I carriers since 1984. Level II carriers have suffered only two major fatal accidents in recent years: the Nationair accident in Jeddah, Saudi Arabia, in July 1991 and the Air Ontario accident at Dryden, Ontario in March 1989. Table 6-3 shows accidents and fatality rates for Level I and II carriers.

Small Air Carrier Operations

The majority of Canadian commercial accidents are in Levels III to VI – aircraft flown by commuter, air-taxi, and aerial-work services, and training clubs. The flying environment within which these operators work, the level of experience of pilots and, in some cases, the age of the aircraft are major factors contributing to these accidents.

Levels III to VI accounted for one third of total hours flown but 95 per cent of the fatal and non-fatal accidents. With respect to accident occurrences in Levels III to VI, significant topographical differences among the regions where carriers operate contributed most to the occurrence of accidents. The Rockies in the west and the vast lake-covered areas in Ontario offer less friendly environments for aviation. Table 6-4 shows accidents and fatalities for Level III and IV carriers.

TABLE 6-3
ACCIDENT AND FATALITY RATES IN CANADA AND THE US FOR LEVEL I AND II AIR CARRIERS
1990 – 1996

	1990	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Accident Rate							
Canada[1]	0.600	1.045	0.870	0.844	0.585	0.782	0.390
US[2]	0.276	0.341	0.278	0.254	0.207	0.294	0.303
Fatality Rate							
Canada[1]	0.300	20.891	0.000	0.591	0.000	0.284	0.325
US[2]	0.317	1.444	0.367	0.163	1.659	1.107	2.439

Average Accident Rates (1992 – 1996):
Canada – 0.694; United States – 0.267
Average Fatality Rates (1992 – 1996):
Canada – 0.240; United States – 1.147

Rate per 100,000 hours flown
1 Includes air carriers levels I and II
2 Includes US air carriers operating under 14 CFR 121, scheduled and non-scheduled (airlines), and air carriers operating under 14 CFR 135, scheduled service (commuter airlines)

Source: Canada Transportation Safety Board; US National Transportation Safety Board

TABLE 6-4
ACCIDENT AND FATALITY RATE IN CANADA AND THE US FOR LEVEL III AND IV AIR CARRIERS
1990 – 1996

	1990	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Accident Rate							
Canada[1]	17.620	15.401	14.823	13.434	10.517	16.667	14.810
US[2]	4.713	3.882	3.782	3.814	4.265	3.927	4.574
Fatality Rate							
Canada[1]	2.918	5.640	2.323	4.848	4.032	6.152	3.014
US[2]	2.223	3.124	3.385	2.312	3.161	2.723	3.102

Average Accident Rates (1992 – 1996):
Canada – 14.050; United States – 4.072

Average Fatality Rates (1992 – 1996):
Canada – 4.074; United States – 2.936

Rate per 100,000 hours flown
1 Includes air carriers Levels III to VI (commuter, air taxi, and aerial work services, and training clubs)
2 Includes United States air carriers operating under 14 CFR 135 non-scheduled service (air taxi)

Source: Canada Transportation Safety Board; US National Transportation Safety Board

MARINE

Marine transportation statistics reveal a general downward trend in accidents and accident rates after 1990, indicating that the level of marine safety has improved over this period.

TABLE 6-5
OCCURRENCES IN MARINE TRANSPORTATION
1988 – 1997

Year	*No. of Accidents*	*Accident Rate*[1]	*Fatalities*
1988	926	4.3	53
1989	1,013	5.7	90
1990	1,056	5.8	57
1991	904	5.5	42
1992	840	4.5	29
1993	710	4.1	35
1994	797	4.5	40
1995	695	3.9	39
1996	604	3.9	23
1997	528	3.9	24
1992–96 Average	729	4.2	33

1 Accident rate is the number of accidents per 1000 vessel arrivals and departures

Source: Transportation Safety Board

TABLE 6-6
OCCURRENCES IN RAIL TRANSPORTATION
1988 – 1997

Year	**No. of Accidents**		**Accident Rate**[1]		**Fatalities**	
	Pre-TSB Criteria	*Post-TSB Criteria*	*Pre-TSB Criteria*	*Post-TSB Criteria*	*Pre-TSB Criteria*	*Post-TSB Criteria*
1988	1,015		8.1		111	
1989	927		7.7		142	
1990	904		8.2		103	
1991	991		8.3		124	
1992	923	971	7.7	8.1	137	137
1993	861	1,022	7.0	8.3	116	116
1994	920	1,206	6.9	9.1	112	112
1995	879	1,248	7.0	10.0	120	120
1996	1,016	1,305	8.4	10.8	119	119
1997	831	1,125	6.6	9.0	107	107
1992–96 Average	920	1,158	7.4	9.3	121	121

1 Accident rate is number of accidents per million train-kilometres

Source: Transportation Safety Board

The industry reported a total of 528 shipping accidents in 1997 – a 19-year low, a 12.5 per cent decrease from 1996, and a 27 per cent decrease from the 1992 – 1996 average of 729. These decreases coincide with a continuing decrease in fishing activities and an apparent reduction in shipping movements.

There was also a 27 per cent decrease in the number of fatalities from the 1992 – 1996 annual average. Fatalities have declined since 1994. In recent years, approximately half of all marine fatalities have resulted from accidents aboard ship. Table 6-5 outlines occurrences in marine transportation.

Averaged over the five-year period from 1992 – 1996, there were 729 accidents, producing an accident rate of 4.2, and an average rate of 33 fatalities per year.

There were 29,000 commercial registered vessels in Canada in 1997, of which 21,367 were fishing vessels. The total number of accidents involving commercial vessels declined from 279 in 1996 to 188 in 1997, a 33 per cent reduction. However, the number of Canadian fishing vessels involved in shipping accidents has remained fairly constant in the last two years.

Historically, accidents involving fishing vessels constituted the largest portion of shipping accidents, accounting in 1997 for 54 per cent of the total.

The commercial accident rate, involving both Canadian and foreign-flag vessels, has remained relatively stable since 1992, with a slight decrease since 1995.

RAIL

Domestic Operations

Railway occurrences that were collected by Transport Canada became reportable to the Transportation Safety Board (TSB) in 1990, the year the Board was established.

In 1997, 1,125 railway accidents were reported, down 14 per cent from 1996 and down three per cent from the 1992 – 1996 annual average. This represents an accident rate of nine accidents per million train-kilometres, using an estimated 125.5 million train-kilometres as the 1997 activity base. The figure is down from the 1996 rate of 10.8 and the 1992 – 1996 average of 9.3.

Of the total number of rail-related accidents reported in 1997, train derailments and collisions in yards, spurs, or sidings caused 38 per cent; crossing accidents, 27 per cent, and main-track derailments, 16 per cent. Table 6-6 summarizes occurrences in rail transportation.

The 107 fatalities reported in 1997 represent the lowest number of fatalities since 1990, down from the five-year average of 121. Most fatalities result from crossing and trespassing accidents.

International Comparisons

Comparison of rail safety with the United States over the 1991 – 1996 period shows that both countries have experienced significant reductions in public-crossing accident rates and that Canada's rates were 30-40 per cent lower than those in the United States throughout the period being examined. Figure 6-1 compares Canada's rail safety with rail safety in the US.

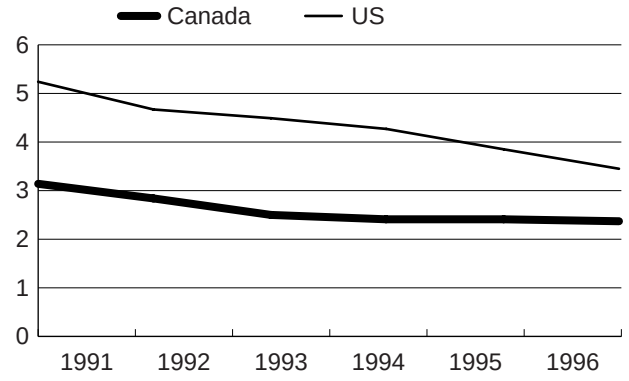
Several factors may have contributed to Canada's lower accident rate, for example, the United States' greater population density and greater per-capita usage of motor vehicles, which produce greater levels of exposure to risk.

The annual trespasser-fatality rate in Canada has remained relatively constant over this five-year period, while the US rate has decreased by over 20 per cent. Figure 6-2 shows the number of trespassers killed per 10 million train-kilometres.

Transport Canada recognizes that more can be done to improve the level of rail safety in Canada. In 1996, in co-operation with industry, interest groups, provinces and municipalities, the department launched a ten-year program to reduce grade crossings and trespassers fatalities by 50 per cent. The focus will be on public awareness and education programs, enhancement of enforcement measures, and research on technical improvements.

FIGURE 6-1
COMPARISON OF RAIL SAFETY
CANADA vs. US, 1991 – 1996

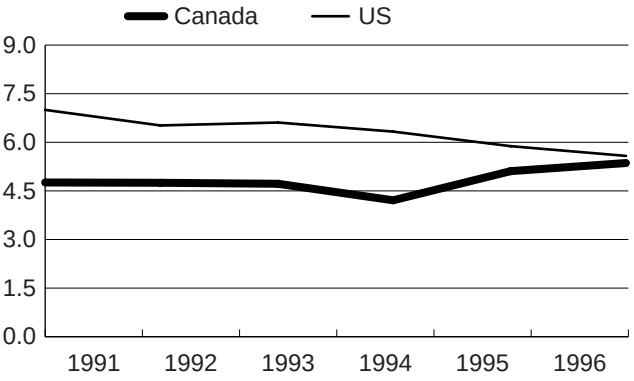
(Number of public crossing accidents per million train-kilometres)



Source: Canadian data -Transportation Safety Board; US data – United States Department of Transportation

FIGURE 6-2
NUMBER OF TRESPASSER FATALITIES AT RAILWAY CROSSINGS
CANADA vs. US, 1991 – 1996

(Per 10 million train-kilometres)



Source: Canadian data -Transportation Safety Board; US data – United States Department of Transportation

TABLE 6-7
TOTAL ROAD COLLISIONS AND CASUALTIES
1988 – 1996

Year	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Casualty Collisions[1]	193,605	192,428	182,294	173,885	172,713	171,205	169,502	166,950	158,973
Persons Killed[2]	4,154	4,246	3,965	3,691	3,500	3,614	3,260	3,347	3,082
Persons Injured[3]	278,618	284,937	262,604	249,198	249,821	247,582	244,975	241,800	230,885

1 Casualty collisions includes all reportable motor vehicle crashes which result in fatalities and injuries.
2 Persons killed includes all those who die as a result of involvement in a reportable traffic collision within 30 days of its occurrence (in Quebec, within 8 days).
3 Persons injured includes all those who suffer any visible injury or complain of pain.

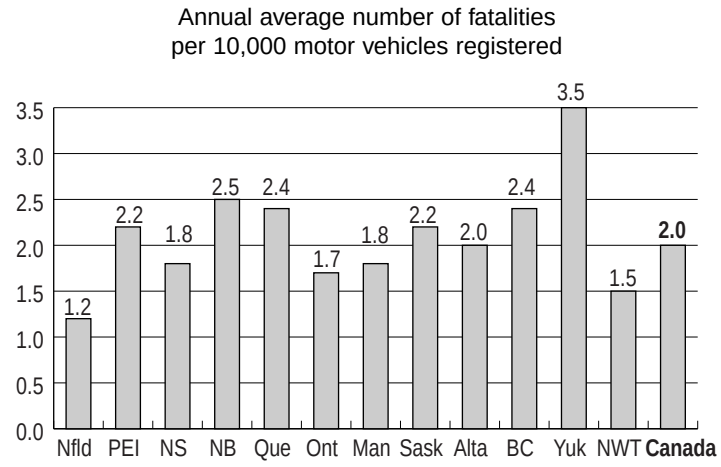
Source: 1996 Canadian Motor Vehicle Traffic Collision Statistics collected by Transport Canada in co-operation with the Council of Motor Transport Administrators

TABLE 6-8
ROAD FATALITIES BY CATEGORIES OF ROAD USERS
1991 – 1996

	1991	*1992*	*1993*	*1994*	*1995*	*1996*
Drivers	1,780	1,752	1,806	1,646	1,674	1,534
Passengers	970	969	962	860	936	833
Pedestrians	533	444	479	427	415	462
Bicyclists	102	75	81	85	64	59
Motorcyclists	231	186	213	163	165	128
Not stated/Other	75	74	73	79	93	66

Source: 1996 Canadian Motor Vehicle Traffic Collision Statistics collected by Transport Canada in co-operation with the Council of Motor Transport Administrators

FIGURE 6-3
ROAD FATALITY RATE BY PROVINCE
1993 – 1995



Source: Road Safety and Motor Vehicle Regulations

ROAD

Domestic Operations

Approximately 95 per cent of all transportation fatalities occur on the roads. Table 6-7 relating to total road collisions and casualties shows a general downward trend with respect to the number of casualty collisions, as well as persons killed and injured. The table reports total road collisions and casualties.

The number of collisions has been steadily declining. Figures for 1996 are five per cent below 1995, and seven per cent below the 1991 – 1995 average. The number of persons killed also declined in 1996: eight per cent below the 1995 figure and 11 per cent below the 1991 – 1995 average.

Table 6-8 depicts the number of fatalities classified by six major categories of road users. Downward trends are apparent in all but the pedestrian category over the 1991 – 1996 period. There was no clear trend in pedestrian fatalities over this period.

The fatality rate has been declining steadily in Canada over the years but varies considerably among provinces, as depicted in Figure 6-3.

As shown in Figure 6-4, commercial vehicles are involved in only eight per cent of all collisions, but account for

18 per cent of all fatalities because of large vehicle mass.

International Comparisons

Figure 6-5 compares fatality rates among member countries of the Organization for Economic Co-operation and Development (OECD), and demonstrates that in 1995, Canada was ranked seventh among OECD countries.

Vehicle ownership is considered a safety factor reflecting the level of concentration of motor vehicle activity and exposure to risk. Canada's vehicle ownership was 58 per 100 inhabitants in 1995, compared with 73 in the United States, the country that ranked highest among OECD countries.

Estimates of Value of Accident Losses

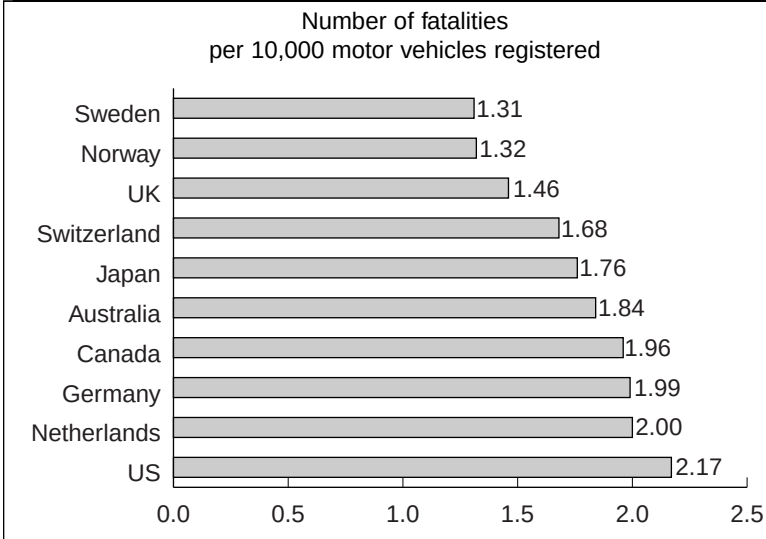
While the previous section focused on transportation accidents and fatalities, this section extrapolates this information to explore the economic cost to society of transportation accident losses. The section estimates (within an order of magnitude) the total value of transportation accident losses. This estimate is intended to help place the significant investments made by all levels of governments on transportation safety in context with economic repercussions of losses caused by transportation accidents.

The estimated value of accident losses was based on the guidelines in the department's Guide to Benefit-Cost Analysis, and an earlier departmental paper assessing the methods, to which interested readers are referred.[1]

FIGURE 6-4
PERCENTAGE OF ROAD COLLISIONS AND FATALITIES INVOLVING COMMERCIAL VEHICLES
1989 – 1995

Source: Road Safety and Motor Vehicle Regulations

FIGURE 6-5
FATALITY RATES AMONG OECD COUNTRIES
AVERAGE FOR THE PERIOD 1993 – 1995



Source: The International Road Traffic and Accident Database (IRTAD)

1 Lawson, JJ: *The Valuation of Transport Safety,* Transport Canada Report TP 10569, Economic Evaluation Branch, May 1989.

TABLE 6-9
ANNUAL NUMBER OF ACCIDENTS, FATALITIES AND INJURIES

Mode	*Accidents*[1]	*Fatalities*	*Injuries*
Roads	670,000	3,082	230,885
Rail	1,305	119	128
Marine	604	23	71
Air	339	70	38
Total		3,294	231,122

1 The number of road accidents includes accidents without injuries, as based on the 1993–95 average. Figures for other modes are based on 1996 data

Source: Road Safety and Motor Vehicle Regulations; Transportation Safety Board

TABLE 6-10
ESTIMATED AVERAGE COST OF FATALITIES, INJURIES AND PROPERTY DAMAGE RESULTING FROM ROAD VEHICLE ACCIDENTS

Severity of accident	*Occurrences*	*Compensation cost per occurrence (1996 dollars)*	*Economic cost (billions of 1996 dollars)*
Fatalities	3,294	1,560,000	5.1
Injuries (Road)	230,885	28,000	6.5
Property damage (Road)	670,000	5,600	3.8
Total			**$15.4**

Source: Road Safety and Motor Vehicle Regulations; Transportation Safety Board

The concept accepted by most economists in valuing such intangibles as accident losses (or lost travelling time, or environmental damage) is that they should be given money values directly analogous to market prices, determined from what people would be willing to pay to avoid them. For transport accidents, it is proposed that the relevant people are those facing the risk of transport, and the relevant question what those people would each be willing to pay for a reduction in their risk, or to avoid an increase in their risk.

Numerous research studies have been conducted during the past few decades in an attempt to reveal these values. The studies are by no means definitive, however, producing a wide range of values. The department's assessment for the Guide to Benefit-Cost Analysis was that the value per fatality avoided was $1.5 million, in 1991 values, or $1.6 million in 1996 values. Injury and property damage losses are valued by the department by the losses that arise, though the estimates have to date been made only for road accidents.

Table 6-9 outlines the average numbers of accidents, fatalities and injuries for all modes. The figures used in Table 6-10 reflect only the estimated average cost of property damage resulting from road vehicle accidents. The relevant total amount of losses in 1996 are derived from the values and numbers reported in these two tables. It can be seen that the total amounted to over $15 billion.

1997 Contributions to Transportation Safety

This section provides an overview of transportation safety initiatives and related expenditures in 1997 by federal and provincial governments. Provincial information was provided by the government agency responsible for transportation safety.

Industry and non-governmental organizations have always played a key role in contributing to the safety of the transportation system. Now that partnerships between governments and the private sector, along with alternative service delivery, are becoming more prevalent, the contribution of these organizations is becoming even more important than it has been in the past. While this report recognizes the importance of these organizations' roles, it does not attempt, here, to present the contribution made by industry and non-governmental organizations to transportation safety.

The following paragraphs give an overview of the federal government's safety-related initiatives and expenditures undertaken in all modes and jurisdictions across Canada. These activities have focused primarily on four areas: safety inspection and monitoring of compliance with safety legislation and regulations; safety enforcement; public safety-awareness education programs; and research and development.

Transport Canada's 1997/98 budget for safety and security was in the order of $230 million. Approximately $178 million of this budget was allocated to various safety-related initiatives as identified in the following

paragraphs. The other $52 million was allocated for aircraft services and other multimodal safety-related activities. In addition to Transport Canada's expenditures, the Department of Fisheries and Oceans allocated approximately $135 million for activities related to marine safety.

Initiatives related to infrastructure improvements, such as widening of roads, are excluded in this report. While such initiatives allow for increased traffic flow and enhance safety, they also pose a difficulty in allocating costs to one or the other of these two main benefits.

Federal Safety Initiatives

Aviation

Under the *Aeronautics Act*, the federal government has the lead responsibility for the safety and security of aerodromes and airports, the licensing and training of personnel, the airworthiness of aircraft, the safety and security of commercial air services, and the air navigation system, including operating and flight rules. During 1997, Transport Canada spent $93 million on aviation safety.

Four major safety initiatives marked the department's 1997 aviation safety activities:

- During the conference on Asia Pacific Economic Co-operation (APEC), Canada joined other member countries' efforts to devise systems and infrastructure that could mitigate the inherent safety risks associated with rapid growth of air transportation in the Asia-Pacific region.
- The department guided the process leading to the entry into force of an amendment to the Convention on International Civil Aviation. The amendment addresses potential liability problems arising from significant increases in the lease, charter and interchange of aircraft due to globalization of air transportation services.
- The department introduced new performance-based regulations governing the Nav Canada's operation of the air navigation system, and monitored, on a day-to-day basis, compliance with technical standards in the Canadian Aviation Regulations.
- A joint industry/government task force was established to improve the safety of air taxi operations (SATOPS).

Marine

Transport Canada has the primary responsibility for the *Canada Shipping Act*, and in this regard, it shares responsibility with the Department of Fisheries and Oceans (DFO) for marine safety and environmental protection. DFO's responsibilities in two areas include pleasure craft, search-and-rescue operations, environmental protection, and national emergency preparedness. The department also promotes boating safety to the marine public through prevention and regulation.

Transport Canada's marine safety expenditures for 1997 totaled $27 million while DFO expenditures totaled $135 million.

The two departments undertook or completed several major marine safety initiatives in 1997. A significant undertaking for Transport Canada is the reform of Canada's maritime shipping law through the two-track modernization of the *Canada Shipping Act*.

A major accomplishment was the department's introduction of Port State Control. This enables Transport Canada to inspect foreign ships entering Canadian ports, to determine compliance with international maritime conventions for enhancing the safety of life at sea and protecting the marine environment.

The department also introduced the International Safety Management (or ISM) Code. The Code, called Safety of Life at Sea, deals with safety and pollution prevention by marine companies. It covers both vessel and shore-side operations.

DFO's activities to support the prevention of recreational boating accidents included national advertising campaigns, courtesy examinations, safety publications, video and television productions, and extensive regional efforts tailored to specific client needs.

Rail

Through Transport Canada, the federal government is responsible for the *Railway Safety Act*, which authorizes the Minister to govern rail safety through a regulatory framework that provides railway companies with greater flexibility to manage their operations safely and efficiently. The Act also provides for protection of public safety where railways cross highways and other roads. The federal government is also responsible for the safety of interprovincial and cross-border railways and specific intraprovincial rail lines.

In 1997, a considerable portion of the rail safety budget, which totaled $17.4 million, went to several major federal programs focused on reducing accidents at railway and highway grade crossings, as well as trespassing accidents.

One such program, *Direction 2006*, begun in 1995 and designed to take place over 10 years, involves co-operation with industry, interest groups, provinces and municipalities. The program's objective is to reduce by 50 per cent fatalities that occur at grade crossings or through trespassing. The program utilizes public-awareness education initiatives, enforcement of safety regulations, and research on technical improvements.

Another program has introduced regulations for new fencing and railway/road crossings. The regulations set standards for the safe construction, operation and maintenance of railway crossings, and will clarify the roles and responsibilities of both municipal and provincial road authorities, as well as the railway companies, regarding who must install fences or barriers to prevent trespassing and to reduce access to railway rights-of-way.

Transport Canada also partners with or contributes to the efforts of other organizations interested in increasing railway-related safety programs. For example, the department contributes $200,000 annually to Operation Lifesaver, a joint education program with the Railway Association of Canada, to promote public awareness of safety programs and the dangers of railway/road crossings.

In addition, in 1997 the department introduced a comprehensive program to monitor railway equipment. Moving away from an inspection-based approach, the new program is expected to improve overall railway safety over the next five years.

Road

Transport Canada carries out federal responsibility for road safety under the *Motor Vehicle Safety Act* by establishing national standards for the design and construction of motor vehicles and for motor-vehicle emissions. While the department is also responsible for regulating the safe operation of extra-provincial carriers, this responsibility is delegated to provinces.

Federal road-safety programs to improve overall road safety are focused on regulatory compliance, public awareness education, research and accident investigation.

The Canadian Council of Motor Transport Administrators, which includes membership from all levels of government and private organizations, co-ordinates all matters dealing with the administration, regulation and control of drivers and vehicles.

In 1997, Transport Canada's budget for road safety totaled $16 million.

During the year, the department launched Vision 2001, a major road-safety program created to help Canada achieve a safety record that will establish a benchmark for other countries. The program expects to achieve this goal through six initiatives: raising public awareness on road safety issues; improving communication, coordination and collaboration among agencies; promoting seat-belt use; addressing public concerns over air-bag deployment; developing more efficient enforcement to deal with problem areas (such as impaired driving, repeat offenders and high-risk drivers); and improving the collection and quality of data to ensure that road-safety programs are practical and cost effective.

In addition to its ongoing work and initiatives such as Vision 2001, Transport Canada's 1997 expenditures included its annual contribution of $4 million under funding agreements with the provinces and territories to assist in the implementation of the National Safety Code. The Code is another joint responsibility for which all levels of government share responsibility for ensuring the safe operation of commercial vehicles.

Transportation of Dangerous Goods

Transport Canada carries out the federal government's responsibilities under the *Transportation of Dangerous Goods Act* through compliance activities, safety promotion, research and development, emergency response assistance plans, and operation of the Canadian Transport Emergency Centre (CANUTEC). The Centre provides a 24-hour-a-day information and communication service as well as advice in emergency situations involving dangerous goods.

In 1997, the department's budget for activities related to the transportation of dangerous goods totaled $8.9 million.

Two major initiatives took place in 1997. One was the department's revision of its accident-severity methodology, an indicator of program performance that ranks the consequence of accidents as they relate to people, property and the environment. The other initiative was the department's work associated with providing a "clear language" update of the Transportation of Dangerous Goods Regulations. The less legalistic language will make the regulations easier to understand for the truckers and other industry personnel who use them most.

Security and Emergency Planning

Transport Canada's responsibilities for ensuring that Canada has a secure transportation system are focused on two main areas. One area involves overseeing the establishment and operation of alternative policing and security services following RCMP withdrawal from several international airports. The other area involves transferring responsibility for airport security screening equipment from the federal government to the airline industry.

The department's 1997 budget for security and emergency planning totaled $8.2 million.

On the regulation front, two of the year's major accomplishments were the department's implementation of marine transportation security regulations for cruise ships and cruise ship facilities, and its implementation of a rail security program through a Memorandum of Understanding with the Railway Association of Canada.

The department also completed the National All-Hazards Plan, which will ensure relief is able to reach areas stricken by natural disaster.

Another major milestone for 1997 was the establishment, in partnership with the aviation industry, of the National Transportation Security Awareness Program.

Research and Development

Transport Canada implements the federal government's responsibility for managing a multimodal research and development program whose budget totaled $7.4 million in 1997. The research program supports federal objectives relating to safety and security, accessibility, energy efficiency, and sustainable transportation.

The 1997 fiscal year was an especially productive one for the research program.

The program's research results contribute to the department's overall effort to increase the safety of the transportation system. Improving standards and guidelines for safe aircraft operation in winter, such as focusing on the evaluation of de-icing and anti-icing fluids, is an example of how research results can be applied to improved safety practices. Similarly, the department's research work contributes to better rail inspection technology to detect and replace flawed rails and other safety defects before they cause derailments.

Research on pilot, air traffic controller, truck driver, and marine operator fatigue and performance under realistic conditions led to improved safety practices.

Other highlights of the year included research with marine operating partners to upgrade design standards and regulations for improving safety; development of Sailsafe, an electronic chart display and information system designed to facilitate navigation in all weather; determination of the inspection technology best suited to in-service detection of defects in tank-car insulation; a program to collect tank-car-yard impact force data under various vehicle and operating conditions; and research into a number of explosive trace-detection systems, based on such technologies as lasers, gas chromatography, and ion-mobility spectrometry.

Provincial/Municipal Transport Safety Initiatives

Rail

Provincial governments are responsible for the safety of intraprovincial shortline rail transportation. Provincial and municipal governments share jurisdiction over roadways approaching rail crossings, and the enforcement of provincial legislation governing driver behaviour.

The provincial and municipal governments focus mainly on those initiatives that will reduce railway/highway grade crossing and trespassing accidents. Consequently, these governments, whose annual contribution amounts to $20 million, contribute toward approach roads and improvements to crossing signals and fencing. Provincial railway safety provisions are consistent with federal requirements promoting railway safety in Canada.

Road

The provinces are responsible for driver testing, vehicle inspection, and enforcement of safety regulations to improve road safety in their jurisdictions. Municipalities are responsible for enforcement of provincial regulations and for improvement of road infrastructure to ensure safety in their jurisdictions.

The following summaries describe the road safety-related initiatives and expenditures reported to Transport Canada by provincial governments. (Municipal government expenditures are not included.) The summaries, however, are only indicators of provincial activities and should not be used for making

comparisons among provinces or for drawing conclusions about provincial expenditures. In addition, these summaries do not capture police-agency efforts to enforce legislation governing the operation of private vehicles.

Transportation of Dangerous Goods

Regulations under the *Transportation of Dangerous Goods Act* are adopted by provincial, territorial and municipal governments to establish one common program of safety requirements. Expenditures on safety compliance measures planned by these governments were not captured in this report.

British Columbia

This province's transportation budget totaled $630 million in 1997. Approximately $30 million went to such major road-safety initiatives as the consolidation of its Motor Vehicle Branch and the Road Sense Program of the Insurance Company of British Columbia. The consolidation will help the province to plan, develop and deliver traffic safety programs more efficiently, thereby resulting in a more focused and effective approach to road safety.

Alberta

Alberta's total transportation budget for 1997 was $634 million. Approximately $34 million, or five per cent of that total, was directed to specific road-safety initiatives.

Alberta, in conjunction with a number of public and private sector partners, has been pursuing a five-year major traffic-safety initiative since 1996. The initiative has three primary goals, all aimed at the vehicle driver: education, awareness, and enforcement. The program's intent is to make drivers more conscious of their responsibilities on the road, and to foster reductions in the number of traffic collisions, both in terms of fatalities and the number and severity of accidents involving injuries.

Saskatchewan

Saskatchewan's transportation budget totaled $170 million in 1997, with approximately $5 million, or three per cent, spent on specific road-safety programs.

Saskatchewan conducts its major safety efforts through traffic officers and investigative personnel located province-wide. Safety initiatives focus on regulation, safety and compliance.

One of Saskatchewan's major programs is "Agenda 2000: Traffic Safety in Saskatchewan," a five-year traffic-safety plan to reduce traffic injuries and fatalities by 25 per cent by the year 2000.

Another initiative called for increased inspection of vehicles for mechanical defects, with particular attention to be directed to identifying safety hazards. The province also implemented a joint truck inspection facility with Alberta, improved the traffic-accident information system, and increased public education and awareness.

Manitoba

Of a total 1997 budget of $223.7 million, Manitoba allocated approximately $7 million, or three per cent, to specific road-safety initiatives.

The province's road transportation safety and regulatory activities were designed to improve the safety performance of drivers and motor vehicles, commercial trucks and buses.

Initiatives related to drivers involved driver skills improvement and testing; setting medical standards; licensing; monitoring driver records on accidents and traffic violations; and monitoring and controlling drivers' abuse of alcohol and drugs.

Motor vehicle safety improvements focused on vehicle registration and monitoring vehicle standards.

Safety initiatives for commercial trucks and buses included testing commercial vehicles, inspecting truck transportation, and monitoring a comprehensive code of minimum performance standards for the safe operation of commercial vehicles.

Ontario

Ontario's total transportation budget for 1997 totaled $1.9 billion, of which approximately $117 million, or six per cent, was applied to specific road safety initiatives.

There are three key elements in Ontario's road-user safety program: policy, licensing, and compliance and enforcement of regulations that apply to commercial carriers. The province undertook three specific initiatives in 1997. It increased the trucking industry's responsibility for safety compliance, and provided incentives for safe operation of industry vehicles; it increased penalties for non-compliance and immediately removed unsafe drivers and vehicles from the roads; and it made problem road users contribute to the cost of enforcement, and of education and rehabilitation programs.

Quebec

Quebec allocated its total 1997 road safety budget of $102 million to various road-safety initiatives.

The province developed a transportation safety program for the road sector in co-operation with external stakeholders such as police authorities, transportation associations and municipalities. By the year 2000, this program expects to reduce the number of road incidents and accidents by approximately 25 per cent. Reaching this goal would reduce the annual number of deaths to about 750 and the number of serious injuries by close to 5,000.

New Brunswick

This province allocated out of its total road transportation budget a sum of about $3.8 million to various road-safety initiatives, primarily in the areas of regulation and compliance measures and safety promotion activities.

Nova Scotia

Nova Scotia's total 1997 transportation budget was $250 million, of which approximately $3 million was dedicated to improvement of transportation safety. Safety initiatives related mainly to improvement of highway safety through implementation of the demerit point system for commercial carriers. The province also dedicated a portion of the $3 million to improving the safety of provincial bridges through implementation of a long-term bridge rehabilitation and replacement program.

Prince Edward Island

With a total transportation budget of $39 million for 1997, Prince Edward Island earmarked approximately $2.4 million, or six per cent, for various safety initiatives. The majority of these initiatives related to licensing, registration, monitoring, inspection and enforcement.

Newfoundland and Labrador

With a 1997 transportation budget totalling $127 million, Newfoundland and Labrador directed approximately $4 million, or three per cent, to such safety initiatives as implementation of motor-vehicle road safety improvement programs and establishment of a safe, efficient and environmentally sustainable transportation system that includes primary and secondary highways, community access roads, air services and marine operations.

ENVIRONMENT

The emerging focus on sustainability and the Kyoto Protocol to the Framework Convention on Climate Change are part of the new challenges facing Canada's transportation sector.

Transportation generates by-products that have a significant impact on the environment and on human health. It is widely accepted that transportation activities contribute to climate change, depletion of the ozone layer, the spread of toxic substances, local and regional air pollution – including ground-level ozone (smog), acid rain and noise – depletion of oil and other natural resources, and damage to landscape and soil.

More and more, Canadians are insisting that planners take into account the transportation system's environmental impacts. As society evolves toward sustainable development, Canadians want the transportation system to perform its vital functions of moving commodities and providing people access to work and leisure in ways that do not harm the environment.

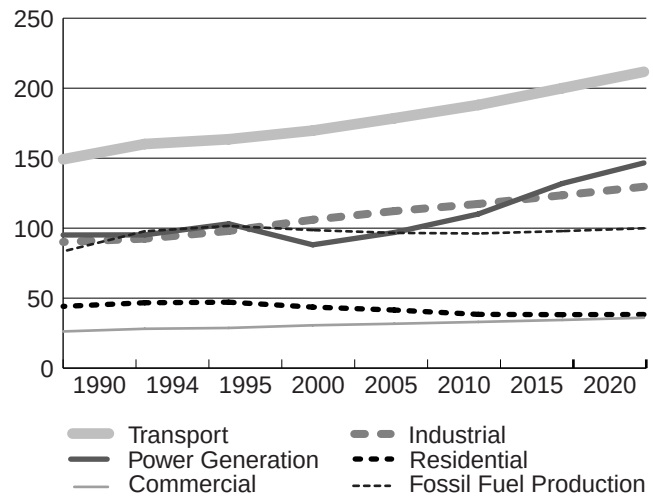
MAJOR EVENTS IN 1997

TRANSPORT CANADA'S SUSTAINABLE DEVELOPMENT STRATEGY

In December 1997, Transport Canada tabled its strategy for sustainable development as required by amendments to the *Auditor General Act*. Sustainable development finds ways "to meet the needs of the present without compromising the ability of future generations to meet their own needs." The department's strategy integrates environmental thinking with safety and efficiency in developing policies and programs for the transportation sector.

Transport Canada's *Sustainable Development Strategy* has two components. The first focuses on promoting sustainable development in the transportation sector. The second concentrates on managing the department's own operations in ways that contribute to sustainable development.

FIGURE 7-1
CANADA'S ACTUAL AND PROJECTED ANNUAL EMISSIONS OF GLOBAL WARMING GASES BY SECTOR
1990 – 2020



Source: Canada's Energy Outlook: 1996-2020, Natural Resources Canada, April, 1997

For the transportation sector, the department focuses on meeting eight strategic environmental challenges:

1. minimize the risk of environmental damage from transportation accidents;
2. promote greening of operations in the transportation sector;
3. reduce air emissions from transportation sources;
4. promote education and awareness of sustainable transportation;
5. assess the department's direct budgetary transfers for their environmental impact;
6. refine sustainable transportation performance indicators;
7. understand the environmental costs of transportation; and
8. develop and promote the application of cleaner transportation systems and technologies.

For its own operations, the department has developed an environmental management system based on principles put forth by the International Organization for Standardization (ISO) in ISO 14000. The system's three key features are:

1. going beyond simply complying with legislation by showing "due diligence" in anticipating environmental impacts and working to avoid them;
2. setting targets for specific environmental improvements, such as completing Transport Canada's inventory of ozone depleting substances and eliminating in-storage polychlorinated biphenyl (PCB) waste by 2000; and
3. monitoring and evaluating performance on environmental impacts and targets.

Climate Change Conference in Kyoto, Japan

As a signatory to the United Nations Framework Convention on Climate Change concluded in Rio de Janeiro in 1992, Canada adopted the goal of stabilizing its greenhouse gas emissions at 1990 levels by the year 2000. A National Action Program has been in place since 1995, based on voluntary actions and partnerships. Although progress has been made toward this goal, Canada (like most other countries) will not meet its target. Canadian greenhouse gas emissions from all sectors are forecast to exceed 1990 levels by eight per cent in 2000 and by 36 per cent in 2020 unless further actions are taken. Figure 7-1 provides a summary of Canada's greenhouse gas emissions since 1990.

In December 1997, the countries who signed the 1992 Framework Convention met in Kyoto, Japan to negotiate stronger emission reduction commitments for the post-2000 period. The Kyoto Protocol to the Framework Convention was concluded on December 10, 1997. Under this protocol, to be legally binding when it comes into force, industrialized countries undertake to reduce their collective emissions of greenhouse gases by 5.2 per cent from specified base years over a five year commitment period beginning in 2008. For the three principle greenhouse gases (carbon dioxide, nitrous oxide and methane), the base year is 1990. For three newer gases (hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride), the base year is either 1990 or 1995. The Protocol defines different targets for industrialized countries over this period. Canada's target is to reduce its total greenhouse gas emissions by six per cent from 1990 levels.

The protocol includes several flexibility mechanisms in meeting this target. The right of parties to trade emission reduction credits to meet their commitments is included, on the condition that such trading is supplemental to domestic actions. A Clean Development Mechanism will operate under the authority of the Conference of Parties to the Framework Convention, to enable the financing of, and the distribution of credit for, emissions-reduction projects in developing countries. The protocol permits countries national flexibility on the policies and measures they adopt to meet their targets.

The protocol requires all Parties, including industrialized and developing countries, to present national reports on emissions data and on programs to address climate change issues. The question of developing country commitments in the post-2000 period, and the details of an emissions trading regime, will be among the issues to be addressed at the next Conference of Parties to the Framework Convention in Buenos Aires in November, 1998.

The protocol will be open for signing from March 1998 to March 1999. Countries will then have the additional step of deciding to ratify the agreement. Entry into force of the protocol will depend upon ratification by 55 countries representing at least 55 per cent of developed countries' emissions.

Federal Smog Management Plan

Environment Canada, Natural Resources Canada and Transport Canada worked together in 1997 to produce the second phase of the federal government's smog management plan, released in November. Phase Two is a follow-up to Phase One, adopted in 1990, which included stricter vehicle emission standards for 1995 and 1998 model years and stricter standards for diesel and gasoline fuels.

The objectives of the second phase are to continue pursuing Canada's one-hour ambient air quality objective for ground-level ozone of 82 parts per billion by 2005; adopt a multi-pollutant approach; and meet Canada's international commitments, including those in the Canada–US Air Quality Agreement. The plan's objectives also include implementing strong national smog-reduction programs, helping provincial governments resolve regional smog problems, and tracking results against the program's objectives.

The core elements of the Phase Two plan continue federally led national initiatives to reduce smog. Among the initiatives related to transportation is work by Transport Canada, other federal departments and the transportation industry to reduce emissions from aircraft and marine vessels in line with standards established within the International Civil Aviation Organization and the International Maritime Organization. Also, there are initiatives within the transportation sector related to energy efficiency, renewable and alternative energy, new technologies and voluntary actions.

Task Force on Sustainable Transportation

In 1996, the National Round Table on the Environment and the Economy established a program to provide all Canadians with advice on sustainable transportation, including a Task Force on Sustainable Transportation to direct research and organize multi-stakeholder consultations.

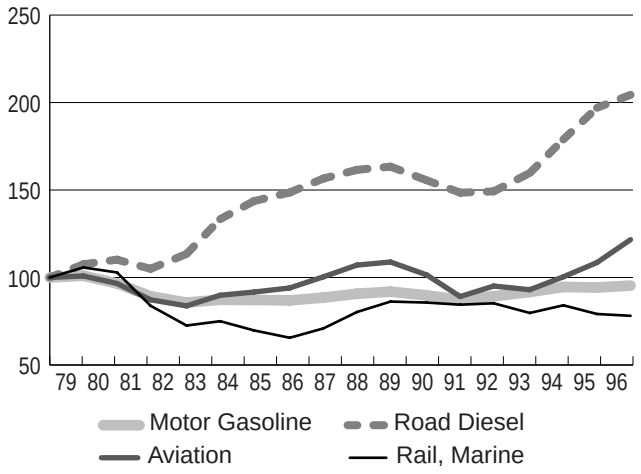
The Round Table recommends implementing education and awareness programs for students, professional associations and the general public to highlight the consequences of inaction, and to provide better information about sustainable transportation options. The Round Table further recommends better government co-ordination to build consensus on a national strategy for sustainable transportation and to encourage municipal governments to work together toward achieving this goal.

In addition, the Round Table highlights the need for more analysis and debate on the use of economic instruments to reduce the environmental impacts of transportation, notably options derived from full-cost accounting and user-pay principles. Finally, the Round Table encourages provincial authorities to consider land-use legislation and policies that are consistent with the Transportation Association of Canada's *New Vision for Urban Transportation*.

In November 1997, the Task Force released its first report, *State of the Debate: The Road to Sustainable Transportation in Canada*. The report concludes that transportation is on an unsustainable path because of its contributions to greenhouse gas production and ground-level pollutants, including particulates and the precursors to smog. Unless current trends are stopped, impacts on the environment from transportation will increase.

FIGURE 7-2
ENERGY USE BY THE TRANSPORTATION SECTOR
1979 – 1996

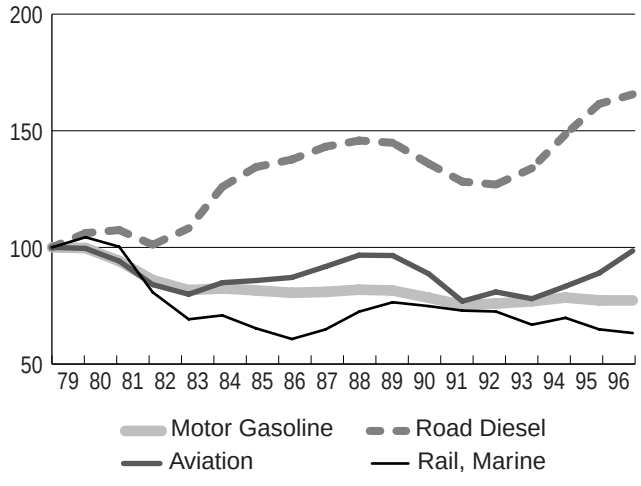
(1979 = 100)



Source: Statistics Canada, Cat. 57-003

FIGURE 7-3
PER CAPITA SALES OF PETROLEUM PRODUCTS FOR TRANSPORT PURPOSES
1979 – 1996

(1979 = 100)



Source: Statistics Canada, Cat. 57-003

UN Commission on Sustainable Development

Canada signalled its commitment to sustainable transportation by including a section called "The Challenge of Sustainable Transportation" in its 1996 report to the United Nations Commission on Sustainable Development. The preparation of a monograph[1] on the topic reinforced this commitment in April 1997.

The monograph reviewed current transportation trends toward sustainability in Canada and elsewhere; outlined how responsibilities for transportation are shared within jurisdictions in Canada; and noted some of Canada's recent actions to promote sustainability at home and around the world. Its main goal – toward which progress was made – was to support the preparation and inclusion of a new annex to Agenda 21 (the outcome of the Rio conference in 1992) on sustainable transportation.

Transportation and Energy

Sales of Petroleum Products for Transport Purposes

Because emissions from transportation correlate closely with energy use, any description of the impact of transportation on air quality must include an analysis of petroleum fuel consumption. The transportation sector accounts for close to 60 per cent of all petroleum use in Canada, by far the greatest consumer in the Canadian economy.

1 Sustainable Transportation, Monograph No.2, Environment Canada and Transport Canada, 1997, Sustainable Development in Canada Monograph Series.

Sales of petroleum products increased overall by 7.3 per cent between 1979 and 1996, but increased sales of only two products account for this growth. Diesel fuel sales more than doubled, with growth continuing during 1996, while aviation fuel sales increased by just over 20 per cent, mostly between 1994 and 1996.

Figure 7-2 illustrates the sales of petroleum products to the transportation sector from 1979 to 1996.

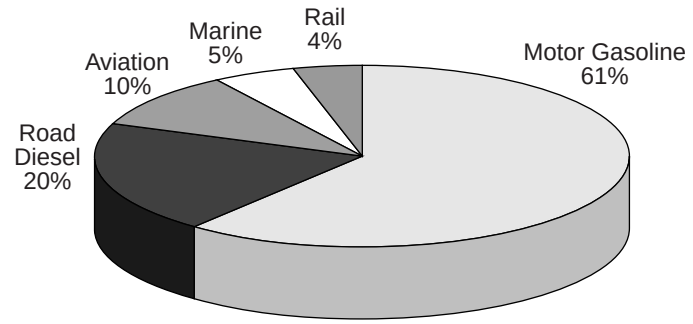
Sales of gasoline, used mainly for private automobiles, remained relatively constant from 1979 to 1996, with slight growth evident during the 1990s that continued in 1996. From 1979 to 1996, private automobile use increased by an estimated 39 per cent, which suggests an improvement in energy efficiency for these types of vehicles. During the same period, however, sales of marine and rail fuels declined.

If considered on a per-capita basis, the amount of gasoline used tended to fall slightly from 1979 to 1996, as have the amounts of rail and marine fuel. Aircraft fuel used per person has remained at approximately 1979 levels, although it is currently showing an increasing trend. Diesel fuel use per capita has increased more than 50 per cent since 1979. Figure 7-3 shows transportation fuel use per capita from 1979 to 1996.

Medium-duty and heavy-duty truck activities are on the rise, thus the use of diesel fuel for road transportation. Population growth and an increase in the amount of economic activity in Canada are two reasons for these gains, but another may be the growth in the practice of "just-in-time delivery," which replaces conventional warehousing with frequent deliveries scheduled according to production processes. Another important factor is greater reliance on distant sources for materials, components and finished goods.

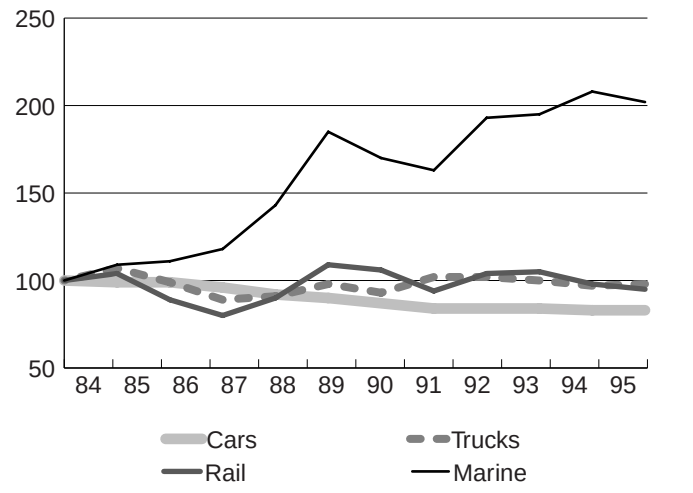
Figure 7-4 shows how each transportation mode contributes to the total use of petroleum products for the movement of goods and people. Motor gasoline and aviation fuel, which are dominant in moving people, accounted for approximately 70 per cent of the fuel used for transportation in 1996, while road diesel, marine and rail fuel accounted for the rest.

FIGURE 7-4
SALES OF PETROLEUM PRODUCTS FOR TRANSPORT PURPOSES
1996



Source: Statistics Canada, Cat. 57-003, Transport Canada

FIGURE 7-5
LITRES OF FUEL PER 100 VEHICLE-KILOMETRES (CARS, INCLUDING SUVS, ETC.) OR PER 100 TONNE-KILOMETRES
(Trucks, rail, marine) (1979 = 100)



Source: Statistics Canada, Cat. 57-003; Transport Canada

TABLE 7-1
CANADIAN MOTOR VEHICLE FUEL EFFICIENCY
1978 – 1997

(litres per 100 kilometres)

	Cars		*Light Trucks*		*Average*	
	Target	*Actual*	*Target*	*Actual*	*Target*	*Actual*
1978	-	11.5				
1980	11.8	10.2				
1982	9.8	8.4				
1984	8.7	8.5				
1986	8.6	8.2				
1988	8.6	8.1	-	11.1		
1990	8.6	8.2	11.8	11.4	-	9.1
1992	8.6	8.1	11.6	11.3	-	9.1
1994	8.6	8.2	11.5	11.5	-	9.4
1996	8.6	7.9	11.4	11.3	-	9.2
1997	8.6	7.9	11.4	11.2	-	9.1

Source: Transport Canada, Motor Vehicle Standards and Research Directorate

FUEL EFFICIENCY

Canada has been working for many years to promote energy conservation in the transportation sector. As a result, the performance of most classes of vehicles, especially passenger vehicles, has improved over the last two decades.

Figure 7-5 shows trends toward fuel efficiency for all modes of transportation. It is important to note that the data used to create the figure was in tonne-kilometres, rather than vehicle- or vessel-kilometres. This method of representing the information means that technical improvements in fuel efficiency for marine and rail, in particular, may be obscured by changes in commodity mix, loading or the size of vehicle used.

The exception to this fuel efficiency improvement is the growing use of vans, light trucks and sport-utility vehicles for passenger vehicles, which is offsetting gains in efficiency achieved for passenger automobiles. Table 7-1 compares the fuel efficiency of cars and light trucks with federal government targets from 1978 to 1997.

OTHER EFFORTS

For fuel efficiency, initial design is the most significant factor in good vehicle performance, but proper maintenance is also important. In 1997, Ontario's provincial government proposed a mandatory program of vehicle maintenance and inspection, following British Columbia's lead in 1992. These programs are designed primarily to reduce ground-level ozone, but they are also likely to contribute to improved fuel efficiency.

Ontario's Drive Clean Program will begin in the summer of 1998, requiring all heavy-duty trucks and buses in Ontario to complete an emissions test as part of current annual safety testing. In the late summer or fall, the program will be extended to all cars and light trucks registered or resold within the Greater Toronto Area and the Hamilton–Wentworth region. An emissions test will be necessary every two years thereafter at registration renewal for cars and light trucks aged four to 19 years, and any time at resale for all model years. Antique cars, commercial farm vehicles and motorcycles are not included in the program.

The BC inspection program, call "Air Care", has been law since 1992. In October 1997, it was announced that the program would be extended from the current inspection of automobiles and light trucks to cover heavy-duty truck and bus emissions by September 1998.

In addition, increasing vehicle occupancy can also help in reducing energy consumption by improving the efficiency of passenger transportation. Several municipalities have implemented "high-occupancy" lanes for vehicles carrying two or more people. Although this has generally been undertaken to reduce congestion during peak travel times rather than to reduce fuel use, it has most probably also had the latter effect.

IMPACT OF TRANSPORTATION ON THE ENVIRONMENT

From a local as well as a global perspective, the biggest environmental challenges for transportation are related to air emissions from transport activities. Indirectly, transportation can also be associated with environmental impacts resulting from vehicle and fuel production, construction and operation of transport infrastructure.

Natural Resources Canada's publication *Canada's Energy Outlook 1996-2020*, indicates that in 1995, fuel consumption in the transport sector directly

TABLE 7-2
AIR EMISSIONS FROM TRANSPORTATION SOURCES

Emission	*Emission contributes to:*										*Emissions from transportation as a percentage of all emissions*
	Direct health problems		*Smog*		*Greenhouse effect*		*Acidic deposition*		*Ozone depletion*		
Carbon monoxide (CO)	YES		NO		NO		NO		NO		60
Volatile organic compounds (VOC)	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	40
Nitrogen oxides (NOx)	YES		YES		YES		YES		NO		60
Carbon dioxide (CO_2)	NO		NO		YES		NO		NO		27
Sulfur oxides (SOx)	YES		NO		NO		YES		NO		2.2
Chlorofluorocarbons (CFCs)	NO		NO		YES		NO		YES		25
Particulates (diesel)	YES		YES		NO		NO		NO		1.3

Note: NOx and VOCs may produce different environmental effects depending on whether they are produced in combination or alone

Source: Environment Canada, The State of Canada's Environment, 1996 (full edition)

contributed about 27 per cent of the total greenhouse gases produced by human activity in Canada.

AIR EMISSIONS

The burning of petroleum fuels in internal combustion engines produces a variety of emissions, including carbon monoxide (CO), carbon dioxide (CO_2), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulphur oxides (SO_x), and particulates (from diesel).

Table 7-2 details the effects these emissions have on human health, the environment, or both.

In addition, transportation emits chlorofluorocarbons (CFCs) through leakage from automobile air conditioners. CFCs are contributors, along with carbon dioxide, methane and nitrogen oxides, to the formation of greenhouse gases linked to climate change. CFCs are also a major contributor to high-altitude ozone depletion, a recognized cause of sunburn and, over time, a likely contributor to skin cancer. Nitrous and sulphur dioxides also contribute to acid rain.

Particulates from transportation are also a problem. Data from the Organization for Economic Co-operation and Development (OECD) indicates that particulates from transportation sources increased by nearly 45 per cent between 1980 and 1994, while emissions of particulates from other sources, as well as emissions of other substances from transportation, declined. Particulates are more likely to be produced by diesel than by gasoline engines, thus the increase in emissions of particulates is consistent with the increase in diesel fuel use illustrated in Figures 7-2 and 7-3. It is not the total amount of emissions that determines the severity of health and environmental effects, rather it is the local and regional atmospheric concentrations of the substances in question.

Ground-level ozone is the only transportation-related pollutant with concentrations above what Environment Canada considers to be a desirable level. In many parts of Canada, including southern Ontario, much of the ground-level ozone, as well as the ingredients that make it, are blown in from the US, particularly from industrial and other sources in the Ohio Valley.

Breathing fine particulates is linked to health problems, including asthma and lung cancer.

TABLE 7-3
TRENDS IN THE ATMOSPHERIC CONCENTRATION OF INDICATED POLLUTANTS

Pollutant (No. of sites)	*Change in concentration (period)*	*Average level*	*Desirable level*
Sulphur dioxide (59)	-61% (1974 – 1992)	16	30
Nitrogen dioxide (42)	-41% (1977 – 1992)	39	60
Particulates (73)	-55% (1974 – 1992)	39	60
Carbon monoxide (46)	-68% (1974 – 1992)	N/A	N/A
Ozone (44)	-33% (1979 – 1992)	36	30

Notes: Numbers of sites and annual average levels are for 1990. Levels are in micrograms/cubic metre (mg/m^3). Desirable levels are long-term goals. There is no desirable annual level for ozone in Canada's National Ambient Air Quality Objectives and so the acceptable level is shown – the level that provides adequate protection against adverse effects on humans, animals, vegetation, soil, water, materials, and visibility. Desirable levels are generally 33-50% below acceptable levels. There is no objective of any kind for carbon monoxide based on annual averaging periods.

Source: Natural Resources Canada, Canada's Energy Outlook, 1966 – 2020, April 1997.

The smallest particulates, those less than 2.5 microns, are especially harmful to health, and they are also most likely to be found in vehicle exhaust. The federal government will examine the need for national air quality standards for particulates and ground-level ozone under the second phase of the Federal Smog Management Plan.

Table 7-3 reports the concentrations of pollutants at monitoring sites across Canada, for the most part in major urban areas. Concentrations are more significant measures of particulates than total emissions because concentrations determine the severity of health and environmental effects.

URBANIZATION AND SUBURBANIZATION

According to Canada's 1996 Census, the trend toward concentration of the population into major metropolitan areas is continuing. The four largest metro areas – Toronto, Montreal, Vancouver and Ottawa-Hull – contained 35 per cent of Canada's population in 1991, and contributed to 50 per cent of the growth in Canada's population between 1991 and 1996.

Low-density suburban sprawl is also on the increase in most of Canada's larger cities. The results are low population densities, which make transit systems less viable, and an increased need for private automobiles. This increase in travel usually translates into greater production of air pollution, particularly by automobiles and light trucks.

OTHER ENVIRONMENTAL IMPACTS

Although exhaust emissions from transportation have significant impacts on the environment and human health, contamination of water and land cannot be ignored. Changes in the land surface resulting from transportation infrastructure also affect the environment and ecosystem integrity. For example, infrastructure can alter drainage patterns, and roads can become barriers to natural migration.

In addition, the environmental impacts of manufacturing vehicles, fuel and infrastructure come into play, as do the disposal impacts of old and unusable vehicles and parts. Noise is also an issue for people living near airports, major highways, railroad tracks and other transportation facilities.

LOOKING AHEAD

Emerging awareness about the need for sustainability is presenting new challenges for Canada's transportation sector. One of the most important, identified in Transport Canada's *Sustainable Development Strategy*, is the need for performance indicators to measure progress toward sustainability on all levels: environmental, economic and social.

Canada has made much progress on smog management, but many issues remain to be addressed. Ground-level ozone and small-diameter particulates remain a concern. Greenhouse gas emissions are increasing. To reach Canada's Kyoto target and ensure progress toward sustainability, the transportation sector must reduce its emissions. Some reductions will come from technological improvements and some from changes in how Canadians move themselves and their freight.

AIR

The Minister's Committee on Air Policy Issues, the actions of Canadian Airlines in the first year of a four-year recovery plan, the withdrawal from domestic service of two operators using jet aircraft, and the redistribution of traffic between the Dorval and Mirabel airports marked the year.

In response to today's time pressures and transportation needs, the air sector is playing an increasingly important role in enhancing Canada's business, trade and tourism interests at home and abroad.

This chapter presents an overview of air services – regional, national and international – operating in Canada.

MAJOR EVENTS IN 1997

LEGISLATIVE AND REGULATORY FRAMEWORK

Air Transportation Regulations

The Canadian Transportation Agency published proposed amendments to the Air Transportation Regulations, particularly in the area of international charter air services and sought comments from interested parties. The Agency also consulted informally with stakeholders on the elements of an administrative monetary penalty system as an additional tool for enforcing these regulations. Both initiatives were continuing at year's end.

Aviation Fuel Excise Tax Rebate Program

The federal government put into place a four-year Aviation Fuel Excise Tax Rebate Program under which airline companies carrying on business in Canada would be able to obtain a rebate of up to

$20 million a year on aviation fuel excise taxes. In exchange, they would give up their entitlement to claim losses against income subject to tax, for up to $10 of their accumulated tax losses for every $1 of rebate received. In addition, companies could later choose to repay the rebate received and fully reinstate the losses they had previously exchanged.

Minister's Committee on Air Policy Issues

In November 1996, the Minister of Transport became an active participant in efforts to reach an agreement on a restructuring plan for Canadian Airlines International Ltd., which required concessions from its suppliers, creditors and work force. As part of the federal contribution and to encourage union support, the Minister agreed to establish a committee to examine air policy issues and, specifically, concerns raised by the unions regarding the future of the airline industry.

The Minister invited 11 associations representing key stakeholders in the airline industry to nominate a total of 21 persons from among their members to sit on the committee. These were representatives from unions, airlines, airports, pilots, shippers, consumers, tour operators, travel agents and the tourism industry. Transport Canada provided the Chair as well as secretariat services.

The committee met monthly from March to October 1997 in the presence of a number of observers from interested federal government departments. Meetings consisted of information gathering, review of briefs submitted by members, discussion on topics identified by the Minister and by members, and the preparation of a report to the Minister.

The committee's report, signed by all committee members and reflecting the opinions expressed by members, was presented to the Minister in November. Given the diverse views of the participants, no consensus was reached on either the current direction of the Canadian airline industry or recommendations for its future direction.

Committee members gave their general support, however, to a number of concepts:

- Economic deregulation must not negatively affect safety.
- Canadian ownership and control requirements should be maintained.
- New entrants should be subject to a financial fitness test to increase their likelihood of remaining in operation.
- The impact of taxes, charges and user fees on pricing, growth and international competitiveness should be studied.
- It is by "growing" that the industry will be healthy and viable.

Union members on the committee continued to believe that some regulation of market entry, capacity and prices was required, as well as labour protection measures and higher levels of public accountability.

Public Conference on Air Policy Issues

To complement the work of the committee and to expand the consultative process, the Minister of Transport requested the Public Policy Forum to organize a public conference involving a wider range of stakeholders and experts. The conference, entitled The Flight Ahead, was held in Toronto in November 1997 and attracted 150 representatives from air carriers, unions, airport authorities, consumer groups, travel associations, pilots, shippers, tourism associations, the investment community, academics, the media, and officials from the federal and provincial governments. The report of the conference, published in December, expands on the issues raised by the Minister's committee.

Traffic Distribution Between Dorval and Mirabel Airports

September 15, 1997 was the official day of transfer of scheduled international services to Montreal from Mirabel to Dorval. The aim was to consolidate all scheduled services (domestic, transborder and international) at one airport with the purpose of improving and facilitating connections in Montreal. The role of Mirabel, while remaining open to all types of service, will be to specialize in passenger charter services and large aircraft cargo operations. The decision of Aéroports de Montréal to modify the traffic distribution which had been in effect since 1975 was contested in court. It was the Québec Court of Appeals which overturned the lower court decision and allowed the changes to take place.

International Initiatives

Bilateral Negotiations

In 1997, Canada held bilateral air negotiations with a number of foreign governments, many of which resulted in an expansion of Canadian carrier opportunities and

an opening up of new markets. During the year, negotiations were held with Belgium, Chile, Cuba, Fiji, the Netherlands, Kuwait, Ukraine, New Zealand, Russia, Iceland, Switzerland, Japan and China. There were also negotiations with the Scandinavian countries, where three identical bilateral agreements govern services with Norway, Sweden and Denmark.

A first-time air agreement was concluded with Ukraine. Existing agreements with Scandinavia, Fiji, Cuba, Belgium and China were amended to include expanded new rights. The agreement with China resulted in increased capacity and a new route for all-cargo services between Canada and China. Expanded capacity was also achieved in the Canada-Japan market. A new memorandum of understanding was reached with Iceland. Amendments to the arrangements governing air services between Canada and Taiwan have made possible an expansion of Vancouver–Taipei services by Canadian Airlines International and Mandarin Airlines.

During 1997 the Minister used his authority to designate Canadian carriers to exercise Canada's bilateral route rights to fly scheduled air services to a number of countries. Table 8-1 lists carriers selected in 1997.

TABLE 8-1
CARRIERS DESIGNATED BY THE MINISTER OF TRANSPORT IN 1997

Country	*Selected Carrier*
Aruba	Canadian*
Austria	Air Canada
Bolivia	Canadian
Cayman Islands	Air Canada
Colombia	Canadian
Ecuador	Canadian
Egypt	Air Canada
Finland	Air Canada
France (2nd carrier)	Air Transat
Morocco	Canadian
Netherlands Antilles	Canadian
Portugal	Canadian
Saudi Arabia	Air Canada
Tunisia	Air Canada
Turkey	Air Canada
Turks & Caicos Islands	Canadian
Venezuela	Air Canada

* Canadian Airlines International

Source: Transport Canada, Air Policy

Intransit Pre-clearance

In April, Canada and the US reached agreement on the establishment of intransit pre-clearance for international air travelers arriving in Canada and destined for the US. Upon arrival at a Canadian airport, these passengers would be allowed to bypass Canadian customs and proceed directly to US customs before connecting to their US flights. This "one-stop" clearance process is more attractive to international travelers than the traditional "two-stop" process.

Canadian airports and air carriers hope to increase the levels of intransit traffic using Canadian gateways on trips to and from the United States. As a first step toward implementing intransit pre-clearance across Canada, a pilot project was set up in June 1997 at Vancouver International Airport. During the first six months, about 25,000 international passengers used the one-stop clearance process.

In return for US agreement on intransit pre-clearance, Canada has agreed to develop legislation that would enhance the ability of US customs and immigration inspectors to apply US law in pre-clearance facilities at Canadian airports.

Transit Without Visa

In August, the Department of Citizenship and Immigration introduced a "transit without visa" test program at Vancouver International Airport. This program allows eligible international travelers to the US to transit through Vancouver without carrying a Canadian visa, provided they carry the necessary US visa. Initially, citizens of Taiwan, Thailand, the Philippines and Indonesia are eligible.

Pre-clearance at Ottawa

In July, a new US customs pre-clearance facility opened at MacDonald-Cartier International Airport at Ottawa, the seventh Canadian airport with such a facility. Pre-clearance allows transborder travelers to be processed into the United States before the departure of their flight, as a means of facilitating their arrival at the US airport, particularly if they have connecting flights to catch.

TABLE 8-2
AIRCRAFT OF SELECTED CANADIAN CARRIERS IN PASSENGER SERVICES

	Wide-bodied	*Narrow-bodied*	*Propeller Driven*	*Total*
Air Canada	46	112	-	158
AC Affiliates [1]	-	13	69	82
Canadian Airlines International	24	60	-	84
CAI Affiliates [2]	-	23	54	77
Air Transat	12	7		19
Canada 3000	-	14	-	14
First Air [3]	-	4	34	38
Kelowna Flightcraft [4]	-	7	-	7
Sky Service	-	4	-	4
Royal [5]	3	12	-	15
WestJet	-	6	-	6
Vistajet [6]		2	2	4
Total	**85**	**264**	**159**	**508**

Notes:
1. Air Nova, Air Alliance, Air Ontario and Air BC.
2. Air Atlantic, Inter-Canadien, Canadian Regional and Calm Air.
3. First Air fleet includes Air Inuit & NWTAir which was acquired from Air Canada.
4. Operating as "Greyhound Air" which ceased operations on September 21, 1997.
5. Royal acquired Canair Cargo, which had 5 B737 freighter aircraft of which 3 were modified for passenger charter services.
6. Vistajet doubled its B737 fleet in August before ceasing operations on September 21, 1997.

Source: Carriers' Websites, JP Airline-Fleets International, 97–98

Interim US Airspace Fees

In May, the US Federal Aviation Administration (FAA) announced that interim fees for airlines flying over US territory or through US-controlled airspace would begin in June. The Air Transport Association of Canada (ATAC) calculated that the fees would cost Canadian carriers some $50 million per year. The Canadian government, reflecting the concerns of Canadian air carriers on the high cost and short notice of the fees, requested that formal consultations take place with the US government in an effort to delay the fees until the problems could be resolved. When the US government declined to make any changes, ATAC challenged the fees in US Superior Court on behalf of Canadian air carriers.[1]

Anti-Trust Immunity

In June, the US Department of Transportation granted anti-trust immunity to Air Canada and United Airlines, allowing them to better co-ordinate the services they offer to the public. This anti-trust immunity is similar to that granted to Canadian Airlines International and American Airlines in 1996.

Code-Sharing

In November, Canada and the US came to a negotiated agreement on "third country code-sharing". Under code-sharing agreements, passengers are ticketed under one airline but travel on another airline sharing the code of the ticketing carrier. The Canada–US agreement permits Canadian air carriers, for example, to co-ordinate flights with their foreign partner airlines by code-sharing on flights between Canada and the foreign country that go to, from or through the US. This will allow Canadian airlines to better integrate their transborder and international networks with those of their alliance partners. US carriers received reciprocal rights.

MULTILATERAL INITIATIVES

International Civil Aviation Organization

As host country to the International Civil Aviation Organization (ICAO), located in Montreal, and as a permanent member of the Council, Canada was active in all aspects of the work of this organization. Aviation safety and security were ICAO's chief areas of concern and study in 1997, with work continuing on the economic regulation of international air carriers, the environmental impacts of aviation emissions, and the legal liability of international air carriers concerning passengers and cargo.

Asia Pacific Economic Co-operation

In June 1997, Canada hosted the meeting of the transportation ministers of the Asia Pacific Economic Co-operation (APEC). At that meeting, the Group on More Competitive Air Services was reactivated and tasked with prioritizing and examining:

- air carrier ownership and control,
- tariffs,
- doing business matters,
- air freight,
- multiple airline designation,
- charter services,
- airlines' co-operative arrangements, and
- market access.

1 In February 1998, the US Superior Court determined that the fees were invalid as calculated and ordered them discontinued. ATAC is seeking reimbursements of payments made by Canadian carriers.

A report for submission to APEC's transportation ministers is to be prepared by mid-1998.

INDUSTRY STRUCTURE

Canada's commercial air service industry continues to be dominated by Air Canada and Canadian Airlines International and their respective corporate and commercial affiliates. These two carriers offer domestic, transborder and international services, in competition with each other and with other domestic and foreign carriers.

A second tier of Canadian carriers – Air Transat, Canada 3000, Royal Aviation and Sky Service – offers transcontinental, international and inter-regional long-haul services year round. The primary activity of these carriers is to provide air transportation to tour operators that sell air-only and packaged travel (combined with lodging, meals, etc.) designed to meet the needs of the leisure traveller. The activity of these carriers tends to shift seasonally to the areas of greatest demand: Europe in the summer months, and the United States, the Caribbean and Latin America in the winter months.

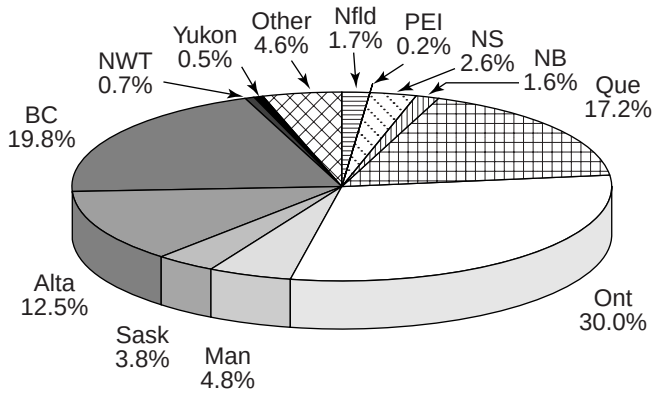
For a time in 1997, three additional carriers offered services with jet aircraft in the domestic market: Greyhound Air (operated by Kelowna Flightcraft Charter Ltd.), Vistajet and WestJet. After both Greyhound Air and Vistajet withdrew from service in September, there remained only WestJet, which operates a fleet of six aircraft between cities in Western Canada.

TABLE 8-3
LICENCE AUTHORITIES HELD IN 1997

Carrier Nationality: / *Type:*	*Canadian*				*US*	*Other Foreign*
	Small	*Medium*	*Large*	*All-Cargo*		
Classification						
Domestic	864	29	14	29	-	-
International						
Scheduled	10	26	67	3	65	47
Non-Scheduled	398	24	15	23	767	73
Total Type	1,272	79	96	55	832	120
Total	**1,502**				**832**	**120**

Source: Canadian Transportation Agency

FIGURE 8-1
PROPORTION OF PERSONNEL LICENCES AND PERMITS BY PROVINCE, JANUARY 1998



Source: Transport Canada, Economic Analysis

There are a number of smaller carriers that operate in all regions of the country and that offer passenger and cargo services, as well as dedicated courier and on-demand charter services.

Canada has an active helicopter industry offering various general and specialized services throughout the country. In the general aviation sector, there is also business aircraft and a large recreational aviation community. There are flying schools in all parts of the country.

Table 8-2 lists aircraft of selected Canadian carriers in passenger services.

Table 8-3 provides the number of Canadian air licences held by carriers in 1997, broken down by carrier's nationality.

Figure 8-1 lists air personnel licences and permits by province.

TABLE 8-4
DOMESTIC PASSENGER TRAFFIC – TOP 20 CITY-PAIRS
SCHEDULED vs. CHARTER SERVICES
1996

Rank* ##	City pair	Scheduled Passengers	Charter Passengers	Total Passengers	Charter Share (%)
1	Montreal – Toronto	1,256,910	48,456	1,305,366	3.7
2	Toronto – Vancouver	821,650	238,504	1,060,154	22.5
3	Ottawa – Toronto	665,560	423	665,983	0.1
4	Calgary – Vancouver	578,320	69,515	647,835	10.7
5	Calgary – Toronto	462,500	88,313	550,813	16.0
6	Calgary – Edmonton	373,070	1,398	374,468	0.4
7	Toronto – Winnipeg	329,570	131,558	461,128	28.5
8	Edmonton – Vancouver	323,390	67,174	390,564	17.2
9	Halifax – Toronto	291,380	92,521	383,901	24.1
10	Edmonton – Toronto	263,830	48,753	312,583	15.6
11	Montreal – Vancouver	195,860	84,927	280,787	30.2
12	Vancouver – Winnipeg	174,980	118,256	293,236	40.3
13	Ottawa – Vancouver	169,380	16,999	186,379	9.1
14	Calgary – Winnipeg	162,670	78,221	240,891	32.5
15	Thunder Bay – Toronto	157,990	8,938	166,928	5.4
16	Prince George – Vancouver	122,330	801	123,131	0.7
17	Calgary – Montreal	121,920	11,307	133,227	8.5
18	St. John's – Toronto	121,720	45,602	167,322	27.3
19	Kelowna – Vancouver	121,650	1,966	123,616	1.6
20	Halifax – Ottawa	107,840	69	107,909	0.1

* Ranking is based on scheduled origin/destination traffic, excluding charter origin/destination traffic.

Source: Statistics Canada, Cat. 51-204 & 51-207.

TABLE 8-5
DOMESTIC SECTOR ENPLANED AND DEPLANED PASSENGERS
1988 – 1996

(Thousands of passengers)

Year	
1996	46,742
1995	41,852
1994	39,803
1993	39,353
1992	40,999
1991	40,926
1990	45,567
1989	45,568
1988	46,676

Source: Statistics Canada, Cat. 51-203

AIR SERVICES

DOMESTIC MARKET

Changes

In September 1997, Kelowna Flightcraft ceased operating on behalf of "Greyhound Air" between Vancouver, Kelowna, Calgary, Edmonton, Winnipeg, Hamilton, Toronto and Ottawa. Laidlaw Transportation Inc. made the decision to withdraw from air services as a condition of purchasing Greyhound Canada Transportation Inc. Greyhound's air services were in operation for a total of 15 months.

A new discount carrier, Vistajet, entered the market in 1997 using a Boeing 737 aircraft between Toronto, Ottawa, Windsor and Thunder Bay, and later Winnipeg and Calgary. Service began in April and continued until the company ceased operations in September.

Canadian Airlines introduced the 55-seat Fokker F-28 in the Toronto–Ottawa–Montreal market on some flights, previously served with 100-seat Boeing 737s. The 737s were reassigned to serve the Western Canada triangle of Vancouver, Calgary and Edmonton and transborder services. This move was part of a general redeployment of its fleet in the airline's four-year recovery strategy announced for the period 1997–2000. Canadian Airlines also transferred some services to its regional affiliates.

Other Airlines

In its second year of operation, WestJet, a Calgary-based discount carrier operating Boeing 737 aircraft, continued to limit its services to markets with flights

lasting less than two hours. To the seven cities it was serving in 1996 (Calgary, Edmonton, Vancouver, Victoria, Kelowna, Regina and Saskatoon), WestJet added Abbotsford and, for a time, Winnipeg.

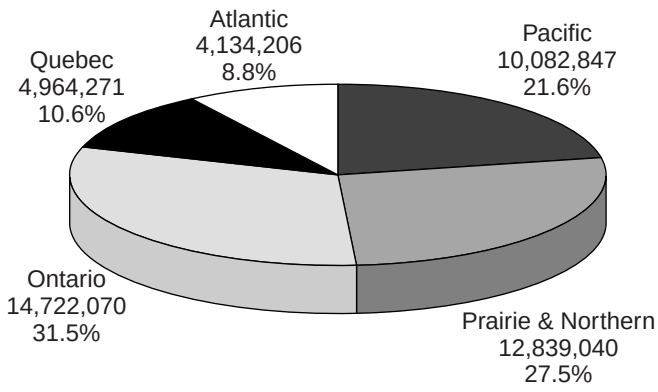
In addition to Air Canada and Canadian Airlines International, transcontinental services continued to be offered by Air Transat, Canada 3000 and Royal Aviation.

The only carriers to offer integrated services throughout all of Canada are Air Canada and Canadian Airlines International, which do this through a combination of their own services, those of regional affiliates and subsidiaries, and commercial agreements to code-share with a limited number of small independent carriers.

Preliminary statistics suggest that domestic passenger traffic increased by nine per cent in 1997 over 1996. Table 8-4 lists the top 20 domestic scheduled and charter-serviced markets for 1996.

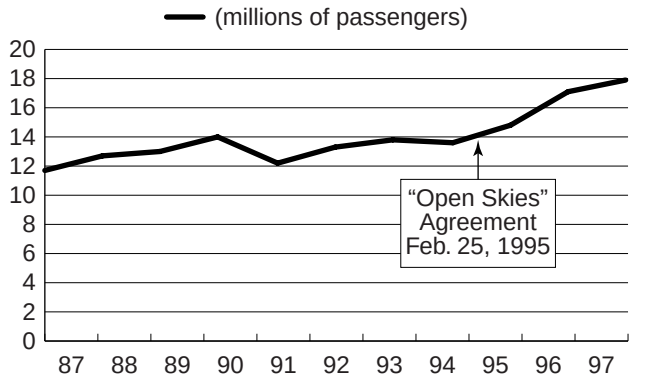
Table 8-5 shows the changes in domestic enplaned and deplaned passenger traffic between 1988 and 1996.

FIGURE 8-2
REGIONAL BREAKDOWN OF DOMESTIC PASSENGERS
(Enplaned and Deplaned)



Source: Transport Canada, Economic Analysis

FIGURE 8-3
TRANSBORDER PASSENGER TRAFFIC
1987 – 1997



Source: Aviation Statistics Centre, Statistics Canada, Statements 2, 4 and 6.

Regional Services

Scheduled passenger and cargo services are provided in all regions, including Northern Canada, by the regional affiliates and subsidiaries of Air Canada and Canadian Airlines International and by a number of independent air carriers. With some notable exceptions, services are provided with turboprop aircraft.

Figure 8-2 shows the regional breakdown of domestic passenger (enplaned and deplaned) traffic.

A significant portion of intra-regional air services was provided by the regional affiliates/ subsidiaries of Canadian Airlines International and Air Canada. In a number of markets, services were transferred from the regional affiliates of the major carriers to smaller operators. Examples include transfers from Air BC to Central Mountain Air, Canadian Regional to Air Georgian, Air Alliance to Aviation Quebec Labrador; Inter-Canadien to Régionair.

Intra-regional air services were also provided to major population centres by WestJet (serving Western Canada and B.C.) and Vistajet (serving several points in Central Canada from April until it ceased operation in September).

Newfoundland and Labrador were additionally served by Inter Provincial Airways; while Air Inuit and First Air (including Air Creebec) and a number of smaller operators also provided air services within Quebec.

The major communities in Northern Canada are served by Canadian Airlines International and Air Canada through their regional affiliates and commercial partners

TABLE 8-6
NEW AIR SERVICES IN TRANSBORDER MARKETS

Calgary – Chicago	Canadian
Calgary – Los Angeles	Canadian
Halifax – Boston	Delta/Business Express
Kenora – Ely/Minneapolis	Northwest/Mesaba
Montreal – San Francisco	Air Canada
Ottawa – Boston	Air Canada/Air Nova
Ottawa – New York La Guardia	Delta/Business Express
Ottawa – Philadelphia	US Airways
Toronto – Charlotte	Air Canada
Toronto – Columbus	US Airways/ US Airways Express
Toronto – Cincinnati	Air Canada
Toronto – Cleveland	Continental/Continental Express
Toronto – Dallas/Ft. Worth	Air Canada
Toronto – Dallas Ft. Worth	Canadian
Toronto – Houston	Continental
Toronto – Milwaukee	Air Canada
Toronto – Minneapolis	Northwest
Toronto – Phoenix	Air Canada
Toronto – Pittsburgh	Air Canada
Toronto – Providence, RI	Air Canada/Air Ontario
Toronto – Raleigh/Durham	Canadian/Canadian Regional
Toronto – Richmond	Air Canada/Air Ontario
Toronto – Seattle	Air Canada
Vancouver – Boston	Canadian
Vancouver – Dallas/Ft. Worth	Canadian
Vancouver – Houston	Continental
Vancouver – Las Vegas	Alaska Airlines
Vancouver – Los Angeles	Alaska Airlines
Vancouver – Phoenix	Alaska Airlines
Vancouver – San Francisco	Alaska Airlines
Vancouver – San Diego	Canadian
Whitehorse – Anchorage	Alaska Airlines/ERA Aviation

Source: Transport Canada, Air Policy

and by a number of independent air carriers which also serve smaller points: operating from Yellowknife, Norman Wells and Inuvik serving the Western Arctic region were Aklak Air Ltd, North-Wright Air Ltd., Buffalo Airways Ltd., Air Tindi Ltd. and Northwestern Air Lease Ltd.; operating from Arviat and Rankin Inlet serving the Central Arctic region were Calm Air and Keewatin Air; operating from Iqaluit serving the Eastern Arctic region were First Air and Baffin Air.

Services were affected during the first quarter of 1997 by a nine-week strike by pilots of Air Canada's regional affiliates (Air BC, Air Ontario, Air Alliance and Air Nova).

TRANSBORDER MARKET

Air Services

The number of air services in the transborder market continued to increase during 1997. Thirty-two transborder markets received new air services, bringing the total of new scheduled services to 107 since the signing of the "Open Skies" Agreement in February 1995.

TABLE 8-7
TRANSBORDER PASSENGER TRAFFIC FOR SCHEDULED, REGIONAL AND CHARTER OPERATIONS
1991 – 1996

Period	*Canadian Carriers*		*US Carriers*		*All Carriers*	
	Passengers	*% Market Share*	*Passengers*	*% Market Share*	*Passengers*	*% Annual Change*
1991	5,182,000	42.3	7,057,000	57.7	12,239,000	--
1992	5,619,000	42.2	7,688,000	57.8	13,307,000	8.7
1993	5,634,000	40.9	8,146,000	59.1	13,780,000	3.6
1994	5,908,000	43.3	7,735,000	56.7	13,643,000	-1.0
1995	6,482,000	43.7	8,367,000	56.3	14,849,000	8.8
1996	7,654,000	44.7	9,474,000	55.3	17,086,000	15.1

Notes: Some missing data estimated by Transport Canada
Fourth quarter 1996 data estimated for US carriers
Excludes passengers carried by non-Canadian and non-US carriers

Source: Aviation Statistics Centre, Statistics Canada, Statements 2, 4 and 6

Transborder traffic is expected to have increased by five per cent over 1996. A key to this growth was the end of the two-year restriction on US air carriers from flying to Vancouver and Montreal, which was part of the 1995 deal. The last restriction on US carriers to full access to Toronto continued in effect until February 1998.

Figure 8-3 shows traffic growth over the past 10 years. Table 8-6 lists new air services in transborder markets, and Table 8-7 summarizes the passenger traffic for scheduled, regional and charter operations, as well as the market shares held by Canadian and US air carriers. Annexes 8-1 and 8-2 show this market's entry, exit and ongoing activity in services by air carrier nationality and points served.

Number of Seats

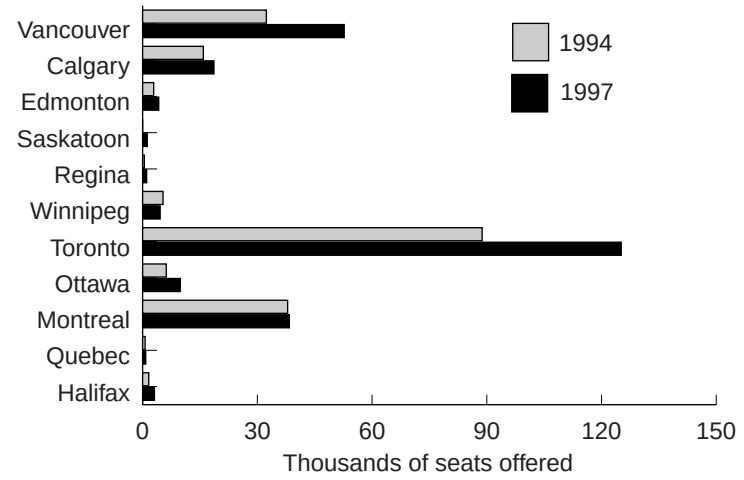
The number of seats flown in the transborder market is now running about 36 per cent above levels existing before the "Open Skies" Agreement. The two major Canadian carriers contributed to the increase in transborder capacity in 1997 when Canadian Airlines International redeployed some of its domestic fleet for its transborder services, and Air Canada expanded its transborder services using the CRJ Regional Jet aircraft and some larger aircraft. Figure 8-4 shows the scheduled services capacity in this market but does not include that of charter air services, nearly all of which was provided by Canadian air carriers.

INTERNATIONAL MARKET

Air Services

Several changes took place during the year to international air services:

FIGURE 8-4
NUMBER OF SEATS OFFERED IN THE TRANSBORDER MARKET



Source: Transport Canada, Air Policy

TABLE 8-8
INTERNATIONAL PASSENGER TRAFFIC
1991 – 1996

(Thousands of passengers)

Period	Sector Atlantic	Pacific	Southern	Total
1991	4,776	1,000	2,222	7,998
1992	5,221	1,140	2,353	8,714
1993	5,345	1,288	2,444	9,077
1994	5,802	1,478	2,560	9,840
1995	6,147	1,760	2,614	10,521
1996	6,382	2,072	2,586	11,040
	% Change			
1991-92	9.3	14.0	5.9	9.0
1992-93	2.4	13.0	3.9	4.2
1993-94	8.6	14.8	3.9	8.2
1994-95	6.0	19.1	3.0	7.2
1995-96	3.8	17.7	-1.1	4.9

Source: Aviation Statistics Centre, Statistics Canada, Statements 2, 4, and 6

- In May, Canadian Airlines International announced code-shared air services over Miami to El Salvador and Guatemala with its partner, American Airlines.
- In May, Air Canada launched its trans-Pacific scheduled air service between Toronto and Osaka, Japan.
- In July, Air Canada began service to Ukraine on a code-share.
- In the summer, Mexicana began scheduled service between Toronto and Mexico City.
- In the summer, Lacsa began service between Toronto and San Jose via Havana.

TABLE 8-9
MARKETING ALLIANCES OF CANADA'S MAJOR AIR CARRIERS

Air Canada (STAR Alliance)	Lufthansa German Airlines
	Scandinavian Airlines System
	Thai Airways International
	United Airlines
	VARIG Brazilian Airlines
Canadian Airlines International (AA/BA Alliance)	American Airlines
	British Airways
	Qantas
	Japan Airlines

Source: Carrier Internet web sites

TABLE 8-10
PARTICIPATION OF CANADIAN AIR CARRIERS IN TRANSBORDER COURIER OPERATIONS

US Courier Company	*Canadian Operator providing feed to US Hub*
Airborne Express	Knighthawk Air Express
Burlington Express	All Canada Express
DHL	Royal/CanAir Cargo
Emery Air Freight Corp.	Bradley Air Services
Federal Express	Kelowna Flightcraft Air Charter Ltd.
T.N.T.	Knighthawk Air Express
United Parcel Service	Western Express Airline

Source: Transport Canada Survey, November 1997

TABLE 8-11
VALUE OF CANADIAN INTERNATIONAL TRADE'S AIR SHARE 1996

(Millions of dollars)

	Air	*All modes*	*Air's Share (%)*
Transborder			
Exports	9,979	223,479	4.5
Imports	14,443	157,494	9.2
Total US	**24,422**	**380,973**	**6.4**
Other Countries			
Exports*	8,231	50,305	16.4
Imports	15,340	75,620	20.3
Total Other Countries	**23,571**	**125,925**	**18.7**

* Exports to other countries include domestic exports only (Re-exports excluded).

Note: For exports, mode of transport means the mode by which the international boundary is crossed. For imports, the mode of transport represents the last mode by which the cargo was transported to the port of clearance in Canada; this may not be the mode of transport by which the cargo arrived at the Canadian port of entry in the case of inland clearance. This led to some underestimation of Canadian imports by the marine and air transport modes.

Source: Statistics Canada, Cat. 65-202 and 65-203; Special tabulations for the US.

- In September, the vast majority of international air services at Montreal were relocated to the Dorval terminal from Mirabel.
- In October, Royal Jordanian Airlines terminated service to/from Canada.
- In October, Air India suspended flights to Toronto.

Although Mirabel International Airport was designated for charter air services as of September, two air carriers were still operating scheduled air services from there at year-end. These were Cubana, with twice-weekly air services to Havana, and Air Transat, which began its first scheduled air services to France with twice-weekly flights to Paris through Charles de Gaulle Airport.

Preliminary statistics indicate a nine per cent increase in passenger traffic in 1997 over 1996. In 1996, total traffic increased 4.9 per cent over 1995 levels. Table 8-8 shows international passenger traffic from 1991 to 1996, including both passenger traffic carried on same-plane air services between Canada and countries other than the US, and passenger traffic carried on scheduled, charter and regional air services. The figures exclude passengers connecting to international air services in the US.

Marketing Alliances

During 1997, Canada's two international scheduled air carriers continued to use marketing alliances to extend or reinforce their presence in international markets where they would not otherwise provide direct service. In a marketing alliance, air carriers co-ordinate their scheduling, marketing and product distribution and each carrier can sell tickets on the entire system, including the points they do not serve, by linking with other partners through

code-sharing. As a result, competition is increasingly occurring between groups of air carriers operating within a marketing alliance. Table 8-9 shows the participation of Canada's airlines in marketing alliances.

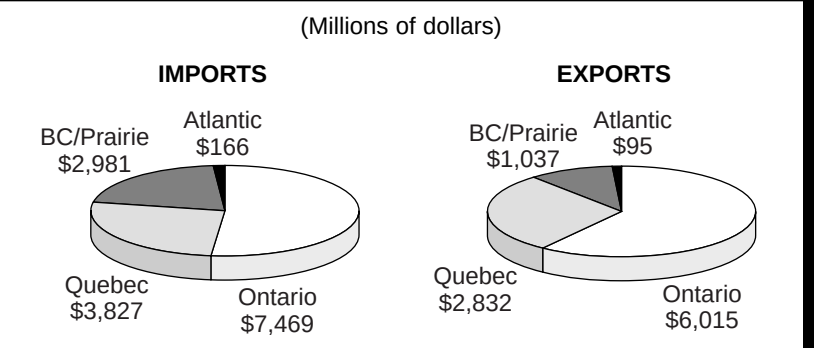
Annex 8-3 lists the international air services provided to and from Canada as of the end of 1997. These include foreign markets served by Air Canada and Canadian Airlines International, as well as Canadian markets served by foreign air carriers. This appendix also provides a partial listing of foreign markets served by Canada's charter air carriers. It shows that there are 42 countries currently receiving same-plane, scheduled air services from Canada. Canadian air carriers serve 29 of these countries.

AIR CARGO

The booking of cargo frequently involves an intermediary such as a cargo agent, freight forwarder or consolidator. Cargo agents are retailers who sell cargo transportation to shippers on behalf of a carrier, while freight forwarders and consolidators act on behalf of shippers as forwarding agents, or consolidate shipments from various shippers to take advantage of reduced freight rates.

Canadian airlines carry air cargo primarily in the belly of their passenger aircraft, which makes it an additional source of revenue for a relatively low incremental cost. A limited number of other carriers provide all-cargo capacity, and some of these are dedicated to contract carriage for the major North American courier companies.

FIGURE 8-5
VALUE OF CANADIAN IMPORTS AND EXPORTS WITH THE US BY AIR AND BY PROVINCE OF CLEARANCE
1996



Source: Transport Canada, based on Statistics Canada data

All-cargo air services into Canada are provided exclusively by foreign air carriers, namely Air France, Lufthansa, Cathay Pacific Airways and Korean Air Lines. Other foreign carriers provided charter cargo services, notably when specialized handling equipment was required.

Table 8-10 shows the participation of Canadian air carriers in transborder courier operations. It should also be noted that a significant portion of cargo moving on air waybills is actually trucked between Canada and the US.

AIR CARGO INTERNATIONAL TRADE

According to international trade data, the value of international freight handled at Canadian airports in 1996 was approximately $48 billion (excluding shipments via US airports), with imports valued at $30 billion and exports around $18 billion (Table 8-11). Canada's main air trading partners are the US, the Western European nations (mainly the United Kingdom, France, Germany and Switzerland) and the Pacific Rim countries (mainly Japan, South Korea and Taiwan).

Transborder Trade

Canada's trade with the US using air transportation services was $24.4 billion in 1996, of which $14.4 billion was imports. Main imported commodities were telecommunications equipment ($3.0 billion or 21 per cent of total air value in trade by air from the US), electronic computers ($2.8 billion or 20 per cent), transportation equipment (17 per cent) and other equipment (12 per cent).

Total Canadian exports by air to the US were valued at $10 billion. Main commodities exported were aircraft equipment ($2.2 billion or 22 per cent of total trade by air to the US), office machine equipment (19 per cent) and telecommunication equipment (15 per cent). Special transactions accounted for ten per cent of exports by air.

As illustrated in Figure 8-5, Ontario dominated (with a share of over 50 per cent) in both exports and imports, followed by Quebec and the Western provinces.

TABLE 8-12
VALUE OF CANADIAN EXPORTS BY AIR
MAIN DESTINATIONS*
1996

Destinations	*Value ($ Million)*	*Share (%)*
Western Europe	**4,750**	**57.7**
Germany	1,145	13.9
U.K.	1,101	13.4
Switzerland	704	8.5
France	628	7.6
Other	1,172	14.2
Pacific Rim	**2,235**	**27.2**
Japan	468	5.7
Hong Kong	407	4.9
South Korea	349	4.2
Other	1,011	12.3
Other countries	**1,246**	**15.1**
Total Canadian exports by air	**8,231**	

* Excluding the US. Including domestic exports only (Re-exports excluded).

Source: Statistics Canada, Cat. 65-202 (Exports)

TABLE 8-13
VALUE OF CANADIAN IMPORTS BY AIR
MAIN COUNTRIES OF ORIGIN*
1996

Origin	*Value ($ Million)*	*Share (%)*
Western Europe	**7,025**	**45.8**
U.K.	1,707	11.1
France	1,378	9.0
Germany	1,069	7.0
Italy	726	4.7
Switzerland	514	3.3
Other	1,631	10.6
Pacific Rim	**5,872**	**38.3**
Japan	1,925	12.5
South Korea	894	5.8
Taiwan	661	4.3
Malaysia	573	3.7
Singapore	465	3.0
Other	1,354	8.8
Other countries	**2,443**	**15.9**
Total Canadian imports by air	**15,340**	

* Excluding the US. Including domestic exports only (Re-exports excluded).

Source: Statistics Canada, Cat. 65-203 (Imports)

Trade With Other Countries

Canada's trade with other countries using air transportation was comparable to the Canada/US air trade: total value was near $24 billion and imports dominated at $15.3 billion, while exports reached $8.2 billion. Ontario and Quebec dominate Canadian air trade with overseas countries, Ontario having a share of over 55 per cent, and Quebec a share of 27 per cent.

As shown in Table 8-12, the main destinations for Canada's exports using air services were the Western European countries ($4.7 billion or 58 per cent of total air exports to overseas) and the Pacific Rim countries ($2.2 billion, a 27 per cent share). Commodities imported to Canada by air came from Western European countries ($7.0 billion or 46 per cent of total air imports from overseas) and the Pacific Rim countries ($5.9 billion or a 38 per cent share) (see Table 8-13).

GENERAL AVIATION

The term "general aviation" describes all private-sector aviation other than air transport services, including flight training, specialty air services and business aviation. It represents 53 per cent of aircraft activity at airports with control towers although much of the activity is at non-towered airports. Another indicator of the size of the general aviation sector is the number of Transport Canada licences in effect. Table 8-14 shows aircraft movements at towered airports for 1992 to 1996. Table 8-15 shows personnel licences and permits issued in 1997.

TABLE 8-14
AIRCRAFT MOVEMENTS AT TOWERED AIRPORTS
1993 – 1997

Year	Air Carrier	Other Commercial	Private	Government	Military	Total Itinerant	Local	Total
1993	2,187,029	337,659	607,347	90,103	72,641	3,294,779	1,657,878	4,952,657
1994	2,214,464	377,413	584,220	84,243	68,898	3,329,238	1,588,567	4,917,805
1995	2,168,847	396,360	514,034	69,069	58,627	3,206,937	1,522,880	4,729,817
1996	2,238,698	431,229	455,892	62,956	57,101	3,245,876	1,548,822	4,794,698
1997	2,335,286	409,002	452,031	60,127	57,316	3,313,762	1,683,088	4,996,850

Source: Aircraft Movements Statistics Annual Report, TP577

Specialty Air Services

Specialty air services provide many services that are vital to the Canadian economy. These include activities that provide direct support to Canadian industry, such as airborne fire-fighting, aerial inspection and construction services, and geophysical surveys. Specialty air services are the one segment of the aviation industry subject to the North American Free Trade Agreement.

Business Aviation

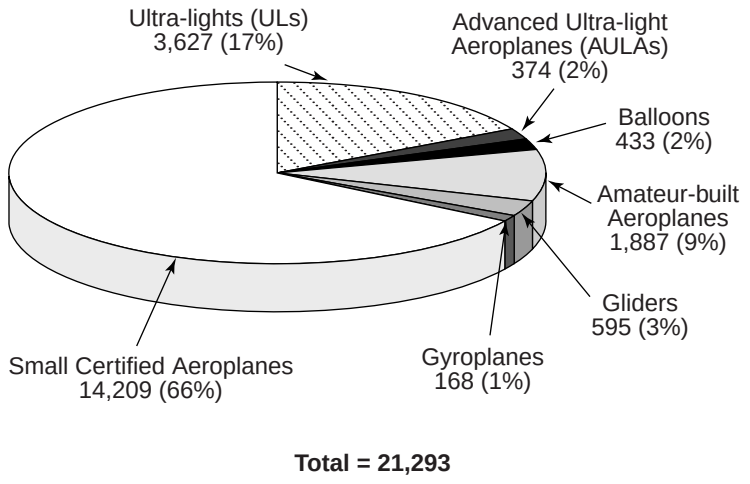
As part of business aviation, approximately 150 private operators use a fleet of some 230 privately owned and registered aircraft to provide their own businesses and joint ventures with an alternative to commercial air services. This sector is showing strong recovery from the downturn of the early 1990s, with reported hours of operation up by as much as 20 per cent. More than 850,000 passengers were carried by business aircraft during 1997. The growth in the industry was marked by an upgrading of the fleet, including the addition of longer range business jets, reflecting the increasing globalization of business activities.

TABLE 8-15
SUMMARY OF PERSONNEL LICENCES
AS OF JANUARY 1998

	In Force	Issued in 1997	Male	Female
Aeroplanes				
Private Pilots	30,108	2,914	28,347	1,761
Commercial Pilots	8,452	1,072	8,009	443
Airline Transport Pilots	10,083	748	9,824	259
Total	**48,643**	**4,734**	**46,180**	**2,463**
Helicopters				
Private Pilots	257	42	239	18
Commercial Pilots	2,099	207	2,050	49
Airline Transport Pilots	480	50	479	1
Total	**2,836**	**299**	**2,768**	**68**
Permits				
Glider Pilot	7,070	508	6,215	855
Gyroplane Pilot	21	0	20	1
Balloon Pilot	339	15	304	35
Ultra-Light Pilot	2,846	211	2,774	72
Recreational Pilot	756	430	711	45
Total	**11,032**	**1,164**	**10,024**	**1,008**
Other Licences				
Flight Navigators	N/A	N/A	N/A	N/A
Flight Engineers	501	38	491	10
Air Traffic Controllers	2,209	99	2,051	158
Aircraft Maintenance	10,545	409	10,468	77
Total	**13,255**	**546**	**13,010**	**245**
Total Licences & Permits	**75,766**	**6,743**	**71,982**	**3,784**

Source: Transport Canada Safety and Security

FIGURE 8-6
PROFILE OF THE RECREATIONAL AVIATION FLEET



Total = 21,293

Note: Of the 433 balloons on the registers, only about 25% are flown for recreational purposes. The remaining are flown primarily for commercial reasons.

Source: Canadian Civil Aircraft Register

RECREATIONAL AVIATION

Recreational aviation is carried out by private-sector enthusiasts who participate primarily for the pleasure of flying. This group represents the biggest segment of civil aviation, with over two thirds of Canada's pilots (over 41,000) and three quarters of Canada's aircraft (over 22,000).

Consultations between Transport Canada and the recreational aviation community have resulted in the development of a national Recreational Aviation Policy, published in 1996, which covers such matters as:

- establishment of a recreational pilot permit,
- a streamlined process for aerobatics in amateur-built aircraft,
- an expanded definition of "ultra-light aeroplane",
- new provisions for owner maintenance,
- provisions for Instrument Flight Rules (IFR) operation of amateur-built aeroplanes,
- new licensing standards for ultra-light pilots, and
- discussions of a new "sport plane" category.

Figure 8-6 shows the profile of the recreational aviation fleet.

PRICE AND OUTPUT CHANGES

Between the mid-1980s and the mid-1990s, domestic air passenger services were subject to price increases superior to the rate of inflation which caused demand to plummet significantly. However since renewed competition in the industry has led to a more extensive use of discount fares, as well as greater discounting of fares from the basic economy rates. This produced an effective reduction in domestic prices by 13 per cent between 1991 and 1996. The price performance over recent years within the domestic industry contributed to a recovery in demand for domestic air services, which surged by 15.2 per cent in the two-year period 1995 – 1996. In the first half of 1997, the drop in domestic prices was of the order of three per cent. Demand continued to grow, increasing by ten per cent.

From 1992 to 1996, the price of all international air services showed no material change, but demand rose by 34 per cent. Over that period, the transborder market was Canada's most dynamic market despite price increases double those of the general inflation rate. Demand was stimulated by booming Canada–US trade activities and by the introduction of new services following the "Open Skies" Agreement. In spite of upward price pressure, demand for transborder services continued to be strong.

In other international markets, much of the increases in demand can be attributed to stimulation from lower prices as well as developing markets in Asia Pacific. Since 1991, the increased use of discount fares has contributed to the 20 per cent decline, in real terms, of the price of non-transborder international air services. In the first half of 1997, the price of all international services rose by 3.8 per cent, led by major increases in the price of transborder services. Despite these price pressures, demand for transborder and other international services continued to be strong, advancing in the first half of 1997 by 15 per cent.

Overall, between 1992 and 1996, output of the Canadian air transport industry advanced at a rate of five per cent a year, compared with 3.5 per cent for the economy.

Table 8-16 shows the price and output changes in the airline industry.

FINANCIAL PERFORMANCE

REVENUES/EXPENSES

In 1996, total operating revenues of the Canadian air transport industry reached $10 billion. Air Canada and Canadian Airlines combined, including their affiliates, generated $8 billion, representing 80 per cent of the total. Other large carriers shared eight per cent of total industry revenues and the remaining 12 per cent was generated by smaller carriers (Figure 8-7).

About 88 per cent of the industry's total operating revenues are from passenger transportation. Cargo accounts for eight per cent. The remaining four per cent is from other flying services and incidental air transport services related revenues (Figure 8-8).

While charter services only contribute 11 per cent to larger carriers' total passenger and goods revenues, they generate about 88 per cent of the total revenues of smaller carriers. For the industry as a whole, about 80 per cent of air passenger and cargo transportation revenues are generated by scheduled services and 20 per cent by charter services.

In the period 1993 to 1997, total combined revenues of Air Canada and Canadian Airlines increased by 35 per cent. Domestic passenger revenues grew by 29 per cent, but were outperformed by the 57 per cent growth in international passenger revenues. Since the implementation of the Canada–US "Open Skies" Agreement in 1995, increases in carriers' new transborder routes and traffic contributed to a significant growth

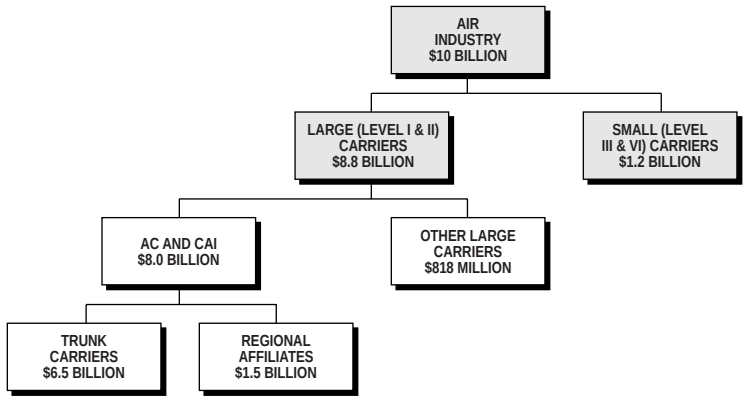
TABLE 8-16
PRICE AND OUTPUT CHANGES IN THE AIRLINE INDUSTRY
1994 – 1997

	1994	*1995*	*1996*	*1997*[1]
Price Changes (%)				
Domestic Passenger Services	2.7	(0.5)	(6.7)	(3.0)
International Passenger Services	3.9	(0.9)	(4.8)	3.8
Air Freight Services	1.4	0.5	(3.6)	0.2
Total Air Industry	3.2	(0.3)	(5.1)	0.5
Business Economy	2.8	3.5	1.9	1.4[2]
Output Changes (%)				
Domestic Passenger Services	3.7	5.2	9.6	9.9
International Passenger Services	1.5	14.0	15.2	15.3
Air Freight Services	1.5	9.9	3.1	7.7
Total Air Industry	2.5	9.5	11.7	12.5
Business Economy	5.2	2.4	2.8	3.8[2]

1 Based on first half of the year
2 Preliminary

Source: Transport Canada, based on Statistics Canada files

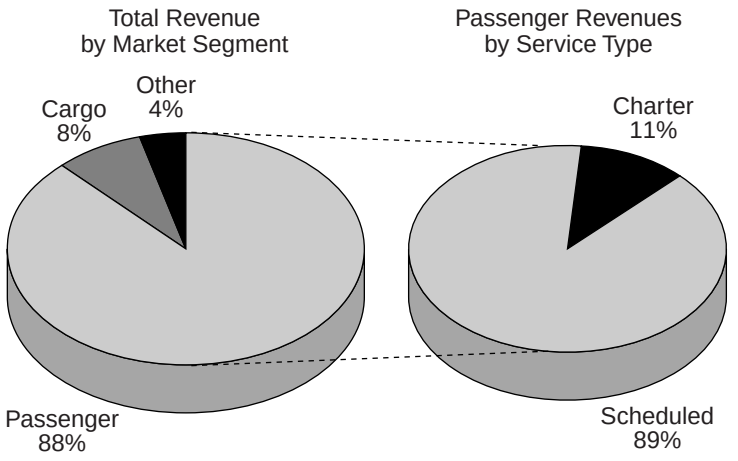
FIGURE 8-7
CANADIAN AIR TRANSPORT INDUSTRY
OPERATING REVENUES
1996



Note: Large carriers: annual volume ≥ 50,000 passengers or 10,000 tonnes of goods
Small carriers: annual volume less than 50,000 passengers or 10,000 tonnes of goods

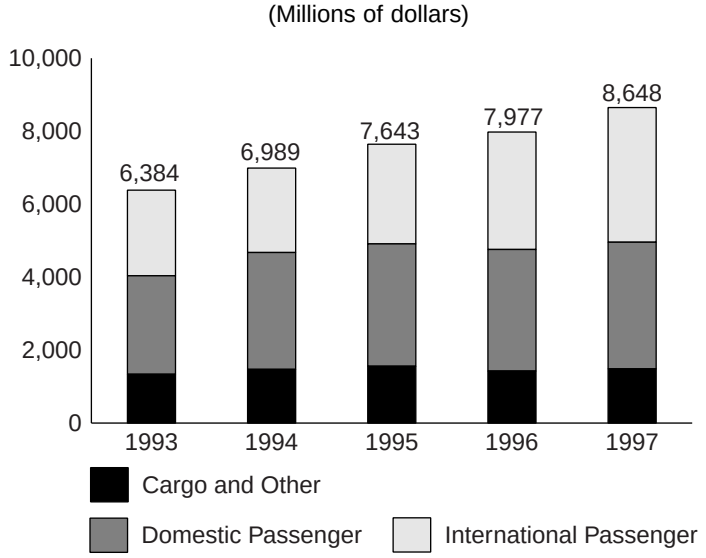
Source: Statistics Canada, Cat. 51-004; Carriers Annual Reports

FIGURE 8-8
OPERATING REVENUES OF LARGE CARRIERS
BY MARKET SEGMENT
1996



Source: Statistics Canada, Cat. 51-004

FIGURE 8-9
SIGNIFICANT GROWTH
IN INTERNATIONAL PASSENGER REVENUES
AIR CANADA AND CANADIAN AIRLINES INCLUDING AFFILIATES



Source: Statistics Canada, Cat. 51-004; Carriers Annual Reports

in international revenues (Figure 8-9). Cargo and other revenues only grew by 11 per cent in the four-year period.

The industry average operating ratio (operating expenses over revenues) increased to 97.4 per cent in 1996, from 95.8 per cent in 1995, primarily due to higher fuel prices. With narrow operating profit margins, the financial performance of the air industry is sensitive to changes in input prices.

In 1996, the share of labour costs did not change with a 25 per cent share of industry revenues.[2] Total fuel costs increased by $215 million and fuel's share in total operating revenues increased to 16 per cent in 1996 from 14 per cent in 1995. Other operating expenses accounted for almost 60 per cent of operating revenues. Notable items are marketing (13 per cent), aircraft rents (seven per cent), depreciation (six per cent) and landing fees (three per cent), and food and beverage costs (between four and five per cent).

From 1990 to 1994, employment fell by 17 per cent, followed by a five per cent gain in 1995 and 1996. Labour productivity rose by 31 per cent between 1992 and 1996, much more than the six per cent increase of the business sector over that time. Canadian air carriers' unit labour costs increased significantly (18 per cent) between 1988 and 1992, but dropped by 13 per cent between 1992 and 1996.

2 The relative importance of each factor input in the cost structure should be calculated in terms of total costs. But total costs include not only all operating costs, but also an allocation for the cost of capital. Measuring the cost of capital is a complex exercise and not all the information needed to measure it was available. Therefore total operating revenues were used in this report as a proxy for total costs under the assumption that net income is equivalent to the cost of capital.

Table 8-17 shows the cost structure and efficiency indicators in the airline industry.

Total factor productivity of the airline industry hit a low in 1991, at 15 per cent below 1986 levels. Since then, it has risen 4.5 per cent a year, with a strong performance in 1996 (8.2 per cent). Between 1991 and 1996, air transport industry unit costs have declined by 11 per cent, representing a cost reduction exceeding $1 billion. In 1996 alone, the industry reduced its costs by some $450 million.

PROFITABILITY

Although the profitability of the air industry improved in 1997 it has not fully recovered from substantial losses incurred in the early 1990s.

In 1996, the industry's financial performance was significantly affected by the operating losses of some large carriers; the average operating margin ratio dropped to 2.6 per cent from 4.2 per cent in 1995 (Figure 8-10). In order to improve profitability and remain viable, these under-performing airlines had to undertake major restructuring measures. Notably, Canadian Airlines has over the past year implemented a four-year operational restructuring plan; Royal Aviation also undertook a major restructuring in 1996 and has since improved its profitability.

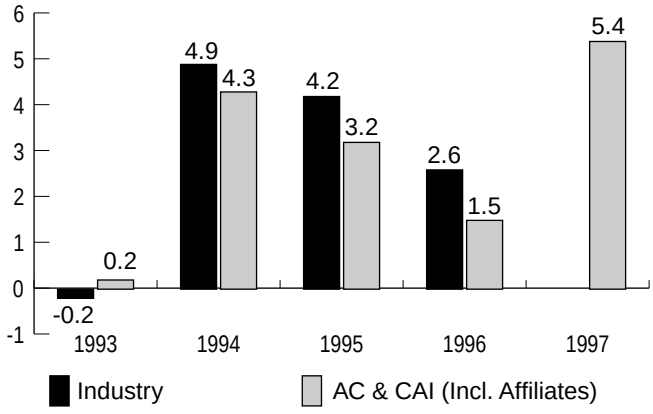
In 1997, both Air Canada and Canadian Airlines (including their affiliates) showed improvements in operating profits.

TABLE 8-17
COST STRUCTURE AND EFFICIENCY INDICATORS IN THE AIRLINE INDUSTRY, 1993 – 1996

	1993	*1994*	*1995*	*1996*
Cost Structure (In % of Op. Rev.)				
Labour	28.4	25.6	25.2	24.5
Fuel	14.5	14.2	14.3	15.9
Employees (in 000)	39.3	39.0	40.6	41.0
Average Labour Cost per employee ($000)	46.3	46.3	48.4	49.7
Productivity Change (in %)				
Labour	2.9	7.7	6.1	11.1
Fuel	(0.6)	(6.4)	0.0	4.0
Total	3.9	4.4	2.5	8.2
Unit Cost Change (in %)				
Labour	2.5	(7.2)	(1.5)	(7.6)
Total	(0.1)	(2.6)	1.2	(5.4)

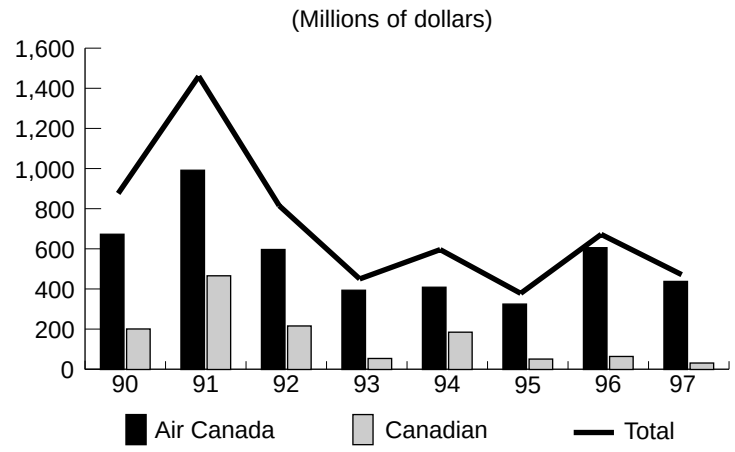
Source: Transport Canada, based on Statistics Canada files

FIGURE 8-10
AIR TRANSPORT INDUSTRY
OPERATING MARGIN 1993 – 1997
(As a per cent of total revenues)



Source: Statistics Canada, Air Canada and Canadian Airlines Annual Reports.

FIGURE 8-11
CAPITAL EXPENDITURES*
AIR CANADA AND CANADIAN AIRLINES
1990 – 1997



* Additions to property and equipment, including deposits on flight equipment

Source: Air Canada, Canadian Airlines.

INVESTMENTS

After committing large investments in 1991, total capital expenditures by the two main airlines dropped sharply in the following four years, due to life cycles of flight equipment, over capacity during recession, and poor financial results (Figure 8-11).

Air Canada reverted the downward trend in 1996 with a $607 million investment in flight equipment and other properties. In 1997, combined total capital expenditures of Air Canada and Canadian Airlines amounted to $471 million.

ANNEX 8-1
STATUS OF TRANSBORDER SERVICES BY CARRIER NATIONALITY

	Services Operated Since February 1995			*Pre-Agreement Services Suspended Since February 1995*			*Services Added Since February 1995*			*Services Operated as of February 1998*		
	Canada	*US*	*Total*	*Canada*	*US*	*Total*	*Canada*	*US*	*Total*	*Canada*	*US*	*Total*
Toronto/Pearson	14	23	37	1	11	12	29	12	41	42	24	66
Vancouver	6	10	16	-	6	6	8	15	23	14	19	33
Montréal/Dorval	7	10	17	-	3	3	3	5	8	10	12	22
Calgary	4	5	9	2	3	5	4	5	9	6	7	13
Ottawa	1	6	7	-	4	4	3	5	8	4	7	11
Halifax	2	-	2	-	-	-	1	2	3	3	2	5
Edmonton	-	3	3	-	1	1	-	1	1	-	3	3
Winnipeg	1	1	2	-	-	-	-	-	-	1	1	2
Others	5	8	13	3	2	5	-	4	4	2	10	12
Total scheduled	**40**	**66**	**106**	**6**	**30**	**36**	**48**	**49**	**97**	**82**	**85**	**167**
Charter conversions	30	-	30	20	-	20	-	-	-	10	-	10
Grand total	**70**	**66**	**136**	**26**	**30**	**56**	**48**	**49**	**97**	**92**	**85**	**177**

Notes: - Includes only those services operated by major carriers and their regional affiliates.
- Includes service changes planned for the winter and spring of 1998.
- Excludes services added since February 1995 but subsequently suspended.
- Charter conversions are defined as charter services operated by Air Canada and Canadian Airlines prior to February 1995 but were later converted to scheduled flights.
- Charter services not included unless converted to scheduled services in 1995/96.

Source: Transport Canada, Air Policy

ANNEX 8-2
STATUS OF TRANSBORDER AIR SERVICES
AS OF FEBRUARY 24, 1998

Airport	*Current Services Introduced After February 24, 1995*	*Current Services Operated Before February 24, 1995*	*Pre-Agreement Services Suspended after February 24, 1995*	*New Services Subsequently Suspended*
Calgary	Chicago: American Chicago: Canadian*** Denver: United Houston: Air Canada Los Angeles: Canadian Minneapolis: Northwest San Francisco: United Seattle: Alaska (R) Spokane: Air Canada (R)	Dallas: American Los Angeles: Air Canada Salt Lake City: Delta San Francisco: Air Canada	Chicago: Air Canada Denver: Delta Los Angeles: Delta New York/Newark: Air Canada Spokane: United	Chicago: Canadian Denver: Air Canada Las Vegas: Canadian (C) Las Vegas: Delta Palm Springs: Canadian (C) Phoenix: Canadian (C)
Edmonton Intl.	Seattle: Alaska (R)	Minneapolis: Northwest Salt Lake City: Delta	Dallas: American	Las Vegas: Canadian (C)
Fredericton				Boston: Air Canada (R)
Halifax	Boston: Canadian (R) Boston: Delta (R) New York/Newark: Continental (R) Orlando: Air Canada (C)***	Boston: Air Canada (R) New York/Newark: Air Canada (R)		Detroit: Northwest Ft. Lauderdale: Canadian (C) New York/Kennedy: American (R) Orlando: Canadian (C) St. Petersburg: Canadian (C) Tampa: Air Canada (C)
Hamilton		Pittsburgh: US Airways (R)		
Kenora	Minneapolis: Northwest (R)***			
London		Detroit: Northwest (R) Pittsburgh: US Airways (R)		
Moncton				Boston: Air Canada (R) Boston: Delta (R)
Montréal/Dorval	Atlanta: Delta Ft. Lauderdale: Air Canada (C) Hartford: Air Canada (R) Miami: American Minneapolis: Northwest New York/Kennedy: American (R) New York/Newark: Continental Orlando: Air Canada (C)*** San Francisco: Air Canada Washington/National: Air Canada	Boston: Air Canada Boston: Delta (R) Chicago: Air Canada Chicago: American Cincinnati: Delta Detroit: Northwest Los Angeles: Air Canada Miami: Air Canada New York/LaGuardia: Air Canada New York/LaGuardia: Delta (R) New York/Newark: Air Canada Philadelphia: US Airways Pittsburgh: US Airways Tampa: Air Canada***	Baltimore: US Airways Hartford: Delta (R) Miami: Delta	Atlanta: Air Canada Boston: USAir Shuttle Dallas: American New York/Kennedy: Delta New York/LaGuardia: USAir Shuttle Philadelphia: Air Canada (R) Washington/Dulles: ValuJet Washington/National: US Airways
Montréal/Mirabel			Boston: Northwest (R)	
Ottawa	Boston: Air Canada (R) Chicago: Air Canada Chicago: American Detroit: Northwest (R) New York/LaGuardia: Delta (R) New York/Newark: Continental (R)* Philadelphia: US Airways Washington/Dulles: Air Canada	Boston: Delta (R) New York/Newark: Air Canada Pittsburgh: US Airways (R)	Albany: Delta (R) Baltimore: US Airways New York/Kennedy: US Airways (R) Syracuse: US Airways (R)	New York/Kennedy: American (R) Orlando: Canadian (C) St. Petersburg: Canadian (C)
Québec		Boston: Delta (R) New York/Newark: Air Canada (R)		New York/Kennedy: American (R)
Regina	Minneapolis: Northwest (R)		Minneapolis: Canadian (R)	
Saint John		Boston: Canadian (R)	New York/Newark: Air Canada (R)	Boston: Delta (R)
Saskatoon	Minneapolis: Northwest			
Thunder Bay		Minneapolis: Northwest (R)		
Toronto/Pearson	Allentown: Air Canada (R) Atlanta: Air Canada Atlanta: Delta Boston: Canadian* Boston: Delta (R) Charlotte: Air Canada Charlotte: US Airways (R) Chicago: Canadian Cincinnati: Air Canada Cleveland: Continental (R) Columbus: Air Canada (R) Columbus: US Airways (R) Dallas: Air Canada	Baltimore: Air Canada (R) Baltimore: US Airways (R) Boston: Air Canada Chicago: Air Canada Chicago: American Chicago: United Cincinnati: Delta (R) Cleveland: Air Canada Dallas: American Dayton: US Airways (R) Detroit: Northwest Grand Rapids: Midwest Express (R) Hartford: Air Canada (R)	Albany: Delta(R) Boston: US Airways Cleveland: US Airways (R) Hartford: Delta (R) Miami: Delta Nashville: American Pittsburgh: Delta Rochester: US Airways Syracuse: Delta (R) Tampa: Delta Washington/Dulles: Canadian (R) Washington/Dulles: Delta (R)	Ft. Lauderdale: Canadian (C) Ft. Myers: Canadian (C) Indianapolis: Air Canada (R) Nashville: Delta (R) Saginaw: Midwest Express (R) St. Petersburg: Canadian (C) Sarasota: Canadian (C) Tampa: American Tampa: Canadian Washington/National: US Airways West Palm Beach: Canadian (C)

Continued

ANNEX 8-2: STATUS – Continuation

Airport	*Current Services Introduced After February 24, 1995*	*Current Services Operated Before February 24, 1995*	*Pre-Agreement Services Suspended after February 24, 1995*	*New Services Subsequently Suspended*
Toronto/Pearson (continuation)	Dallas: Canadian Denver: Air Canada Ft. Lauderdale: Air Canada (C)*** Ft. Myers: Air Canada (C)*** Harrisburg: Air Canada (R) Houston: Continental Kansas City: Air Canada Las Vegas: Air Canada (C) Miami: American Miami: Canadian Milwaukee: Air Canada Milwaukee: Midwest Express Minneapolis: Air Canada Minneapolis: Northwest Nashville: Air Canada New York/LaGuardia: Canadian New York/Newark: Continental Orlando: Air Canada (C)*** Orlando: Canadian Philadelphia: Air Canada Phoenix: Air Canada Pittsburgh: Air Canada Pittsburgh: US Airways Providence: Air Canada (R) Raleigh: Air Canada Raleigh: Canadian (R) Richmond: Air Canada (R) St. Louis: Air Canada St. Louis: Trans World Seattle: Air Canada Washington/Dulles: Air Canada Washington/National: Air Canada West Palm Beach: Air Canada (C)***	Honolulu: Canadian Houston: Air Canada Indianapolis: US Airways (R) Los Angeles: Air Canada Miami: Air Canada New York/LaGuardia: Air Canada New York/LaGuardia: American New York/Newark: Air Canada Philadelphia: US Airways San Francisco: Air Canada San Francisco: United Tampa: Air Canada		
Vancouver	Boston: Canadian Chicago: Canadian Dallas: American Dallas: Canadian Denver: United Detroit: Northwest*** Honolulu: Air Canada (C) Houston: Continental Kahului/Maui: Air Canada (C) Las Vegas: Alaska Las Vegas: Canadian Los Angeles: Air Canada Los Angeles: Alaska Los Angeles: United Minneapolis: Northwest New York/Kennedy: American Phoenix: Alaska Phoenix: America West Portland: Canadian (R) Reno: Reno Air Salt Lake City: Delta (R) San Diego: Canadian San Francisco: Air Canada San Francisco: Alaska San Francisco: United	Chicago: United Honolulu: Canadian Los Angeles: Canadian Portland: Air Canada (R) Portland: Alaska (R) Portland: Delta (R) San Francisco: Canadian Seattle: Air Canada (R) Seattle: Alaska Seattle: Canadian (R)	Bellingham: Alaska (R) Los Angeles: Delta San Francisco: Delta San Jose: American Seattle: United Spokane: Northwest	Atlanta: Delta** Cincinnati: Delta Denver: Air Canada Las Vegas: America West Miami: American New York/Newark: Continental Palm Springs: Canadian (C) Reno: Canadian (C) San Diego: Alaska
Victoria		Seattle: Alaska (R)	Port Angeles: Alaska (R)	
Whitehorse	Anchorage: Alaska (R)			
Winnipeg		Chicago: Air Canada Minneapolis: Northwest		Chicago: American Las Vegas: Canadian (C) Orlando: Air Canada (C) Palm Springs: Canadian (C)
Yarmouth			Boston: Air Canada (R)	

Notes: *- Indicates service beginning in April-May 1998
**- Indicates service ending in April 1998
***- Seasonal service
(R)- Denotes services operated by regional affiliates
(C)- Denotes charter services operated by Air Canada and Canadian Airlines before February 24, 1995

Source: Transport Canada, Air Policy.

ANNEX 8-3
STATUS OF INTERNATIONAL AIR SERVICES [1,4]
AS OF FEBRUARY 24, 1998

	Foreign points served by Canadian air carriers		*Canadian points served by foreign air carriers*	*Major charter services* [2]
	Air Canada	*Canadian Airlines*		
Atlantic	Delhi Frankfurt Glasgow London Manchester Paris Tel Aviv Zurich	London Rome	Aeroflot: Montreal Air France: Montreal, Toronto Alitalia: Toronto [3] British Airways: Toronto, Vancouver Czech Airlines: Montreal, Toronto El Al: Montreal, Toronto Iberia: Montreal Icelandair: Halifax KLM: Montreal, Toronto, Vancouver Lufthansa: Toronto, Vancouver Olympic: Montreal, Toronto Pakistan International: Toronto Royal Air Maroc: Montreal Swissair: Montreal	Amsterdam Frankfurt Glasgow London Manchester Paris
Pacific	Hong Kong Osaka Seoul	Auckland Bangkok Beijing Hong Kong Manila Nagoya Taipei Tokyo	Air China: Vancouver Air New Zealand: Vancouver Cathay Pacific: Toronto, Vancouver Japan Airlines: Vancouver Korean Air: Toronto, Vancouver Malaysia Airlines: Vancouver Mandarin: Vancouver Philippine Airlines: Vancouver Singapore Airlines: Vancouver	None
Southern	Antigua Barbados Bermuda Fort-de-France Kingston Montego Bay Nassau Pointe-a-Pitre Port-au-Prince Port of Spain St. Lucia	Buenos Aires Mexico City Monterrey Sao Paulo	BWIA: Toronto Cubana: Montreal, Toronto LACSA: Toronto Mexicana: Montreal, Toronto VASP: Toronto	Acapulco Cancun Ixtapa Montego Bay Nassau Puerto Plata Puerto Vallarta Punta Cana Santo Domingo Varadero
Other	Air Transat: Paris First Air: Kangerlussuaq		Air St-Pierre: Halifax, Montreal, St. John's, Sydney Greenlandair: Iqaluit [3]	

Notes: 1- Includes only "own-equipment" services and excludes code-shares.
2- Includes foreign destinations with more than 50,000 charter passengers in 1996.
3- Services provided only during the summer months.
4- Scheduled services include only those services for which there is a generally available published schedule. There are instances where international services are provided under a schedule that is not published such as Air Transat's service to Cuba.

Source: Transport Canada, Air Policy

MARINE

In 1997, some significant marine legislative changes were proposed and a number of important events related to infrastructure and services took place.

Canada's marine transportation sector includes a domestic fleet of operators providing domestic and transborder shipping services, as well as an international marine trade calling at major ports for import and export traffic overseas. The sector also includes a network of ferry services throughout the country and a host of cruise ship operators of varying sizes that offer services in different markets across Canada.

MAJOR EVENTS IN 1997

LEGISLATIVE AND REGULATORY FRAMEWORK

Canada Marine Act (Bill C-9)

In October 1997, Bill C-9, the *Canada Marine Act* (CMA) was introduced in the House of Commons. This legislation contains the same provisions as the earlier Bill C-44, which did not complete the parliamentary process prior to the dissolution of Parliament on April 27, 1997 for the federal election.

The main objective of the legislation is to implement the 1995 National Marine Policy, making it easier for ports and other marine services and facilities to operate according to business principles. The policy includes dissolution of the Canada Ports Corporation; creation of not-for-profit Canada Port Authorities; divestiture of regional and local ports; management of the St. Lawrence Seaway by user interests; commercialization of ferry services; and the modernization of marine pilotage.

The Bill was passed by the House of Commons on December 9, 1997 and referred to the Senate.

Amendments to the *Canada Shipping Act* (Bill S-4)

Bill S-4, an Act to amend the *Canada Shipping Act*, was introduced in the Senate in October 1997. The amendments were originally introduced in September 1996, but did not complete the parliamentary process prior to the dissolution of Parliament in April 1997. Bill S-4 will increase the amount of compensation available to private and public claimants for maritime claims in general, and for oil pollution damage in particular. The Bill was passed by the Senate on December 16, 1997. It was introduced in the House of Commons on February 11, 1998 and received second reading on February 23, 1998.

The *Canada Shipping Act* deals with the activities of foreign ships in Canadian waters. It covers issues such as ship registration; licensing of masters and crew; ship safety; wrecks; salvage and casualty investigations; light stations and other aids to navigation; port wardens; collisions and liability; delivery of goods; ship-source pollution; and compensation for pollution.

Convention on Limitation of Liability for Maritime Claims

In September 1997, Canada signed the Protocol to amend the 1976 Convention on Limitation of Liability for Maritime Claims, adopted in May 1996 under the auspices of the International Maritime Organization (IMO). Provisions of this Protocol are to be implemented through the amendments to the *Canada Shipping Act* proposed in Bill S-4. Canada's ratification of the Protocol is to take place once the Bill is passed.

Carriage of Hazardous and Noxious Substances by Sea (HNS Convention)

In September 1997, Canada also signed the new International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, adopted in May 1996 under the auspices of the IMO.

The new convention contains a shared liability system, with the first tier covered by shipowners and the second financed by cargo interests. It will provide compensation for damage, including contamination of the environment caused by hazardous and noxious substances, up to approximately $500 million. Canada will consult with interested parties prior to formal ratification of the convention.

Organization for Economic Co-operation and Development (OECD)

The OECD Maritime Transport Committee (MTC), as part of its regular initiative to eliminate protectionist and promotional measures in the maritime transport sector, has made progress with non-member countries toward an Understanding on Shipping Policy Principles with Dynamic Non-Member Economies (Argentina, Brazil, Chile, Hong Kong, Indonesia, Malaysia, Singapore, Chinese Taipei and Thailand). The dialogue with non-member countries was extended to China in November 1997 at a workshop devoted to shipping policy issues. With 29 member countries, the OECD committee is the primary forum for the discussion of shipping policy issues by developed market economy countries.

In the past two years, the committee has also addressed competition policy and law applicable to international liner shipping. Having observed that diverging competition rules can be detrimental to the modernization of this sector and, more generally, to the development of world trade, the committee is seeking practical solutions to promote the convergence of competition rules governing shipping.

In addition, the committee has assessed the competitive advantages obtained by operators of sub-standard ships. These advantages result from not observing applicable international rules on maritime safety and the protection of the marine environment. The committee is now considering what economic measures can be taken to address the problem of substandard shipping.

Finally, improving the transparency of support measures provided by member countries remains one of the committee's priorities. It has compiled an inventory of support measures granted to maritime and maritime-related services, including support provided to the research and development sector. In addition, the committee has gathered information on state-owned enterprises, second registers, manning regimes and rules for bareboat chartered vessels.

Canada/China Maritime Agreement

Following a request from the People’s Republic of China, Canada and China successfully negotiated a bilateral maritime agreement, signed in Vancouver in April 1997. The agreement deals with matters related to ships; access to ports and port facilities; port dues and other charges; taxation; settlement of financial

transactions and repatriations of income; maritime incident and accident investigations; security of international maritime transport; entry and stopover of crew members; primacy of national laws; and requests for information on government measures.

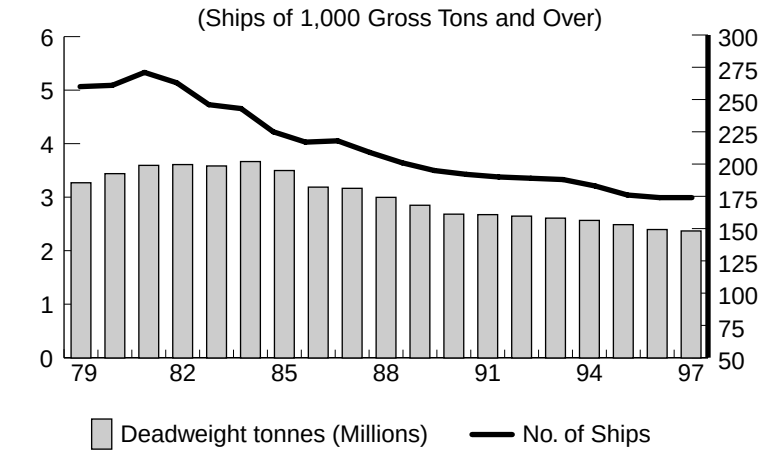
IMPORTANT INDUSTRY EVENTS

Changes to Industry Structure

1997 saw many important changes in the marine sector. Among the most notable events:

- The operations of the Saint John–Digby and Yarmouth–Bar Harbor ferry services were transferred from Marine Atlantic Inc. to Bay Ferries Ltd., a private-sector operator.
- Canadian Pacific Ltd. (CP Ships) purchased US-based Lykes Bros. Steamship Co. and UK-headquartered Contship Containerlines Ltd.
- MacMillan Bloedel divested itself of its shipping subsidiary Canadian Transport Co. Ltd. and its tug and barge operation, Kingcome Navigation.
- Socanav Inc., the Montreal-based shipping company that once ran a large fleet of oil tankers on the St. Lawrence River, formally declared bankruptcy early in 1997.
- Coastal Transport Ltd., a wholly owned subsidiary of Marine Atlantic, was sold to a private operator.
- The Government of Newfoundland took control of Labrador's coastal marine service for $347 million and was transferred two ferry vessels worth $25 million.
- The federal government transferred ownership of the Port of Churchill to OmniTRAX Inc.

FIGURE 9-1
CANADIAN REGISTERED FLEET
1979 – 1997



Note: Preliminary data for 1997.
Source: Canadian Transportation Agency and Transport Canada

New Services and Facilities

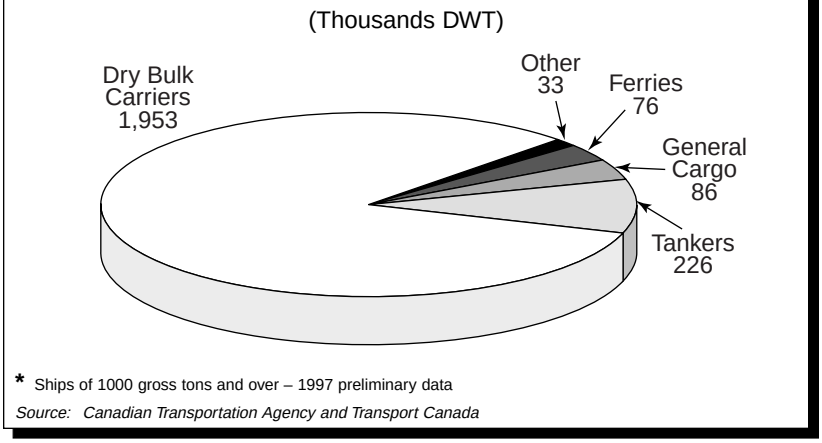
A number of important infrastructure or services-related events also took place in 1997, affecting Canada's marine transportation operations:

- The Confederation Bridge, linking Prince Edward Island with mainland Canada, opened on June 1, 1997, and resulted in the termination of Marine Atlantic's Borden, Prince Edward Island, to Cape Tormentine, New Brunswick ferry service.
- The Port of Vancouver opened Deltaport, a new state-of-the-art container facility.
- Three major international operators, Maersk Line, Sea-Land and P&O Nedlloyd Ltd., offered new liner service to the Port of Montreal.
- Marine Atlantic sold the Newfoundland Dockyard to local interests.
- Great Lakes cruising re-opened with the arrival of Hapag Lloyd's Columbus, the first large cruise ship on the Great Lakes in more than 20 years.

Likewise, improvements in marine services in 1997 came from the acquisition of equipment:

- Fednav Limited ordered four new deep-sea bulk carriers specially designed for navigation through the St. Lawrence Seaway. This follows an earlier order for six such vessels in 1994, the last of which was delivered in August 1997.
- Canada Maritime Ltd. and Orient Overseas Container Line (OOCL) have placed orders for three new container ships of over 2,600 Twenty-Foot Equivalent Units for their joint Montreal–Europe service.
- Irving took delivery of two new double hulled supertankers, the *Primrose* and the *Galloway.*
- The federal government purchased a new ferry to provide service to the Magdalen Islands. The *M.V. Madeleine* was in operation from July to November 1997.

FIGURE 9-2
CANADIAN REGISTERED FLEET* BY TYPE
1997



* Ships of 1000 gross tons and over – 1997 preliminary data

Source: Canadian Transportation Agency and Transport Canada

MARINE TRANSPORT SERVICES

Canadian flag vessels are active not only in domestic or coasting trades but also in the transborder trades between Canada and the US. In 1996, the Canadian-registered merchant fleet carried nearly 98 per cent of the coasting trade and about 55 per cent of Canada–US waterborne trade, but less than one per cent of Canadian overseas trade.

The preliminary data for 1997 in Figure 9-1 indicate that the Canadian registered merchant fleet consisted of 174 self-propelled vessels (more than 1,000 gross registered tons) with a total deadweight tonnage of 2.4 million tonnes. These figures represent a decrease of nine vessels or nearly four per cent in the number of vessels compared with early 1996, and a decrease of five per cent in deadweight tonnage. The dry bulk carriers form the backbone of this fleet, with 41 per cent of the vessels and 82 per cent of deadweight carrying capacity. The liquid bulk carriers ranked second with ten per cent of total carrying capacity (Figure 9-2). The average age of vessels in the Canadian merchant fleet in 1997 was 26 years.

The Canadian Transportation Agency estimated that the Canadian fleet of tugs and barges (100 gross tons and over) in 1997 included 253 tugs and 1,312 barges respectively, for a total of 1.5 million gross tons.

DOMESTIC AND TRANSBORDER SHIPPING SERVICES

Eastern Canada

In 1997, the Canadian Shipowners Association represented 11 companies operating in Eastern Canada, with a combined fleet of 89 vessels – one of which sails under foreign registry. A year earlier its membership consisted of 12 companies with a fleet of 101 vessels. Companies operating in the St. Lawrence River and Atlantic regions are represented by the St. Lawrence Ship Operators Association (21 active members in 1997), based in Quebec City. Four companies were members of both associations, while other companies, like the Irving Group, were not members of either.

The largest portion of the Canadian domestic fleet operates in the Great Lakes–St. Lawrence Seaway system. In 1997, the active dry bulk fleet included 34 straight-deck bulkers, 30 self-unloader bulkers, two cement carriers and five other bulk vessels.

From 1989 to 1997, the number of straight-deck bulkers decreased from 48 to 34 vessels or 29 per cent. This was a result of various factors, including ships being operated under another flag (flagged out), sold to foreign interests for scrap, and converted to self-unloaders. Algoma Central Marine and Upper Lakes Shipping controlled 25 of the straight-deck bulkers through a pooling agreement, and operated under the name Seaway Bulk Carriers. Straight-deck bulkers mainly carried grain downbound to St. Lawrence ports and iron ore as backhaul cargo for upbound destinations.

The fleet of self-unloader bulkers remained relatively stable between 1989 and 1997, with vessels that were flagged out or scrapped being balanced by new entries, primarily conversions from straight-deck bulkers. In 1997, Algoma Central Marine and Upper Lakes Shipping operated 19 self-unloaders through a pooling agreement ("Seaway Self-Unloaders"), while Canada Steamship Lines Inc. operated the remaining 11 vessels in the fleet. Self-unloaders serve a more diversified market than straight-deck bulkers, moving coal, iron ore, stone, salt, gypsum, and other cargos.

Other vessels operating in the Great Lakes–St. Lawrence region included two cement carriers, five multipurpose bulkers and five tankers, run by Transport Desgagnés, Canada Steamship

Lines and other companies. There were also extensive ferry services.

At the end of 1997, the Canadian fleet operating on the Atlantic Coast included 16 ferries, 20 multipurpose cargo vessels and 15 tankers.

Western Canada

There is a significant tug and barge fleet on the West Coast and an important fleet of ferry vessels. The Council of Marine Carriers represents tug and barge operations on the West Coast through British Columbia into Alaska, the Beaufort Sea and Hudson Bay, and on the Fraser and Mackenzie River systems. Collectively, its members operate 250 towing vessels and over 750 dumb barges. Most members operate in domestic trade, but some trade internationally between Canadian and US ports.

In late 1997, MacMillan Bloedel Ltd. announced the sale of its tug and barge division, Kingcome Navigation, to Montana businessman Dennis Washington. The sale includes two log ships, a self-propelled rail-car carrier, five tugs and two barges. Kingcome will continue to provide transportation services to MacMillan Bloedel under a long-term contract. Mr. Washington also owns Seaspan International Ltd., Canada's largest tug and barge operation.

Northern Canada

The Port of Churchill

In 1997, the federal government transferred ownership of the Port of Churchill to OmniTRAX Inc. This deal includes a federal investment of $28.05 million to upgrade its facilities. In recent years, the port has moved over 300,000 tonnes of commodities annually, mainly grain for export. In addition to grain, the port also plays an important role in the resupply of Northern communities in the Keewatin/Hudson Bay region of the Northwest Territories. Cargo, averaging about 30,000 tonnes per year, consist primarily of petroleum products, building materials, vehicles, equipment and other essential supplies.

Mackenzie River/Western Arctic

This water system is served by seasonal tug and barge services on the Mackenzie River and along the Arctic coastline from Alaska to the lower Arctic islands and Taloyoak. Cargos consist primarily of bulk fuel and community resupply goods.

Eastern Arctic

Each year an Eastern Arctic sealift takes place, co-ordinated by the Department of Fisheries and Oceans under the authority of the Treasury Board of Canada. In 1996, the communities served included coastal Labrador, Baffin Island, the middle and high Arctic, Foxe Basin, and Greenland. The Coast Guard contracted the services of three commercial shipowners and one tanker owner for the sealift. Five dry cargo ships and one tanker, with icebreaker support when necessary, delivered dry cargo, fuel, bulk petroleum, petroleum oil and lubricants. All ships were Canadian registered and staffed. Dry cargo supplies were delivered to twenty-three Arctic sites and communities, including the North Warning System sites. Bulk petroleum products were delivered to eight sites. The total shipment included 9,082 tonnes of dry cargo and 3,350 cubic metres of bulk petroleum products. While the dry cargo shipments were down from the 14,376 tonnes delivered in 1995, the movement of bulk petroleum was more than three times higher than the 1,052 cubic metres shipped in 1995.

FERRY SERVICES

Canada's ferry services vary widely in terms of ownership (from small private operators to provincial governments and federal Crown corporations), vessel types (small cable ferries to large cruise vessels and fast ferries), and operations (seasonal to year-round schedules). Terminal and docking facilities are variously owned, leased and operated by ferry companies, municipalities, provincial and federal governments or private companies.

Under the *Canada Shipping Act*, passenger vessels with a capacity of more than 12 passengers or over five gross tons must obtain a Certificate of Inspection to operate, and are submitted to regular Coast Guard inspections.

Federal Role with Respect to Ferries

In accordance with the National Marine Policy announced in December 1995, the federal government is looking at ways to reduce operating costs and increase efficiency through new vessel management and procurement practices, commercial operation of vessels, and the streamlining of ferry services. The federal objective is to focus on safety and security, constitutional obligations and isolated community services.

Effective April 1, 1997, federally supported ferry services in Atlantic Canada are limited to those provided by Marine Atlantic

OVERVIEW OF MAJOR FERRY SERVICES AND CHANGES

Marine Atlantic Inc. (MAI), a federal Crown corporation, operates the constitutionally guaranteed ferry link between North Sydney, Nova Scotia, and Port-aux-Basques, Newfoundland, and the seasonal alternative between North Sydney, Nova Scotia, and Argentia, Newfoundland.

Coastal Transport Ltd. operates the ferry service between Black's Harbour, New Brunswick, and North Head, Grand Manan, under contract with the Province of New Brunswick. Since October 1, 1995 it has also operated a ferry service between the islands of Grand Manan and White Head.

Northern Cruiser Ltd. (NCL) operates a passenger/vehicle ferry service between Blanc Sablon, Quebec, and St. Barbe, Newfoundland, from May to January, under contract with the Province of Newfoundland.

Northumberland Ferries Ltd. (NFL) provides seasonal ferry transportation (May 1 to December 20) between Caribou, Nova Scotia, and Wood Islands, Prince Edward Island, under contract with the federal government. The *MV Holiday Island*, a Marine Atlantic Inc. vessel, which became surplus upon the opening of the Confederation Bridge, began operating as part of this service in June 1997 to replace the aging *Prince Nova* and *Prince Edward*. Deployment of this vessel improves NFL's carrying capacity and efficiency.

Bay Ferries Limited was awarded a five-year contract with the federal government to provide yearly passenger and vehicle ferry service between Saint John, New Brunswick, and Digby, Nova Scotia, and seasonal service between Yarmouth, Nova Scotia, and Bar Harbor, Maine, effective April 1, 1997. A federal subsidy will be provided to Bay Ferries for the first three years of its five-year operating contract, after which it is expected that service will continue without further federal involvement.

Gestion C.T.M.A. enr. (C.T.M.A.) provides federally subsidized passenger/vehicle ferry service between Cap-aux-Meules, Magdalen Islands, Quebec, and Souris, Prince Edward Island, during the ice-free period from early April until late January. In July 1997, the federal government purchased the Irish vessel *MV Isle of Inishturk* (renamed under Canadian flag *MV Madeleine)*, to replace the aging *MV Lucy Maud Montgomery.* Use of this newly acquired vessel increased C.T.M.A.'s carrying capacity from 300 passengers and 90 auto-equivalent units (as provided by the *Lucy Maud Montgomery)* to 1,000 passengers and 250 auto-equivalent units, reducing the number of sailings required during the shoulder season. C.T.M.A. also provides a passenger and cargo ferry service from Cap-aux-Meules to Montreal from April to December, and from Cap-aux-Meules to Matane during the winter, under contract with the Province of Quebec.

In 1997, the Province of Newfoundland reached an agreement with the federal government to assume responsibility for ferry services to and along the coast of Labrador. **Newfoundland and Labrador's Department of Works, Services and Transportation** now provides all of the intra-provincial and coastal ferry services.

Quebec's transportation ministry subsidizes **la Société des traversiers du Québec (STQ),** which operates a total of eight ferry routes on the St. Lawrence River, five of which operate year-round. Private organizations manage three of the eight ferry routes on behalf of STQ. **La Traverse Rivière-du-Loup/Saint-Siméon Ltée** also operates a one-vessel passenger-and-vehicle service on the St. Lawrence River.

The **Quebec Ministry of Transportation** subsidizes three regular passenger and freight lines, four private ferry operations, and a water taxi. It also owns three small ships that are operated by local groups. In addition, the Ministry is responsible for the adjudication of contracts for transporting supplies to native communities in Northern Quebec.

The **Ontario Ministry of Transportation** owns and operates four ferry services and supports six municipal ferry services. Negotiations are currently under way to have the government transfer ferries that meet primarily local traffic needs or that link local roads, where a suitable municipal recipient exists. Transition plans are under way and the transfer of full authority to the municipalities will take effect following approval of the enabling legislation, some time in 1998. Ferries that will no longer receive provincial funding include the two serving Howe Island, and those that serve Amherst, Wolfe, Simcoe, MacKenzie, Pelee and Toronto islands. The province will retain responsibility for the Glenora ferry, which is a link for a provincial highway, and the Abitibi ferry, which serves a sparsely populated area.

The **Owen Sound Transportation Company (OSTC)** provides transportation services on Lake Huron between Tobermory and South Baymouth on Manitoulin Island, from early May until mid-October. OSTC also manages transportation services on Lake Erie between Leamington/Kingsville and Pelee Island, Ontario, and Sandusky, Ohio, from April through December, on behalf of the Ontario Ministry of Transportation.

The **Manitoba Department of Highways and Transportation** operates seven passenger and vehicle ferries, three motor vessels and four cable ferries.

The British Columbia government receives a federal grant for the provision of ferry services in coastal waters. **British Columbia Ferry Corporation (BC Ferries),** a provincial Crown corporation, is the largest ferry operation in North America, with a fleet of 40 vessels. The system includes 43 marine terminals plus seven other sites, and encompasses 26 routes. The corporation has an extensive capital program under way. A new 100-car, open-deck ferry was launched in 1997 and three new high-speed catamarans are currently under construction, with the first expected to be delivered during the summer of 1998. In addition, a new terminal is being built at Duke Point, while several others are being upgraded.

The **Ministry of Transportation and Highways** is responsible for 17 freshwater ferry routes in British Columbia. In 1996, the Adams Lake ferry service was converted from a tug and barge operation to a cable ferry. This permitted an extension in the hours of service and a reduction in operating costs.

Inc., a federal Crown corporation, and to three private-sector operators – Northumberland Ferries Limited, Bay Ferries Limited, and C.T.M.A. Traversier ltée. Federal assistance for ferry services in Western Canada in the form of a grant will continue to be provided to the Province of British Columbia.

International Marine Services

Historically, Canadian flag vessels have carried less than one per cent of international marine traffic other than in transborder trade with the United States. Thus Canadian shippers rely on foreign-based carriers for most international marine movements.

Bulk Shipping

Bulk commodities figure prominently in Canada's international trade, particularly for exports. Most bulk shippers charter vessels as needed to meet their shipping requirements. Either the buyer or seller of the commodity may be responsible for making the transportation arrangements, depending on the terms of sale. The charter rates for bulk carriers are set in the open market, which is global and intensely competitive.

The "spot" or "tramp" market is made up of short-term contracts covering a certain number of voyages or days, or a given quantity of cargo. Spot prices are set in open markets and exchanges, and depend on supply-and-demand factors that include vessel size, equipment, trade route and timeliness of the service requirements.

Time charters can cover longer periods (e.g., five years), enabling shippers to secure regular and predictable transportation rates during the period of the contract. Vessels are sometimes even built to the specific requirements of a given shipper in connection with a pre-arranged long-term charter. However, contracts covering only one year are common when prices are volatile. Details of the arrangements are usually strictly confidential.

International Liner Shipping

Liner services are offered according to published schedules and on specific trade routes with fixed itineraries. Liner carriers generally handle containerized and/or break-bulk cargos, such as electronic equipment, frozen foods or manufactured goods, which are traditionally of higher value. Break-bulk refers to cargo that is bagged, palletized or otherwise packaged and does not move in a container. Forest products and automobiles both fall into this category. The lines that carry containers, break-bulk and general cargo are the "common carriers" in international marine transportation.

The international liner trade is dominated by large fleets of specialized container ships operating on major routes. A large proportion of the world fleet is controlled by Pacific Rim and Western European interests.

Ocean carriers providing liner services on a common trade route often elect to form a conference and collectively agree on rates and/or conditions of service. Conferences have been in existence on major routes for well over a century and are shielded from the competition laws in Canada by the *Shipping Conferences Exemption Act, 1987.*

Shipping lines that do not operate within the confines of a shipping conference are referred to as "independents" or "non-conference operators". These carriers also provide liner services but are not required to file a tariff with the Canadian Transportation Agency. While nearly all of the tonnage moved by conference carriers is containerized, that of independent lines includes a larger share of general/break-bulk cargos. The ranks of the independent liner operators today include many large, well-established firms such as Evergreen Lines and China Ocean Shipping Company that can match conference operators in terms of vessel size, operating frequency and extensive route networks.

Lines that are conference members on one route are not necessarily conference members on all of the routes or points served. Also, where a conference agreement applies only to Canadian cargo, shipping lines that solicit cargo from US-based shippers (such as North Atlantic operators calling at Montreal) could carry non-conference cargo on the same vessels that operate in the conference service.

Services Available to Canadian Shippers

Nineteen tariff-filing shipping conferences, shown in Table 9-1, served Canada in mid-1997, down from 20 in 1996. The Asia North America Eastbound Rate Agreement, one of the major conferences on the Canada–Far East trade circuit, was dissolved effective November 1, 1996. Of the 19 conferences, five covered services to and from both Canadian coasts, 12 to and from the East Coast only, and two to and from the West Coast only.

TABLE 9-1
SHIPPING CONFERENCES SERVING CANADA IN 1997

American West African Freight Conference (E)
Australia/Canada Container Line Association (E & W)
Canada/Australia-New Zealand Association of Carriers (E & W)
Canada Caribbean Shipowners Association (E)
Canada – United Kingdom Freight Conference (E)
Canada Westbound Rate Agreement (E & W)
Canadian Common Tariff Conference (E)
Canadian Continental Eastbound Freight Conference (E)
Canadian North Atlantic Westbound Freight Conference (E)
Continental Canadian Westbound Freight Conference (E)
Eastern Canada/Caribbean Rate Association (E)
Eastern Canada – South America Rate Agreement (E)
Japan – East Canada Freight Conference (E)
Japan – West Canada Freight Conference (W)
Mediterranean Canadian Freight Conference (E)
Mediterranean North Pacific Coast Freight Conference (W)
New Zealand/Canada Container Line Association (E & W)
The "8900 Lines" Rate Agreement (E)
West Coast/Middle East Canada Rate Agreement (E & W)

E = East Coast: W = West Coast.
Source: Canadian Transportation Agency

1997 Developments in Liner Shipping

A new liner service partnership involving Maersk Line, Sea-Land Service Inc. and P&O Nedlloyd Ltd. began operations between the Port of Montreal and Northern European ports in 1997. With this increased competition at the Port of Montreal, the Competition Bureau requested a stay of proceedings from the Competition Tribunal on the 1995 acquisition of Cast North America Inc. by Canadian Pacific Ltd. (CP Containers Ltd.). The Competition Bureau determined that the merger either prevented or lessened, or would likely result in preventing or lessening of competition in the liner trade between the Port of Montreal and Northern Europe, and asked the Competition Tribunal to review and overturn the acquisition. The Bureau has until March 31, 1998, to ask the Tribunal to restart the proceedings, otherwise the case will be closed.

During 1997, Canadian Pacific Ltd. (CP Ships), in separate transactions, purchased both the US-based Lykes Bros. Steamship Co., which was operating under bankruptcy protection, and Contship Containerlines Ltd., headquartered in Ipswich, England. Lykes Bros. gives CP Ships additional routings, connecting ports in the US, Mexico, Northern Europe, the Mediterranean and Africa. Contship extends the trade lanes covered by CP Ships to include South America, Australia and India. These two acquisitions, along with the earlier acquisition of Cast North America, strengthens CP Ships' position as one of the world's major container liner operators.

In 1997, Deltaport, the Port of Vancouver's new multi-million dollar state-of-the-art container facility, began operations, doubling the port's container capacity. The facility can handle the largest container vessels currently in service and is capable of transferring containers to double-stack rail cars for immediate dispatch to Central Canada and the US Midwest. With the opening of Deltaport, some shipping companies are bringing larger vessels and increasing their sailing schedules to the port.

CRUISE SHIP INDUSTRY

For the first time in over two decades a luxury cruise ship sailed the Great Lakes. The 420-passenger *M/S Columbus* was custom-designed for cruising in the Great Lakes by its owner Hapag Lloyd.

Foreign-based companies provide the vast majority of extended cruise operations calling at ports on both Canada's East and West coasts. There are two basic categories of extended cruises – the "luxury cruise" and the "pocket cruise", distinguished by vessel capacity of more or less than 150 passengers.

The Port of Vancouver is the home port for most of the luxury cruise ships offering Alaska cruises, serving as the principal point of passenger embarkation and disembarkation. Alaska is the third largest cruise market in the world, after the Caribbean and Europe. Vancouver has benefited from the provisions of the *US Passenger Vessel Act*, which prohibit foreign-flag vessels from carrying passengers between US ports (i.e., embarking passengers at one US port and disembarking them at another). Vancouver is also an en-route stop on various other cruises, such as round-trip Alaskan cruises out of San Francisco and Los Angeles. The Vancouver cruise market is also linked with cruise operations in Victoria and other B.C. ports.

In Eastern Canada, the New Atlantic Frontier Cruise Association, a coalition of Atlantic seaboard ports including Halifax, New York, Boston, Portland, Montreal, Quebec City and St-Pierre, is working to attract major cruise ship lines to the region. Luxury cruise ships regularly travel along the Eastern Seaboard and up the St. Lawrence to Montreal. They also sail out of New York northward to Halifax and Saint John. Pocket cruises travel the St. Lawrence between Montreal or Quebec City and Kingston or Rochester, or along the Erie Canal and Hudson River to Warren, New York.

The cruise industry is heavily dependent on efficient airlines and motor coach connections. It generates pre- and post-cruise travel on rail and motor coach tours.

There are also a multitude of lock, harbour and river cruises, as well as excursions such as those for whale-watching – all offered by local operators on Canadian vessels. Whale-watching cruises continued to be very popular among European clients.

TABLE 9-2
CANADA'S MARINE TRAFFIC FLOWS, BY SECTOR
1986 – 1996

(Millions of tonnes)

	Domestic	*Transborder*	*Overseas*	*Total*
1986	60.5	68.2	138.4	267.1
1987	67.6	73.2	153.8	294.6
1988	70.0	83.8	166.2	320.0
1989	62.0	82.7	156.7	301.4
1990	60.4	76.2	156.1	292.7
1991	57.9	67.0	167.2	292.1
1992	52.3	67.9	155.3	275.5
1993	50.4	69.9	154.2	274.5
1994	52.2	78.8	168.1	299.1
1995	50.4	85.2	174.6	310.2
1996	48.8	88.5	174.5	311.8

Source: Statistics Canada, Cat. 54-205

TABLE 9-3
MARINE DOMESTIC FLOWS, BY CANADIAN REGION
1996

(Thousands of tonnes)

Region of Origin (Loadings)	*Region of Destination (Unloadings)*				
	Atlantic	*St. Lawrence*	*Great Lakes*	*Pacific*	*All Regions*
Atlantic	3,711	1,310	265	0	5,286
St. Lawrence	1,232	6,574	5,963	0	13,769
Great Lakes	320	6,187	8,818	0	15,325
Pacific	0	0	0	14,450	14,450
All Regions	5,262	14,071	15,046	14,450	48,829

Source: Statistics Canada, Cat. 54-205.

MARINE TRANSPORT SERVICES TRAFFIC

Canadian maritime trade traffic has three main components – domestic, transborder trade with the US and international (overseas). In 1996, these movements amounted to 308.9 million tonnes. Domestic trade accounted for 48.8 million tonnes, while transborder trade between Canada and the US totaled 88.5 million tonnes. Domestic trade represented a decline from the 50.4 million tonnes moved in 1995, while transborder traffic continued its upward trend. Overseas trade reached 171.6 million tonnes. Table 9-2 illustrates Canada's marine traffic flows by sector.

DOMESTIC TRAFFIC

Freight

Domestic cargo shipped from one Canadian port to another is handled twice by the port system – loading and unloading. In 1996, Canadian ports handled domestic cargo amounting to 97.7 million tonnes, a three per cent decrease compared with 1995. In fact, domestic cargo has been decreasing since its peak in 1988, when ports handled 139.9 million tonnes. This decline has come partly from a change in the direction of Canada's international trade. In the 1980s, many commodities, such as grain, were carried as domestic cargo via the St. Lawrence Seaway system and then transferred at Canada's eastern ports for shipment overseas. Currently, however, these commodities are being carried increasingly by rail to Canada's western ports for shipment overseas. Table 9-3 shows domestic marine traffic flow by region.

TABLE 9-4
CANADA'S INTERNATIONAL TRADE
- MARINE TRANSPORTATION
1996

($million Canadian)

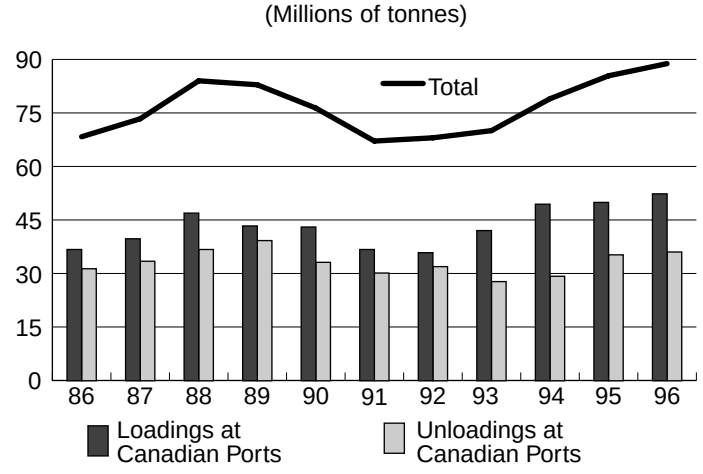
	Marine	*All Modes*	*Marine Share*
Transborder			
Exports	6,999	223,479	3.1
Imports	2,411	157,494	1.5
Total US	9,410	380,973	2.5
Overseas			
Exports*	37,411	50,305	74.4
Imports	36,136	75,620	47.8
Total Overseas	73,547	125,925	58.4

* Overseas exports include domestic exports only; re-exports are excluded

Note: For exports, mode of transport means the mode by which the international boundary is crossed. For imports, the mode of transport represents the last mode by which the cargo was transported to the port of clearance in Canada; this may not be the mode of transport by which the cargo arrived at the Canadian port of entry in the case of inland clearance. This led to some underestimation of Canadian imports by the marine and air transport modes.

Source: Statistics Canada, Cat. 65-202, 203, Transport Canada

FIGURE 9-3
CANADA'S MARITIME TRADE WITH THE US
1986 – 1996



Source: Transport Canada; Statistics Canada, Cat. 54-205

The bulk of domestic traffic is concentrated in the St. Lawrence–Great Lakes area. Its ports handled 58.2 million tonnes (loadings and unloadings) in 1996, the equivalent of 59.6 per cent of the total domestic tonnes. The Pacific region ranked second, handling 28.9 million domestic tonnes, a 30 per cent share of the total.

The main commodities handled, include: iron ore (14.1 million tonnes in 1996, a two per cent increase over 1995); pulpwood and chips (13.4 million tonnes, down eight per cent from 1995); fuel oil and gasoline (13.1 million tonnes, down 14 per cent from 1995); wheat (9.7 million tonnes, down 14 per cent from 1995); and stone/limestone (9.3 million tonnes, up 23 per cent from 1995).

Preliminary data for domestic tonnes handled over the first three quarters of 1997 indicate a two per cent decrease over the same period in 1996, (respectively, 67.1 million tonnes and 68.4 million tonnes).

Ferry Passengers

Because 1997 figures were not available for all ferry service operators, 1996 figures were used. British Columbia Ferry Corporation, by far the largest operator in Canada, carried approximately 22.2 million passengers and 8.1 million vehicles. British Columbia's Ministry of Transportation and Highways carried 5.2 million passengers and 2.9 million vehicles. Société des traversiers du Québec carried 5.3 million passengers and 1.8 million vehicles, while Marine Atlantic carried about 2.7 million passengers and 1.3 million vehicles in 1996. The remaining Canadian Ferry Operators Association members accounted for 4.3 million passengers and 1.9 million vehicles crossings.

INTERNATIONAL TRAFFIC

In 1996, international cargo movements totaled 260.1 million tonnes, a less than one per cent increase compared with 1995. Of total international tonnes handled in Canadian ports, 67 per cent are export-oriented (including intransit and re-export traffic).

According to international trade data, the value of the Canadian international marine trade in 1996 was approximately $83 billion (excluding shipments via US ports), with exports valued at

$44 billion and imports at nearly $39 billion. Canada's main deep-sea trading partners – Japan, China, South Korea, the United Kingdom and other Western European nations – together represent over 60 per cent of total Canadian international marine trade in 1996.

Table 9-4 shows the value of Canada's international marine trade in 1996.

Transborder Traffic

Canada's marine trade with the US experienced a steady growth of 32 per cent from 1991 to 1996, fueled by both exports and imports. In 1996, transborder trade reached a peak of 88.5 million tonnes, a four per cent increase compared to 1995.

Preliminary data for the first three quarters of 1997 indicate that this rising trend is continuing, with transborder tonnage increasing by seven per cent to 65.6 million tonnes from 61.5 over the same period in 1996. Exports (loadings to US destinations) lead this trend with a ten per cent increase to 40.6 million tonnes from 36.8 million tonnes.

Marine trade with the US was valued at $9.4 billion in 1996, driven by exports of $7 billion. This value, however, represented only three per cent of total Canada–US trade. The bulk of the trade was handled by surface transport modes, such as trucking with 68 per cent of the total, and rail with 17 per cent.

Exports

In 1996, loadings to the US jumped to 52.4 million tonnes, a five per cent increase compared with 1995. Dry and liquid bulk commodities were the main products loaded for US destinations. They included petroleum products (fuel oil, gasoline and crude petroleum, totaling 13.0 million tonnes); iron ore (11.3 million tonnes); gypsum (5.5 million tonnes); stone/limestone (4.6 million tonnes); and salt and cement (3.5 and 3.2 million tonnes, respectively). Figure 9-3 shows Canada's maritime trade with the US from 1986 to 1996.

There were two main flow corridors in 1996: the "Canadian Atlantic to the US Atlantic" route with 19.5 million tonnes or 37 per cent of total loadings to the US, and the "Canadian Great Lakes to US Great Lakes" route, with 10.5 million tonnes. Table 9-5 details traffic flows from Canada to the US in 1996.

TABLE 9-5
CANADA'S MARINE TRAFFIC TO THE US
1996

(Millions of tonnes)

Canadian Region of Origin	*US Region of Destination*			*Total*
	US Atlantic	*US Great Lakes*	*US Pacific*	
Atlantic	19.7	-	0.1	19.8
St. Lawrence	6.7	6.8	-	13.5
Great Lakes	0.1	10.5	-	10.6
Pacific	1.2	-	7.4	8.6
Total	27.7	17.3	7.5	52.5

Source: Statistics Canada, Cat. 54-205; Transport Canada

TABLE 9-6
CANADA'S MARINE TRAFFIC FROM THE US
1996

(Millions of tonnes)

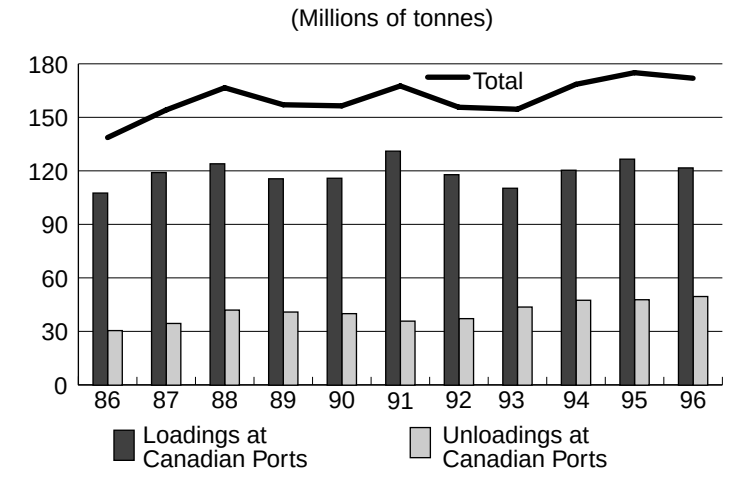
Canadian Region of Destination	*US Region of Origin*			*Total*
	US Atlantic	US Great Lakes	US Pacific	
Atlantic	1.8	0.3	-	2.1
St. Lawrence	3.3	5.0	0.3	8.6
Great Lakes	0.2	21.8	-	22.0
Pacific	-	-	3.4	3.4
Total	5.2	27.2	3.7	36.1

Source: Statistics Canada, Cat. 54-205; Transport Canada

Imports

On the import side, unloadings from the US registered a slight increase of two per cent, from 35.3 million tonnes in 1995 to 36.1 million tonnes in 1996. Commodities unloaded at Canadian ports coming from US destinations included coal (11.6 million tonnes), iron ore (6.3 million tonnes), petroleum products (3.8 million tonnes), grain, including wheat, corn, and soybeans (3.5 million tonnes) and stone/limestone (3.5 million tonnes). Over 75 per cent of total marine imports came from the US Great Lakes area. Table 9-6 shows the traffic flow from the US to Canada in 1996.

FIGURE 9-4
CANADA'S MARITIME OVERSEAS TRADE
1986 – 1996



Source: Statistics Canada, Cat. 54-205, Transport Canada

TABLE 9-7
CANADA'S MARINE TRAFFIC TO OVERSEAS
1996

(Millions of tonnes)

Foreign Region of Destination	*Canadian Region of Origin*		*Total*
	Eastern ports	*Western ports*	
Asia & Oceania	5.6	56.9	62.5
Europe	29.3	7.9	37.2
South and Central America	5.0	7.4	12.4
Middle East and Africa	4.8	5.0	9.8
Total	44.7	77.2	121.9

Note: Table may not add up due to rounding.

Source: Statistics Canada, Cat. 54-205

Overseas Trade

In 1996, the total Canadian marine trade with overseas countries (excluding Canada–US trade) amounted to 171.6 million tonnes, down two per cent from the 1995 peak of 174.6 million tonnes. This trade has been strongly export-oriented with the loading share oscillating between 71 per cent and 79 per cent over the last 10 years. Around 60 per cent of total loadings to overseas countries were loaded at Canadian West Coast ports; however, over 90 per cent of overseas imports were unloaded at Canada's eastern ports.

Preliminary data for the first three quarters of 1997 shows an 11 per cent increase (from 124.1 to 138.4 million tonnes) in tonnes handled in the Canada/overseas marine trade over the same period in 1996. Both loadings and unloadings of overseas commodities at Canadian ports also registered a growth for the first three quarters in 1997. Loadings grew nine per cent (from 88.2 to 96.5 million tonnes) and unloadings by 17 per cent (from 35.9 to 41.9 million tonnes) over the same period.

In 1996, the Canadian marine trade with overseas countries (excluding Canada–US trade) was valued at approximately $74 billion (Canadian dollars), with exports estimated at $38 billion and imports at $36 billion. Marine transport was the dominant mode of transport for shipping overseas freight, followed by air. Figure 9-4 illustrates Canada's maritime trade with the overseas market from 1986 to 1996.

Exports

In 1996, Canadian marine loadings for overseas countries accounted for 121.9 million tonnes, down by four per cent compared with 126.6 million tonnes in 1995. Major commodities shipped overseas included coal (33.5 million tonnes), iron ore (18.5 million tonnes), wheat (16.3 million tonnes) and other grains (7.3 million tonnes). Other important shipments included forest products such as wood pulp (6.0 million tonnes); lumber (4.5 million tonnes); sulphur (5.1 million tonnes); and potash (5.0 million tonnes). Only eight per cent of this trade was containerized.

Over 60 per cent of Canadian loadings for overseas destinations came from the western ports in 1996, while the St. Lawrence–Great Lakes Canadian ports handled most of the eastern share. The direction of trade was highly polarized with the Western ports dominating the Asia and Oceania trade route, while the Eastern ports handled a high proportion of tonnage shipped on the European trade route. Table 9-7 shows Canada's marine traffic to overseas markets in 1996.

Imports

In 1996, marine unloadings at Canadian ports from overseas destinations reached 49.7 million tonnes, an almost four per cent increase over 1995 (47.9 million tonnes). Crude petroleum (25.4 million tonnes) dominated, accounting for 51 per cent of all tonnage unloaded from overseas countries. Other overseas commodities unloaded included alumina/bauxite (5.1 million tonnes); gasoline/fuel oil (2.4 million tonnes); iron and steel products (2.1 million tonnes); iron ore (1.5 million tonnes); and phosphate (1.1 million tonnes). Approximately 13.5 per cent of this trade was containerized.

Over 90 per cent of overseas shipments were unloaded at Canadian Eastern ports. The Canadian Atlantic ports handled 46 per cent (22.8 million tonnes) of total overseas unloadings and the St. Lawrence–Great Lakes ports took a 45 per cent share (22.5 million tonnes). The Europe and the Middle East-Africa regions were the principal origins of overseas cargo. Table 9-8 shows Canada's marine traffic from overseas markets in 1996.

TABLE 9-8
CANADA'S MARINE TRAFFIC FROM OVERSEAS
1996

(Millions of tonnes)

Foreign Region of Origin	*Canadian Region of Destination*		*Total*
	Eastern ports	*Western ports*	
Europe	21.5	0.2	21.7
Middle East and Africa	11.6	1.0	12.6
South and Central America	9.4	0.9	10.3
Asia & Oceania	2.8	2.3	5.1
Total	45.3	4.4	49.7

Source: Statistics Canada, Cat. 54-205

TABLE 9-9
CRUISE SHIP TRAFFIC AT MAJOR CANADIAN PORTS
1990 – 1997

(Passengers)

Year	*Vancouver*	*Montreal*	*Quebec City*	*Halifax*	*Saint John*
1990	388,323	30,869	34,783	24,423	1,748
1991	423,928	47,047	51,363	43,512	3,402
1992	449,239	34,872	41,141	30,112	5,500
1993	519,942	30,626	38,642	30,917	12,379
1994	591,409	33,920	36,401	37,717	23,629
1995	596,744	27,384	38,981	30,257	12,226
1996	701,547	19,078	21,464	36,584	8,543
1997	816,537	29,324	36,569	44,328	19,813

Source: Local Port Corporations

CRUISE SHIP TRAFFIC

The 1997 season marked the fifteenth consecutive year of growth for Alaska cruises, with a 17 per cent increase over 1996 traffic levels for the Port of Vancouver. The Vancouver–Alaska market now ranks as the third most popular cruise region in the world, behind the Caribbean and Europe. Table 9-9 summarizes cruise traffic for major Canadian ports.

The Canadian Passenger Vessel Association estimated traffic at over 6.5 million passenger trips in 1996 on the vessels of its members. To that figure must be added the 909 thousand passengers carried in 1996 by members of the Association des Croisières-Excursions du Québec and the estimated 1.8 million passengers of non-member companies of associations.

COMPETITION

DOMESTIC COMPETITION

In Canadian waters, the competition for transporting cargo and passengers can take place between Canadian ships, as delimited by the *Coasting Trade Act*. The legislation provides for the temporary importation of foreign and non-duty-paid Canadian flag vessels in domestic operations in specified circumstances and eliminates the uncertainties associated with the operation of cruise ships in Canadian waters.

Over the past 10 years, applications for entry to the coasting trade have numbered between 57 and 122 annually. In 1997, 106 applications were received for temporary coasting trade licences, down from 111 in 1996. Of these, 87 were approved, contingent upon there not being a suitable Canadian flag vessel available. Of licences approved, 21 were for tankers, 17 for barges, 12 for tugs, 14 for passenger ships

TABLE 9-10
CONFERENCE/NON-CONFERENCE SHARES OF CANADIAN LINER TRADE
1994 – 1996

(Tonnes)

	Conference			Non-conference		
	1994	1995	1996	1994	1995	1996
Exports	5,647,371	5,627,965	5,894,047	5,262,950	6,458,936	6,796,289
Imports	4,967,164	4,394,247	4,687,610	3,611,641	3,590,149	3,677,553
Total	10,614,535	10,022,212	10,581,657	8,874,591	10,049,085	10,473,842

Source: Statistics Canada. International Shipping Database; Transport Canada

TABLE 9-11
LINER TRAFFIC BY REGION
1996

Region	Liner Imports (tonnes)		Liner Exports (tonnes)	
	Conference	Non-conference	Conference	Non-conference
Europe	3,696,756	1,965,945	3,961,046	1,232,405
Middle East	0	47,666	3,053	349,441
Africa	0	150,640	0	112,750
Asia	990,854	729,901	1,880,198	3,410,219
Oceania	0	66,838	40,431	263,072
South America	0	270,321	6,451	284,162
Central America	0	83,083	2,868	414,120
North America	0	363,204	0	730,120
Total	4,687,610	3,677,553	5,894,047	6,796,289

Source: Statistics Canada International Shipping Database and Transport Canada.

*The **Coasting Trade Act** entered into force on December 1, 1992, replacing Part X (sections 590 to 595) of the **Canada Shipping Act**. The Act restricts the transportation of cargo and passengers, along with all commercial marine-related activities in Canadian waters, to Canadian ships. The Act also extends this restriction to the Canadian continental shelf for activities related to exploration and exploitation of non-living natural resources.*

*The **Shipping Conferences Exemption Act, 1987** exempts certain shipping conference practices from provisions of the **Competition Act** (Canada's anti-trust legislation) in recognition of the fact that liner conferences provide a measure of stability and reliability in shipping services to importers and exporters. The Exemption Act allows shipping conferences to set ocean freight rates and services collectively, but requires that the rates be published in a tariff filed with the Canadian Transportation Agency. To promote intra-conference competition and to provide shippers with additional pricing options, the SCEA incorporates provisions for independent action on rates and confidential service contracts.*

and 23 for various other types of vessels. US flag vessels accounted for over half of the temporary licences, with 46 out of the total 87. The second most common flag of carriage was the Bahamas with 10, followed by non-duty-paid Canadian flag vessels with eight.

Total domestic trade carried on vessels granted temporary entry to the coasting trade has historically been less than two per cent per year. In 1996, foreign flag vessels were recorded as carrying 2.2 per cent of total domestic trade, up from 1.87 per cent in 1995.

SHIPPING CONFERENCES EXEMPTION ACT, 1987

Competition in international marine transport services takes place between conference and non-conference carriers. But within conferences, the Independent Action provision within the *Shipping Conferences Exemption Act (SCEA)* permits competition between lines' members of a conference.

Shipping conference rates paid by shippers can be the object of a "service contract", a confidential agreement permitted by the *SCEA*. Service contracts, however, must be filed to comply with the Act.

In 1997, the Canadian Transportation Agency accepted filings for 181 service contracts from 10 shipping conferences. On the other hand, in 1996, the Agency had accepted filings for 140 service contracts from eight shipping conferences, down from the 175 contracts filed in 1995. The great majority of services contracts are conference-wide and remain in effect for one year.

Conference/Non-Conference Shares of Canadian Liner Trade

The market power of conferences has been declining in recent years. Independent operators offer strong competition on most routes served by conference carriers. Table 9-10 provides a breakdown by conference/non-conference market shares for the period 1994 – 1996.

The flow of containerized and other cargo across the Canada–US border has grown steadily in recent years. All cargo crossing the border moves at non-conference rates, even if carried by conference operators. Thus Canadian containerized cargos routed through US ports move at non-conference rates. Canadian ports such as Montreal and Halifax also handle substantial volumes of US origin or destination cargos. At least half of the container traffic through the Port of Montreal is estimated to be from the US.

The Statistics Canada data in Table 9-10 does not distinguish between US and Canadian cargos. The conference share of imports and exports is significantly overstated in this table, assuming that a substantial volume of the US traffic is carried on conference vessels. Also, if the Canadian liner traffic handled at US ports were added to the non-conference share, the conference proportion of total traffic would be further reduced.

Table 9-11 provides a breakdown by market areas served and gives a more accurate picture of conference/non-conference competition. The data indicate that conferences serving Canada have the largest market share on the routes to and from Europe. Once again, Statistics Canada data have been used and the US and Canadian traffic that is transshipped is not accounted for, thus inflating the conference traffic shares. Conference lines operating on the North Atlantic and calling at the Port of Montreal draw heavily on the US Midwest for their cargo base.

Conferences also have a significant market share of the trade to and from Asia, although not as large as the independent operators' share. On north–south routes, such as those to Africa, Oceania, and Central and South America, conference operators no longer call directly at Canadian ports, but instead move cargos through US ports. The lower volumes on these routes no longer justify the extra sailing time to Canadian ports.

TABLE 9-12
PRICE AND OUTPUT CHANGES IN MARINE TRANSPORT
1992 – 1995

(In per cent)

	1992	*1993*	*1994*	*1995*
Price Changes %				
Ferry	5.4	6.0	5.8	4.1
Marine domestic	7.1	0.6	1.0	3.1
Marine international	11.8	3.1	2.5	0.01
Output Changes %				
Ferry	(0.6)	(2.1)	4.9	(0.1)
Marine domestic	(13.4)	(14.1)	(7.6)	15.2
Marine international	(18.6)	16.7	7.3	11.7

Source: Transport Canada based on Statistics Canada files

PRICE AND OUTPUT

In recent years, government ferry operators' price increases averaged 5.3 per cent a year, whereas the volume of their activity, despite some fluctuations, remained constant. Their revenues grew by about six per cent over the period 1992 – 1995. (Table 9-12).

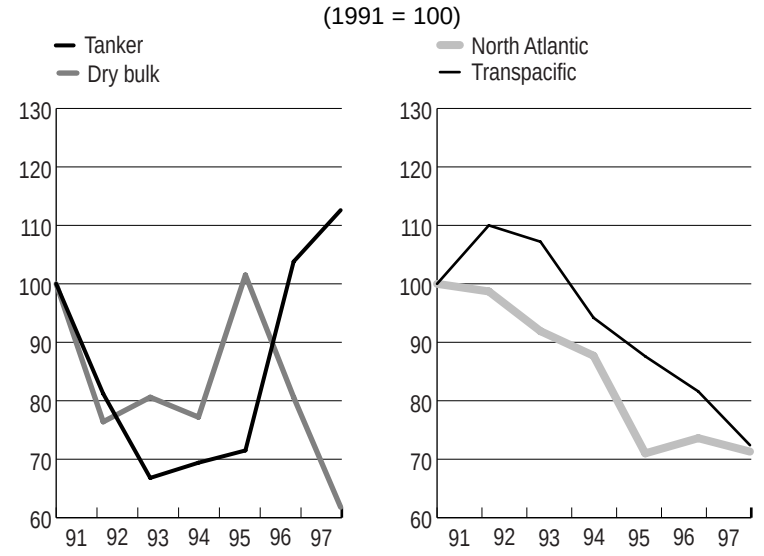
Between 1987 and 1994, the coastal activities of Canada's shipping industry were in decline. Output rebounded in 1995 by 15 per cent. The transborder and overseas activity of Canadian carriers, after dropping 19 per cent in 1992, has exhibited an upward trend since then. Much of the growth came from overseas activities.

The Canadian shipping industry is the only freight transport activity for which nominal price increases have been observed. Yet, the freight rate increases have averaged 1.7 per cent a year since 1992, less than the 2.7 per cent annual growth in the economy over the same period.

As previously indicated, most marine services used by Canadian shippers in world markets are provided by foreign shipping lines. Two broad types of services are provided: liner (mostly container services by conference carriers) and bulk services. Freight rates of dry bulk carriers had been volatile but showing a downward trend. In 1997, dry bulk carriers' rates were at 62 per cent of their 1991 level.

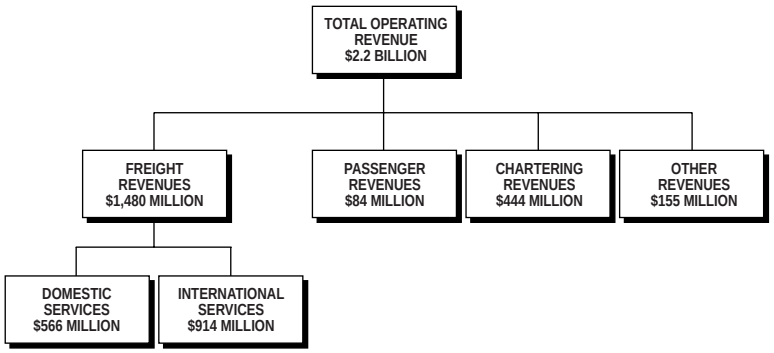
Tanker rates have been going up since 1993, although it was not until 1996 that they surpassed their

FIGURE 9-5
MARINE FREIGHT RATE INDICES
1991 – 1997



Source: Lloyds Shipping and Containerization International

FIGURE 9-6
CANADIAN-DOMICILED FOR-HIRE WATER CARRIERS
SOURCES OF OPERATING REVENUES
1995



Source: Statistics Canada Cat. 54-205; Transport Canada.

1991 levels. They continued to increase in 1997. In spite of strong demand, container shipping services are affected by rampant excess capacity and rates are faltering. After the first three quarters of 1997, rates on North Atlantic and Pacific routes, (based on average westbound and eastbound to/from the US), were around 30 per cent lower than 1991 rates (Figure 9-5).

FINANCIAL PERFORMANCE

Revenues and Expenses

The Canadian marine transport industry comprises carriers domiciled in Canada, including for-hire, private and government carriers. The for-hire sector, which accounts for about 75 per cent of total industry revenues, is selected for the financial performance analysis of the industry. It should be noted that CP Ships, because its vessels are registered in foreign countries and do not carry the Canadian flag, is excluded from the financial summary of the Canadian marine industry.

In 1995, Canadian-domiciled for-hire marine carriers reported total revenues of $2.2 billion, of which about 68 per cent was from freight, four per cent from passenger transportation, 21 per cent from chartering services, and seven per cent from other revenue sources, such as subsidies and services incidental to water transportation. Figure 9-6 shows the breakdown of operating revenues of Canada's for-hire marine carriers in 1995.

In terms of total freight revenues, about 38 per cent are from domestic services and 62 per cent from international shipping.

Total revenues of Canadian for-hire marine carriers increased significantly in 1995, by an average of 13.5 per cent. Revenue growth was relatively strong in domestic freight transportation (up by 19 per cent), international freight services (12 per cent) and chartering services (21 per cent). Coastal shipping on the Atlantic side showed a 38 per cent increase in revenues, while there were only modest increases on the Pacific Coast, averaging about 1.4 per cent. Inland water transportation revenues and international freight revenues increased by seven per cent and four per cent, respectively. Overall industry revenue growth dropped due to a 14 per cent decline in other revenues.

TABLE 9-13
PRODUCTIVITY AND UNIT COST CHANGES IN MARINE TRANSPORT *

	1992	*1993*	*1994*	*1995*
Cost Structure (In % of Op. Rev.)				
Labour	24.2	20.9	20.8	20.0
Fuel	9.3	8.8	8.8	9.3
Chartering Cost	20.1	23.9	26.3	26.9
Employees (in 000)	8.8	7.7	8.5	8.7
Avg. Labour Cost in $000	45.1	44.9	46.8	49.5
Productivity Change (in %)				
Labour	(10.0)	12.1	2.3	8.4
Total	(5.8)	1.6	0.9	2.8
Unit Cost Change (in %)				
Labour	8.4	(11.8)	1.8	(2.4)
Total	8.3	(0.5)	1.6	0.5

* revised data
Source: Transport Canada based on Statistics Canada files

TABLE 9-14
FINANCIAL HIGHLIGHTS OF THE MARINE INDUSTRY
(Canadian-domiciled for-hire marine carriers)

		$million	
	1993	1994	1995
Operating Revenues	1,658	1,905	2,275
Operating Expenses	1,580	1,815	2,194
Operating Income	78	90	117
Operating Ratio (%)	95.3	95.3	94.6
Operating Margin Ratio (%)	4.7	4.7	5.4
Net Property	706	712	745
Debt Ratio (%)	59.7	59.5	59.5

Source: Statistics Canada, Cat. 54-205

Cost Efficiency Indicators

Marine is the least labour intensive sector within transportation: its labour costs represented in 1995 about 20 per cent of its operating revenues.[1] The reason for this phenomenon is the trend toward using vessels chartered complete with their own crew and fuel. Such chartered activities account for 27 per cent of industry revenues.

From 1991 to 1995, labour productivity increased by 12 per cent. Some of these gains can be attributed to an increasing reliance on chartered vessels, which provided a substitute to internal labour. Unit labour costs have decreased by five per cent over the same period.

Fuel costs fell from 11 per cent of operating revenues in 1990 to nine per cent in 1995, due to some fuel efficiency gains. Among other operating costs, government fees represented an important cost category, with a share of seven per cent of operating revenues in 1995. Table 9-13 outlines the shipping industry cost indicators from 1992 to 1995.

From 1991 to 1995, the shipping industry recorded the weakest productivity performance of all transport modes, its 1995 productivity slightly below its 1991 level. In the same period, total productivity of the transport sector grew by 11 per cent. Unit costs climbed ten per cent in marine transport, while they declined by five per cent for all modes.

Profitability

Table 9-14 presents a summary of the financial performance of the for-hire marine transport sector from 1993 to 1995.

1 The relative importance of each factor input in the cost structure should be calculated in terms of total costs. But total costs include not only all operating costs, but also an allocation for the cost of capital. Measuring the cost of capital is a complex exercise and not all the information needed to measure it was available. Therefore total operating revenues were used in this report as a proxy for total costs under the assumption that net income is equivalent to the cost of capital.

The profitability of Canadian marine transport was modest in 1995, with an average operating margin 5.4 per cent of operating revenues, compared with 4.7 per cent in 1994. Strong revenue growth was somewhat offset by increases in operating expense.

Investments

Total net investment in the for-hire marine transportation industry has not changed much since 1993. This indicates that the industry's annual capital investments merely offset depreciation and retirements of old assets. A shift to chartering rather than owning vessels may explain the relatively lower levels of capital expenditures in the marine industry as compared with other modes.

Long-term debt has been the single largest source of financing for capital assets in the marine industry, representing, on average, 60 per cent of total capital. Other sources of funds include equity, deferred taxes and other liabilities. The equity share in total capital (18 per cent), is relatively low because marine transportation often represents one of many business segments in a diversified corporation or a conglomerate, in which case, divisional equity funds are represented by retained earnings or reinvested capital. Deferred income taxes is also one of the important sources of capital funds in the marine industry, representing about 22 per cent of total capital.

RAIL

The Canadian rail freight carriers reported increased traffic levels and improved profitability. In rail passenger services, the emphasis remained on cost reduction initiatives to face reduced subsidization.

Rail freight services in Canada are provided by two major Class I carriers, Canadian National Railways (CN) and Canadian Pacific Railway Company (CP). In addition to these, there are nominally some 54 smaller Class II and III railway companies. In practice, however, there are only about 46 railways, since some of these smaller ones are subsidiaries of CN, CP or other carriers and do not have separate and distinct operations. Class I railways are CN, CP and VIA Rail Canada Inc. (VIA). Class II railways include regional and shortline railways, while Class III railways include terminal railway operations.

Rail passenger services are offered by VIA, while more localized or tourist services are provided by several other carriers, including BC Rail, Rocky Mountaineer, Algoma Central, Ontario Northland, Amtrak, and the Quebec, North Shore & Labrador (QNSL) Railway.

MAJOR EVENTS IN 1997

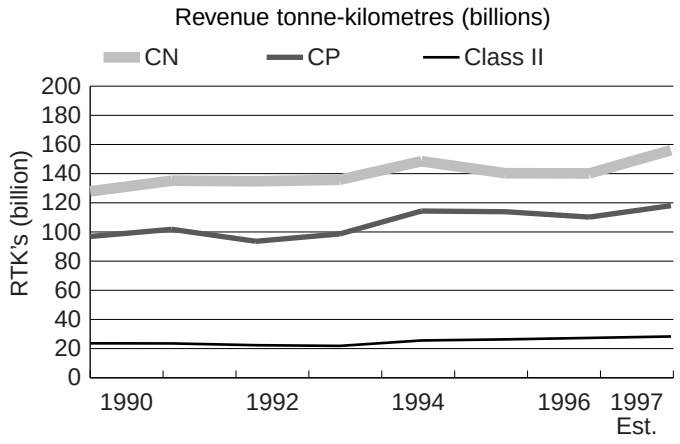
1997 was the strongest year in Canadian railway history. In aggregate, rail freight traffic levels increased by about seven per cent.

Severe weather conditions led to disruptions in rail transportation services to the West Coast in the early part of the year. These disruptions resulted in reduced traffic volumes of grain and coal (in particular during the first quarter) compared with previous years; however, volumes of these, and other commodities, rebounded quickly and by the year's end exceeded 1996 levels, in some cases significantly.

The disruptions to the grain handling system are currently under investigation by the Canadian Transportation Agency (CTA), and are not commented on here.

The year also saw a record number of lines transferred and new railways created, a response to the *Canada Transportation Act* of 1996,

FIGURE 10-1
RAIL REVENUE TONNE-KILOMETRES
1990 – 1997



Source: Statistics Canada; Transport Canada

TABLE 10-1
DESTINATION OF IMPORTS FROM THE US BY RAIL
1995

	Tonnes	*Per cent*
Nova Scotia	303,064	2.0
New Brunswick	226,286	1.5
Quebec	4,984,994	32.4
Ontario	6,040,936	39.2
Manitoba	482,303	3.1
Saskatchewan	716,374	4.6
Alberta	1,275,414	8.3
British Columbia	1,333,439	8.7
NWT	27,783	0.2
Total	**15,390,673**	**100.0**

Source: Statistics Canada; Transport Canada

TABLE 10-2
ORIGIN OF EXPORTS TO THE US BY RAIL
1995

	Tonnes	*Per cent*
Nova Scotia	582,053	1.1
New Brunswick	593,468	1.1
Quebec	10,856,332	20.7
Ontario	13,580,940	25.9
Manitoba	1,378,257	2.6
Saskatchewan	7,874,884	15.0
Alberta	9,622,884	18.4
British Columbia	7,957,418	15.2
Total	**52,446,547**	**100.0**

Source: Statistics Canada; Transport Canada

which provided a revised rail-line rationalization process, eased the entry of smaller, lower cost rail carriers into operation, and encouraged the growth of a Canadian shortline industry. For a detailed discussion of changes in the structure of the rail industry, see Chapter 5, "Infrastructure and Associated Services."

RAIL FREIGHT TRAFFIC AND SERVICES

In broad terms, rail traffic levels exhibited strong growth during 1997, with aggregate tonnage levels for the rail sector in general at historical highs. Overall traffic volumes (in tonnes) were more than seven per cent higher than in 1996 and about four per cent higher than in 1995. Many market segments showed significant gains.

In terms of aggregate revenue tonne-kilometre output, Canadian railways enjoyed their strongest year ever, exceeding previous record output levels set in 1994 by almost five per cent. CN and CP experienced increases in 1997 of 11.4 per cent and 7.1 per cent, respectively (estimated on the basis of three quarters of Canadian data and four quarters of system data), while Class II railways experienced an estimated increase of about 3.7 per cent. The combined result is an estimated gain of about 8.7 per cent across all Canadian railways.

CN accounted for about 51.6 per cent and CP for about 39.0 per cent of all railway output in Canada, while Class II and other railways accounted for the remaining 9.4 per cent. The much lower output in revenue tonne-kilometre terms by Class II railways compared with traffic volumes is largely due to the greater distances that traffic moved on the Class I carriers.

Figure 10-1 shows rail output in revenue tonne-kilometres from 1990 to 1997.

In tonnage terms, Class II carriers accounted for about 29 per cent of total tonnage handled by Canadian railways. The slight increases in traffic levels over previous years – 77 million tonnes in 1996 and 79 million tonnes in 1997 – were driven largely by increased volumes of iron ore being transported.

Virtually all iron ore transported in Canada is moved by Class II railways, the most prominent being two large regional carriers. While these railways represent an extreme, in that they move essentially only a single commodity, they illustrate the dominance of resource products in the traffic base of Class II carriers.

TRADE

In aggregate, rail traffic moving on the contiguous North American rail system (exclusive of the iron ore traffic in eastern Quebec) showed major changes over the previous year. From 1991 to 1995, north–south rail traffic increased at about seven per cent annually, with exports dominating imports by almost three to one. Data to confirm more recent trends is unavailable but, in light of the positive overall traffic growth evidenced in monthly traffic statistics, it is expected that the past trends of declining east–west traffic and increasing north–south traffic growth continued during 1997. Tables 10-1 and 10-2 illustrate the regional sources of north–south traffic.

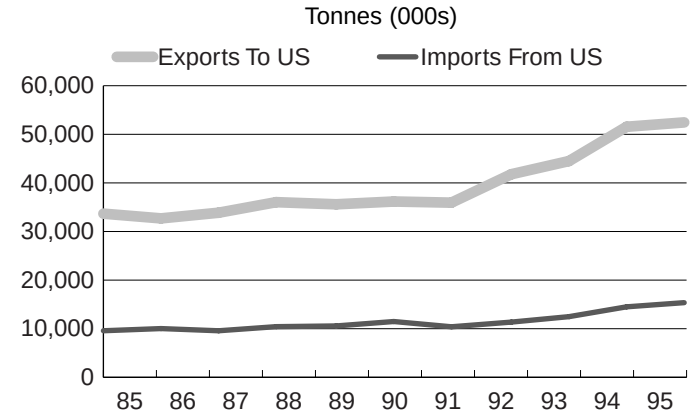
East–west rail tonnages for 1995 were about 200 million tonnes (a figure that is unlikely to have changed more than marginally since), while north–south tonnages were about 70 million tonnes, divided roughly as 52.4 million tonnes of exports to and 15.3 million tonnes of imports from the US.

A comparison of Canada–US trade for 1995 and 1985 reveals similar growth rates in both exports and imports. In 1995, rail exports to and imports from the US were about 22 and seven per cent of total rail tonnage; in 1985, exports to and imports from the US were 15 and five per cent.

Figure 10-2 highlights this pattern of growth in trade by rail with the US, particularly after 1990.

By volume, three commodity groupings – forest products, fertilizer materials and grain – comprise about 50 per cent of rail exports to the US. Intermodal traffic, automobiles and parts, petroleum products and construction materials account for another 15 per cent of exports. Imports are more diversified, with the largest source of rail traffic from the US, intermodal, at slightly less than 15 per cent by volume. Tables 10-3 and 10-4 show the relative volumes of exports to and imports from the US by commodity.

FIGURE 10-2
CANADA/US RAIL EXPORTS AND IMPORTS
1985 – 1995



Source: Statistics Canada, Cat. 52-216 for the period 1987 to 1995; Transport Canada

TABLE 10-3
RAIL EXPORTS TO THE US BY COMMODITY

	(In per cent)
Forest products	29.5
Fertilizer materials	13.4
Grains	5.8
Intermodal traffic	5.2
Transportation equipment	4.6
Refined petroleum products	3.6
Construction materials	3.8
Sub-total	**64.7**
Other commodities	**35.3**

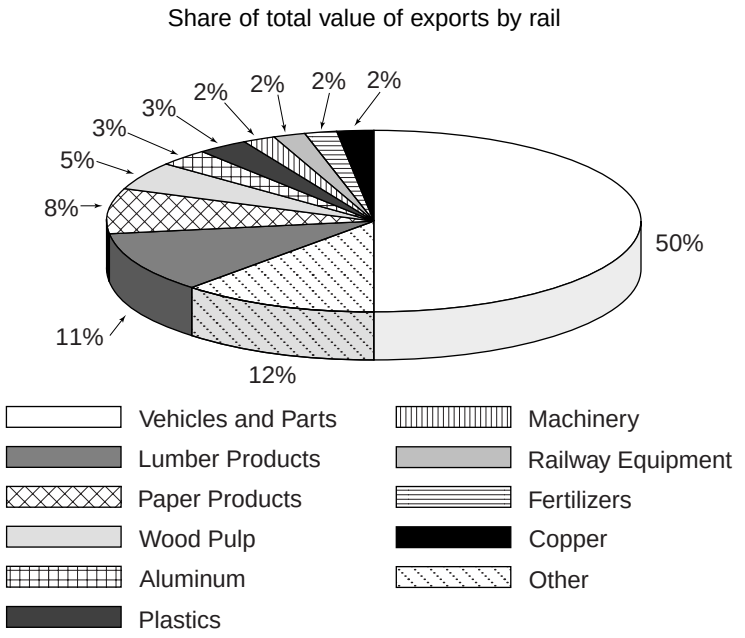
Source: Statistics Canada, Cat. 52-216; Transport Canada

TABLE 10-4
RAIL IMPORTS FROM THE US BY COMMODITY

	(In per cent)
Intermodal traffic	13.9
Transportation equipment	7.8
Construction materials	5.3
Forest products	3.8
Non-ferrous metals	3.7
Refined petroleum products	3.3
Grains	2.8
Sub-total	**40.8**
Other commodities	**59.2**

Source: Statistics Canada, Cat. 52-216; Transport Canada

FIGURE 10-3
VALUE OF PRINCIPAL COMMODITIES EXPORTED BY RAIL TO US AND MEXICO
1996



Source: Statistics Canada, Special Tabulation.

By value, rail exports to the US and Mexico in 1996 amounted to some $50 billion. Vehicles and parts accounted for about $25 billion (50 per cent) of this, while forest products generated about $12.5 billion (25 per cent). Figure 10-3 illustrates the commodities exported by rail to the US and Mexico. In light of the concentration of automobile and parts manufacturers in southern Ontario and Michigan, it is not surprising that the three major rail gateways in southern Ontario – Sarnia, Windsor and Fort Erie – accounted for almost 70 per cent of the value of all rail exports to the US. Intermodal traffic includes both containers and trailers transported on flat cars.

TRAFFIC SEGMENTS

Railway traffic can be categorized based on a variety of criteria, from commodity characteristics to market segments. For the purposes of this report, rail traffic has been grouped into three broad categories that reflect differences in transportation requirements, particularly operations and equipment: bulk, merchandise (including automotive) and intermodal. Bulk traffic includes coal, grain and grain products, and fertilizer materials, including sulphur. Merchandise traffic (i.e., industrial) includes forest products, petroleum products, chemicals, ores and metals, construction materials, and automobiles and parts. As noted earlier, intermodal traffic includes both containers and trailers transported on flat cars (i.e., Container-on-Flat-Car (COFC) and Trailer-on-Flat-Car (TOFC) traffic).

Demand for rail transportation services increased strongly across virtually all services and sectors during 1997. System congestion, associated with adverse winter weather conditions during 1996 – 1997, produced severe equipment shortages that, along with motive power failures, resulted in problems in moving traffic to the west coast.

Figure 10-4 illustrates the aggregate monthly traffic level from 1995 to 1997, and Figure 10-5 summarizes the change in traffic demand (i.e., volume) in each major traffic segment sector in 1996 and 1997 as compared with

the previous year. The following sections briefly discuss key traffic developments in the major segment sectors.

Coal

Some changes in demand patterns and loadings for coal occurred in 1997. At the beginning of the year, volumes were almost 30 per cent lower than those in 1996. Cumulative coal loadings in 1997 were more than four per cent ahead of the previous year's level. By the end of 1997, coal volume exceeded the previous year's volume of about 40.4 million tonnes by almost two million tonnes.

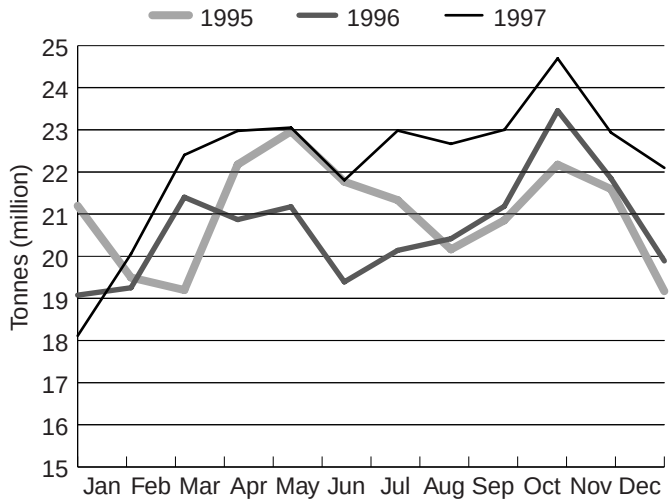
Aggregate coal tonnage moved by Canadian railways represented about 16 per cent of total railway volume for the year. Principal coal producers are located in Western Canada, with virtually all Canadian coal exports (33.4 million tonnes in 1996) moved by rail to export position through the ports of Vancouver and Prince Rupert. CN, CP and BC Rail are all involved in the transportation of coal. The balance of about 7.0 million tonnes (1996) was transported by rail, or in some cases a rail/laker combination, and used domestically for thermal generation of power in Ontario and Nova Scotia.

Fertilizer Materials and Sulphur

Fertilizers generally include potash, phosphate rock and blended fertilizer materials. Sulphur, produced largely as a by-product of sour gas and high-sulphur oil, is used principally in fertilizer production.

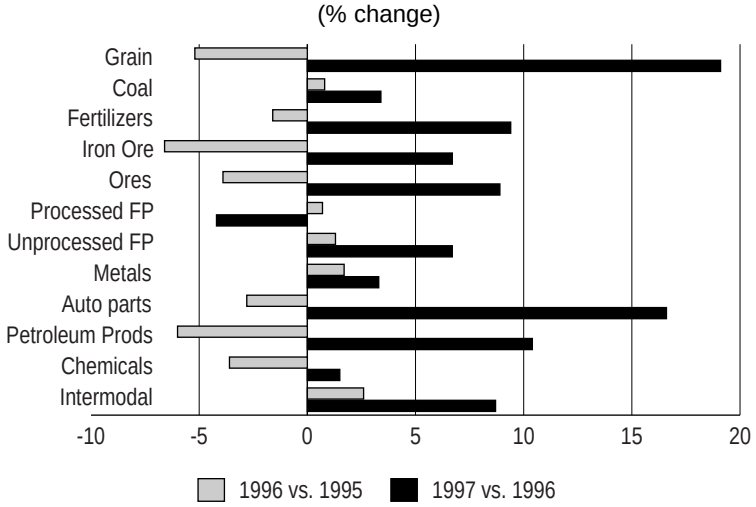
Potash in Canada is principally produced by a small number of high-volume mines in Saskatchewan, which accounted for 87 per cent of Canadian production in 1996. Much of this is transported by rail to export position, either directly to the US or to offshore markets via Vancouver. Smaller volumes produced in New Brunswick are moved to the Port of Saint John for export. Potash shipments through the Port of Saint John, which totaled 1.7 million tonnes in 1996, decreased to 1.2 million tonnes in 1997 as a result of a flooding problem at a major potash mine in the Sussex area.

FIGURE 10-4
TOTAL MONTHLY RAIL TRAFFIC
1995 – 1997



Source: Statistics Canada, Cat. 52-001, Monthly Railway Traffic Loadings.

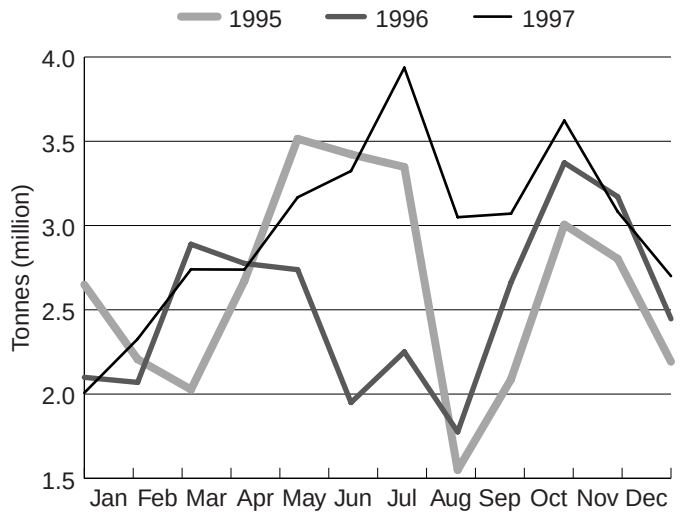
FIGURE 10-5
YEAR OVER YEAR CHANGE IN TRAFFIC VOLUME
1996 and 1997



FP = Food products

Source: Statistics Canada, Cat. 52-001, Monthly Railway Traffic Loadings

FIGURE 10-6
MONTHLY GRAIN TRAFFIC LOADINGS
1995 – 1997



Source: Statistics Canada, Cat. 52-001, Monthly Railway Traffic Loadings

Potash volumes tend to fluctuate annually, mainly because of its use in the agricultural sector and the varying demands of this sector for fertilizer materials. Demand for Canadian potash is influenced not only by end use but by the ability of other global suppliers to meet the demands of the agricultural sector. With a 40 per cent share of global markets, Canada is the largest potash exporter in the world. Volumes of potash transported by rail in 1997 are about 14.1 million tonnes.

Of particular concern to both the Port of Vancouver and Canadian railways is the completion of Canpotex's new potash terminal at Portland, Oregon, with a projected annual capacity of five million tonnes. Canpotex would no doubt be expected to use the facility to the extent necessary to rationalize the investment or to apply competitive pressure on Canadian railways and the Port of Vancouver. Since total potash tonnage moved through Vancouver for export was approximately 3.6 million tonnes in 1996, the potential exists for the loss of significant quantities, if not all, of the potash moving through the port. The impact on rail traffic of such a diversion could be equally serious. The long haul business could go to US carriers and the short haul could conceivably be limited to the distance between Saskatchewan mine sites and the US border.

Sulphur production and shipments tend to be highly sensitive to world prices. Rail volumes totaled about 7.3 million tonnes in 1997, with significant export quantities produced in Western Canada, principally from sour gas processing and the refining of high-sulphur crude and heavy oils. With 22 per cent of world production, Canada was the second largest exporter of sulphur in the world in 1996, after the US.

Another fertilizer material moved by rail, phosphate rock, is imported via Vancouver. Volumes, however, are much lower than for potash, at about one million tonnes in 1997.

The total volume of fertilizer materials, including sulphur, shipped by rail was significantly ahead – about 11 per cent – of the previous year's total.

Grain

Aggregate rail volumes of grain for 1997 were 35.8 million tonnes, 13.5 per cent of total rail tonnage, compared with less than 12 per cent in 1996. Grain volumes were about four per cent below 1996 levels at the beginning of the year, but rebounded strongly by the end of the year to levels over 18 per cent higher than those in 1996.

While volumes in January 1996 were almost 20 per cent lower than in January 1995, the year ended with aggregate loadings only four per cent below 1995 levels. Loadings in 1997 exceeded loadings in both previous years by significant margins, even though they were considerably below previous levels at the beginning of the year. Total grain volumes at year-end are estimated to be 20 per cent ahead of 1996 year-end totals and ten per cent ahead of 1995 year-end totals. Figure 10-6 illustrates the volatility of monthly grain loading volumes from 1995 to 1997.

Ores and Mine Products

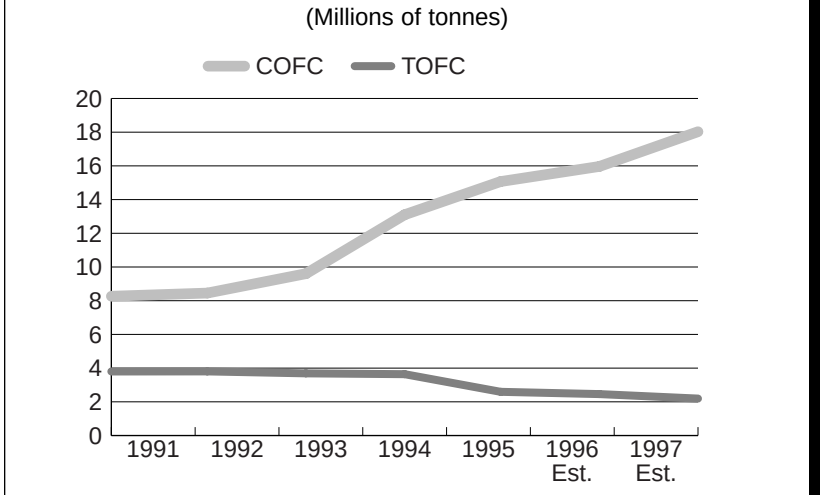
This segment is dominated by the shipment of iron ore, which represents about 65 per cent of all ores and mine products transported by rail in Canada and about 55 per cent of total Class II rail traffic.

Virtually all iron ore transported by rail in Canada (96 per cent in 1996) was transported by the Cartier and QNSL railways (in addition to several smaller railways associated with QSNL) from the Labrador Trough region of Quebec and Newfoundland. With the

announcement by Algoma Steel that its Algoma Ore Division's Wawa operation will cease production, virtually all iron ore in the future will continue to be transported by these two railways and their affiliates.

The Cartier and QNSL railways moved approximately 36 million tonnes of iron ore in 1997; that is over 50 per cent of all Class II traffic in Canada, and about 14 per cent of total rail tonnage. Following a start to the year that saw traffic levels for ores and mine products essentially the same as the previous year, volumes gradually improved to the point where, by the end of 1997, aggregate shipments were approximately 7.5 per cent higher than in 1996. The volume of iron ore transported was about 6.2 per cent ahead of the previous year.

FIGURE 10-7
RAIL INTERMODAL TRAFFIC
1991 – 1997



NOTE: COFC: Container-On-Flat-Car TOFC: Trailer-On-Flat-Car

Source: Statistics Canada, Special Tabulation; Transport Canada

Forest Products

Forest products, a broad commodity grouping that includes such products as paper, lumber and pulpwood, can be categorized into two sub-sectors: processed (e.g., lumber and paper) and unprocessed (e.g., logs and pulpwood).

Processed forest products moved by rail were among the few sub-sectors to show traffic declines in 1997, with volumes approximately four per cent lower than in 1996. Unprocessed forest products, on the other hand, showed substantial year-over-year increases of almost seven per cent, principally due to rising demand in US markets. In aggregate, the forest products sector experienced traffic increases of about three per cent over 1996 levels.

Both sub-sectors accounted for relatively similar levels of activity. Unprocessed forest products, however, represented about nine per cent of all rail movements (approximately 23 million tonnes), while processed forest products represented some seven per cent (about 18 million tonnes). In aggregate, forest products moved by rail amounted to about 41 million tonnes, or about 16 per cent of total rail shipments.

Industrial and Automotive Products

This broad market segment, which includes manufactured goods, petroleum products, metals, chemicals, etc., accounted for over 30 million tonnes in traffic volume, representing a moderate increase of about five per cent over the previous year and 12 per cent of overall traffic volume.

Volumes of chemicals were essentially stable, increasing by less than two per cent in 1997, while traffic of petroleum products increased significantly, with gains of more than 11 per cent over 1996 levels.

Automotive markets continued the growth trend experienced over the past several years, with exceptional growth, particularly in finished automobiles and parts, which saw a surge in traffic to levels almost 16 per cent higher than in 1996. Growth in automotive-related shipments has been one of the key factors behind the strong growth in Canada–US trade by rail over the past five years. Although relatively minor in terms of volume compared with the magnitude of the bulk category, automotive-related shipments dominate Canada–US trade by rail in terms of value.

Intermodal

In the aggregate, the intermodal segment of the rail sector continued its pattern of strong growth in 1997, with volumes increasing approximately eight per cent over the previous year. The continued slide of the Trailer-on-Flat-Car segment, with volumes dropping off by an estimated 11 per cent, was offset by the strong growth of the Container-on-Flat-Car segment, with an estimated increase of about 13 per cent. (Estimates for 1996 and 1997 were made on the basis of

TABLE 10-5
CANADA/US RAILROAD PRICE COMPARISON
1990 to 1995

(Revenue in Cents per Tonne-Kilometre)

	US in US $	*US in Canadian $*	*Canada* in Canadian $*
1990	1.82	2.12	2.44
1991	1.78	2.04	2.38
1992	1.77	2.14	2.36
1993	1.73	2.24	2.31
1994	1.70	2.32	2.29
1995	1.63	2.24	2.27

* Adjusted by traffic mix

Sources: Association of American Railroads; Transport Canada

TABLE 10-6
OUTPUT AND PRICE CHANGES IN RAIL FREIGHT
1994 – 1997

	1994	*1995*	*1996*	*1997**
Price Changes	(5.4)	2.2	(1.2)	(1.1)
Output Changes	17.3	(6.2)	1.6	9.6

* Based on three quarters of year

Source: Transport Canada, based on Statistics Canada files

Statistics Canada's monthly traffic data in conjunction with Transport Canada's commodity flow data from previous years.) Figure 10-7 shows the changes in intermodal rail traffic from 1991 to 1997.

Although trailer traffic has been in gradual decline for more than a decade, container traffic has been reported as increasing consistently since the economic recession of the early 1990s. It was not until 1993, however, that container traffic recovered to the levels of the pre-recessionary peaks of 1988 and 1989.

The estimated aggregate increase in rail intermodal traffic since 1991 is slightly less than 55 per cent. This is the sum of an estimated 107 per cent increase in container traffic levels and an estimated 45 per cent decrease in trailer traffic levels. One of the factors influencing this overall growth has been the performance of ports such as Halifax and Montreal, which have succeeded in capturing increasing amounts of traffic destined for US Midwest markets. CN's Gateway Intermodal Terminal, which opened in December 1996, contributed to the strong growth in rail intermodal traffic handled through the Port of Halifax. Container traffic at the Port of Halifax increased by 19.9 per cent in 1997, from 3.2 in 1996 to 3.8 million tonnes in 1997.

PRICES

Rail freight prices declined significantly in the late 1980s and early 1990s, with a major drop (5.4 per cent) in 1994. Market conditions enabled railways to increase domestic freight rates in 1995 by 2.2 per cent, but the industry returned to a pattern of rate decline in 1996 (1.2 per cent) and 1997 (1.1 per cent). (Table 10-6). In real terms, rail prices have fallen by 14 per cent between 1993 and 1996.

Average revenues generated per tonne-kilometre of freight traffic carried is often used as a proxy for rail freight rates. This unit of measurement, called "yield", was compared for US and Canadian railways for the period 1990 to 1995. The comparison revealed that the differences observed in 1990 had disappeared almost totally by 1995. Table 10-5 compares Canadian and US railways' yields from 1990 to 1995.

COMPETITION

Competition between the trucking and rail industries is significant for certain commodities and within certain regions. In aggregate terms, however, for-hire trucking and rail accounted for approximately 45 per cent and 55 per cent, respectively, of surface freight transportation tonnage in 1996.

Relative market shares have been undergoing gradual change for some years, with for-hire trucking increasing its share of the surface market at the expense of the rail industry. Figure 10-8 illustrates both traffic volumes and (for-hire) truck–rail modal share from 1990 to 1996. It shows the relatively strong growth in for-hire trucking and rail volumes as well as rail's declining share of the surface market.

There was relatively little truck–rail competition in either bulk commodity markets traditionally dominated by rail or time-sensitive, high-value or low-volume commodities traditionally dominated by trucking. There was, however, competition in selected manufactured, industrial and automotive commodities.

Competition in transborder markets is illustrative of trucking's dominance over rail, with exports to the US by truck accounting for about 70 per cent of shipments by value and about 55 per cent by volume.

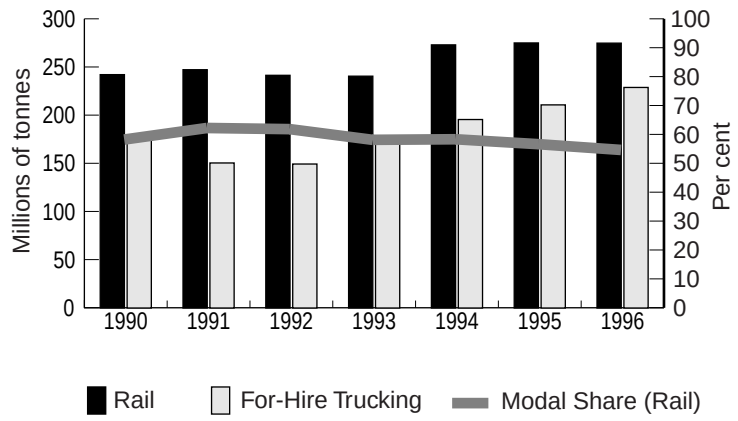
Rail Passenger Traffic and Services

Although a number of rail carriers provide intercity passenger services in Canada, VIA dominates the market, carrying about 88 per cent of all intercity rail passengers. Its services are categorized by route: corridor, from Quebec City to Windsor; transcontinental, servicing the areas east and west beyond the Quebec–Windsor Corridor; and remote, including intercity lines in Quebec, Ontario, Manitoba and British Columbia. Corridor passenger volumes are significantly higher than those in either the transcontinental or remote services, accounting for about 83 per cent of VIA's traffic in 1996. Transcontinental services accounted for a further 13 per cent, while remote services accounted for the remaining four per cent.

Other carriers providing passenger services include BC Rail, the Algoma Central Railway, the Ontario Northland Railway, the QNSL Railway, Amtrak and the Rocky Mountaineer.

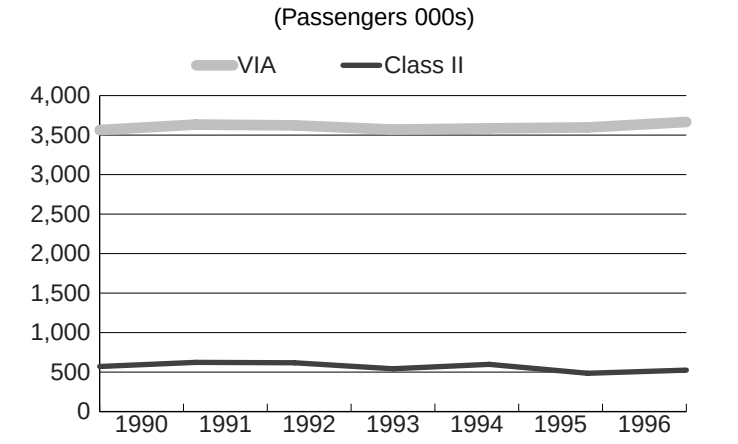
Intercity rail passenger volumes increased somewhat over 1996. This was due almost entirely to growth in VIA's traffic levels, which increased by slightly less than two per cent in 1996 and by almost six per cent in the first half of 1997. Aggregate volumes, however, saw relatively little change from 1990 to 1995.

FIGURE 10-8
TRAFFIC VOLUME AND MARKET SHARE
1990 – 1996



Source: Statistics Canada, Cat. 52-216, 53-222 and 54-205; Transport Canada

FIGURE 10-9
RAIL PASSENGER TRAFFIC VOLUMES
1990 – 1996



Note: Class II series adjusted to include intercity passenger services only.

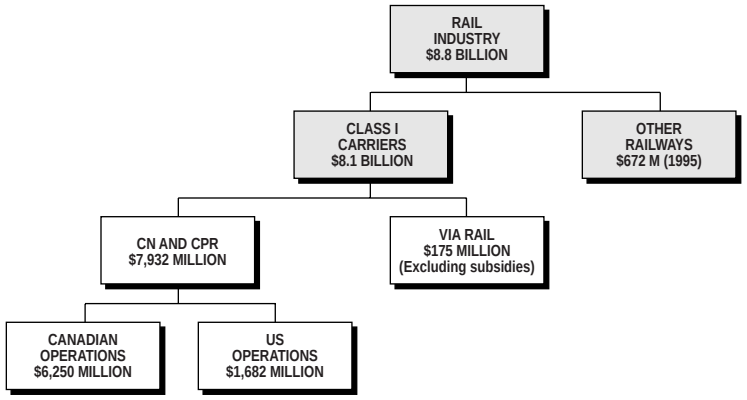
Source: Statistics Canada, Cat. 52-216; Transport Canada

In addition to intercity rail passenger services, commuter rail services are offered in a number of metropolitan areas, including Vancouver, Toronto and Montreal. The number of passengers using such services are about eight times greater than intercity rail passenger traffic.

Figure 10-9 illustrates the trend in intercity rail passenger volumes over the past seven years.

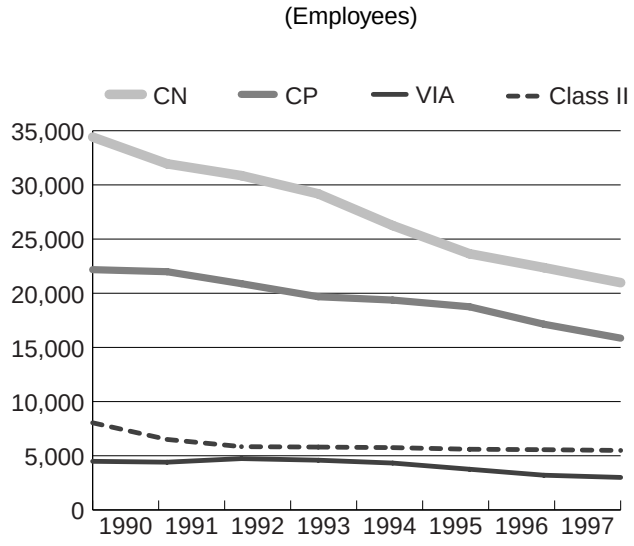
Prices paid by users of VIA's services have increased at a faster pace than inflation. Based on preliminary 1997 data, VIA's prices went up by 6.1 per cent, compared to a 3.1 per cent increase in 1996.

FIGURE 10-10
CANADIAN RAIL TRANSPORTATION INDUSTRY
OPERATING REVENUES
1996



Source: Statistics Canada, Cat. 52-216; Carriers annual reports.

FIGURE 10-11
RAILWAY EMPLOYMENT TRENDS
1990 – 1997



Source: Statistics Canada, Cat. 52-216; Transport Canada

FINANCIAL PERFORMANCE

FREIGHT CARRIERS

Highlights

The rail industry showed significantly higher profits during 1997. While this achievement can be explained in part by the improved performance of the Canadian economy, it can not be dissociated from the restructuring initiatives implemented by the two large Canadian rail carriers in recent years.

In 1997, the combined system operating income of the two major Canadian freight railways rose to $1,479 million from $1,141 million (excluding special charges) a year earlier, a 30 per cent increase. The average in operating profit margin was in the order of 18 per cent, an improvement of three percentage points from 1996. The main reasons for this improvement were higher export volumes, especially in grain shipments, which led to an eight per cent increase in freight revenues, and only three per cent increases in operating costs, due to strict cost control and productivity gains.

Revenues/Expenses

In 1996, total operating revenues of rail transportation in Canada were about $7.2 billion. If the US operations of CN and CP are added, the total jumps to $8.8 billion. The Canadian operations of CN and CP generated combined total operating revenues of $6.2 billion, representing a 90 per cent share of rail freight revenues in Canada. Regional railways generated the remaining ten per cent.

In addition, CN's and CP's US operations generated about $1.7 billion, which accounted for 21 per cent of their combined system revenues of $7.9 billion. In 1996, about 14 per cent of CN's revenues were earned from its US operations, compared to 29 per cent for CP.

Figure 10-10 charts operating revenues in the Canadian rail transportation industry in 1996.

The operating expenses of railways consist mainly of labour, fuel, depreciation, equipment rentals, and other materials and services.

Reductions in labour costs have been the largest contributing factor to higher operating profit margins in recent years. In 1996, the share of labour costs in total operating revenues[1] was 35 per cent, down from 47 per cent in 1993. In comparison, the US Class I railways still have relatively lower labour costs, with the labour cost share of total operating revenues at 28 per cent in 1996.

While CN, CP and VIA all experienced estimated labour reductions of six to seven per cent during 1997, labour reductions over the past five years have varied by carrier. During the 1992 – 1997 period, CN experienced a reduction of about 32 per cent, CP a reduction of some 24 per cent, and VIA a reduction of about 38 per cent. Figure 10-11 illustrates the trend in Canadian railway employment since 1990.

While long-established Class II carriers have tended to reduce the labour content of their operations, employment in Class II railways overall has not come down as significantly, a situation partly due to the transfer, in recent years, of lines and some employees from Class I to Class II railways.

Rail operations used to be more labour intensive than the overall transportation sector. In 1992, labour costs represented 50 per cent of CN and CP combined operating revenues, but only 41 per cent of transportation in general. In 1997, labour costs for rail were down to 35 per cent, almost equivalent to that of the total transportation sector.

Rail labour productivity increased by 47 per cent over the 1992 – 1995 period – much more than the 28 per cent improvement in the entire transportation sector – and by nine per cent in 1996. Based on preliminary data, 1997 also showed further gains.

The strong productivity gains must be tied to higher average annual labour costs in the rail transportation industry, $61,000 in 1996 compared with $45,000 for all transportation. While phenomenal productivity improvements were achieved, average labour costs per employee also increased. Unit labour costs at CN and CP have declined by 25 per cent since 1992, allowing CN and CP to shave $720 million from their total labour costs. Comparatively, unit labour costs in the overall business sector increased by 0.4 per cent over the same period.

Rail fuel costs represented 9.5 per cent of operating revenues for CN and CP in 1996, compared with 12 per cent for the transportation sector as a whole. Since 1992, fuel efficiency in CN's and CP's operations has improved significantly.

Operating expenses other than fuel and labour accounted for 47 per cent of CN and CP operating revenues in 1996. Other costs were related to the use of capital. Municipal taxes, leasing and depreciation accounted for around 15 per cent of the railways' revenues. The share of equipment rentals was six per cent, about the same as depreciation.

Total factor productivity of the Canadian railway industry improved by 24 per cent from 1992 to 1996, with a 3.7 per cent gain in 1996. The most important source of total productivity gain in Canadian railways continues to be labour productivity. As a result of strong productivity gains, unit costs have declined by 18 per cent since 1992. In 1996, the drop in unit costs reached 2.7 per cent. Lower unit costs have allowed the railways to both reduce prices and improve their financial performance from the returns of the early 1990s.

Table 10-7 lists cost and efficiency indicators of Canadian railways.

Profitability

Canadian railways have shown significant improvements in financial performance in recent years. In the Canadian operations of rail freight, the industry average operating margin almost tripled, from 6.9 per cent of revenues in 1993 to 20.2 per cent in 1997. Table 10-8 presents highlights of the Canadian railway industry's financial performance for the period 1993 to 1997.

1 The relative importance of each factor input in the cost structure should be calculated in terms of total costs. But total costs include not only all operating costs, but also an allocation for the cost of capital. Measuring the cost of capital is a complex exercise and not all the information needed to measure it was available. Therefore total operating revenues were used in this report as a proxy for total costs under the assumption that net income is equivalent to the cost of capital.

TABLE 10--7
COST STRUCTURE AND EFFICIENCY INDICATORS
CN AND CP, 1993 TO 1996

	1993	*1994*	*1995*	*1996*
Cost Structure (In % of Op. Rev.)				
Labour	47.3	40.8	42.7	39.1
Fuel	8.8	8.7	9.2	9.5
Employees (in 000)	48.9	45.6	42.4	39.4
Avg. Labour Cost (in $000)	57.1	57.4	61.7	61.0
Productivity Change (in %)				
Labour	9.1	22.9	0.4	9.1
Fuel	3.3	9.8	(5.7)	5.2
Total	5.5	12.2	0.6	3.7
Unit Cost Change (in %)				
Labour	(5.7)	(18.1)	7.0	(9.3)
Total	(5.3)	(11.4)	0.9	(2.7)

Source: Transport Canada, based on Canadian Transportation Agency files

TABLE 10-8
FINANCIAL PERFORMANCE HIGHLIGHTS
OF CANADA'S RAIL TRANSPORT INDUSTRY
1993 – 1997

($ million)

	1993	*1994*	*1995*	*1996*	*1997*
Class I Freight Carriers					
Canadian Operations					
Operating revenues	5,894	6,426	6,190	6,250	6,528
Operating expenses[1]	5,530	5,635	5,592	5,346	5,208
Operating margins (%)	6.2	12.3	9.7	14.5	20.2
System (Including US Operations)					
Operating revenues	7,366	7,970	7,877	7,932	8,295
Operating expenses[1]	6,919	7,236	7,055	6,791	6,816
Operating margins (%)	6.1	9.2	10.4	14.4	17.8
Special charges	49	0	2,596	381	0
Regional Carriers/Operators					
Operating revenues	629	644	672	N/A	N/A
Operating expenses	535	540	560	N/A	N/A
Operating margins (%)	13.5	17.1	12.7	N/A	N/A
Total Rail Freight – Canadian Operations					
Operating margins (%)[2]	6.9	13.6	10.0	14.5	20.2

N/A Not Available
1. Excluding special charges for restructuring and write-down of assets
2. Industry operating margin ratios in 1996/1997 are represented by CN and CP averages

Source: Statistics Canada, Cat. 52-216; Annual Reports of CN and CPR

On a system basis, the profits of both CN and CP increased significantly in the last two years. In 1996, the two railways' combined system total operating income (excluding special charges) amounted to $1.1 billion, an increase of 39 per cent over 1995. Combined net profit rose to $529 million in 1996 as opposed to a total loss of $2 billion in 1995, which was due to special charges for organization restructuring and write-down of assets. The two railways again showed significant increases in profits in 1997, with a combined system operating income of $1.5 billion, up 30 per cent from 1996.

Canadian National Railway

Since its privatization in 1995, CN has been successful in the capital markets, due mostly to its improved profitability. From 1993 to 1997, CN's operating margins have more than tripled, from five per cent of operating revenues in 1993 to 18.5 per cent in 1997. Despite this improvement in operating margins, however, net profits were significantly affected in 1995 and 1996 by special charges associated with restructuring and asset revaluation. These charges amounted to $1,453 million in 1995 and $381 million in 1996.

The benefits of restructuring started to show in 1997, with sharp increases in operating income from $610 million in 1996 to $807 million in 1997. The higher profitability was attributable to labour productivity gains, lower overall unit costs, and strong growth (9 per cent) in total operating revenues. This growth in total operating revenues resulted mainly from higher traffic volume in grain, automotive and intermodal traffic. Net income was

$421 million in 1997, up from $296 million in 1996.

Figure 10-12 plots CN's operating and net incomes from 1993 to 1997.

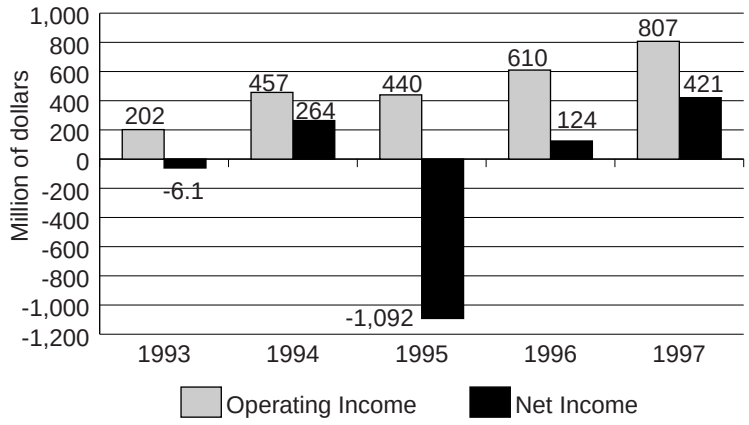
Canadian Pacific Railway

CP Rail's profitability also significantly improved in recent years, with operating margins doubling from 7.2 per cent of revenues in 1993 to 17 per cent in 1997.

In 1995, the railway underwent a major organizational restructuring program, which incurred a special charge of $1,143 million and a net after-tax loss of $930 million. Following cost reductions and restructuring, however, its operating ratio declined to 86 per cent in 1996 from 90 per cent in 1995. Even though revenue growth was flat in 1996, operating income increased to $531 million, up 39 per cent from $382 million in 1995 (excluding special charges) due to the improvement in operating ratio. Figure 10-13 shows CP's operating and net incomes from 1993 to 1997.

In 1997, CP started to report its financial results under the US accounting principles (USGAAP). Under this approach, CP's profitability was higher, with an operating margin ratio at 21.5 per cent of total revenues. CP's system total operating income was $802 million in 1997. If adjusted for the Kansas City and Corn Line sale, CP's freight revenues grew by seven per cent in 1997, mainly because of increases in grain shipments, coal, sulphur, fertilizers, intermodal and automotive traffic.

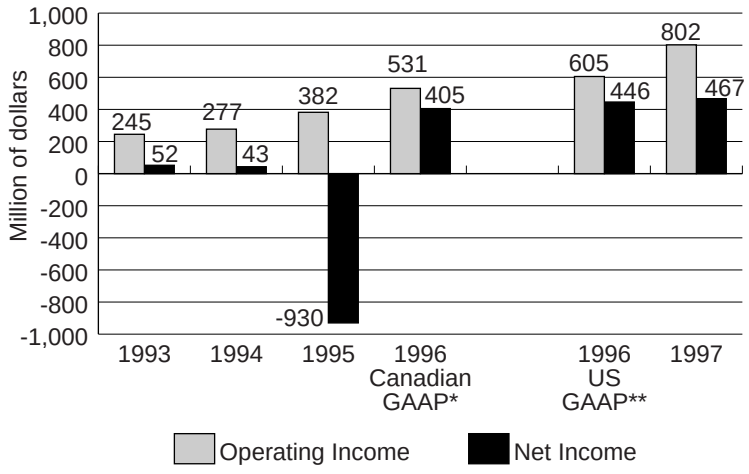
FIGURE 10-12
CANADIAN NATIONAL RAILWAY
OPERATING AND NET INCOME
1993 – 1997



Note: Special charges are excluded from operating income but accounted for in net income.

Source: CN Annual Report 1996; CN Press Release of 1997 financial results.

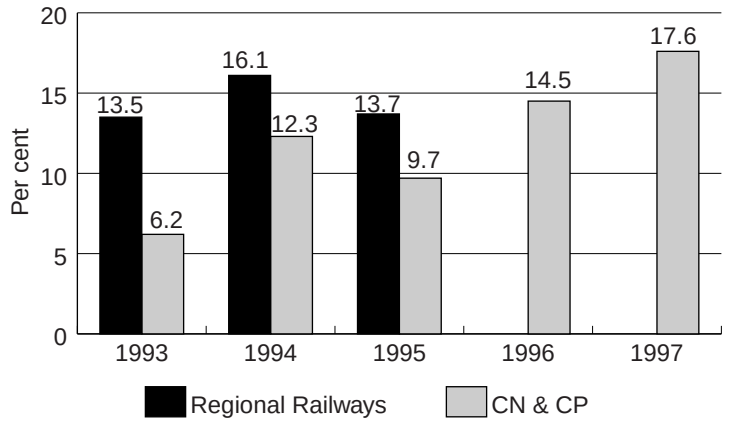
FIGURE 10-13
CANADIAN PACIFIC RAILWAY
OPERATING AND NET INCOME
1993 – 1997



Note: Special charges are excluded from operating income but accounted for in net income.
* GAAP: Generally accepted accounting principles
** Starting 1997, CPR reports its financial results according to the US accounting principles.

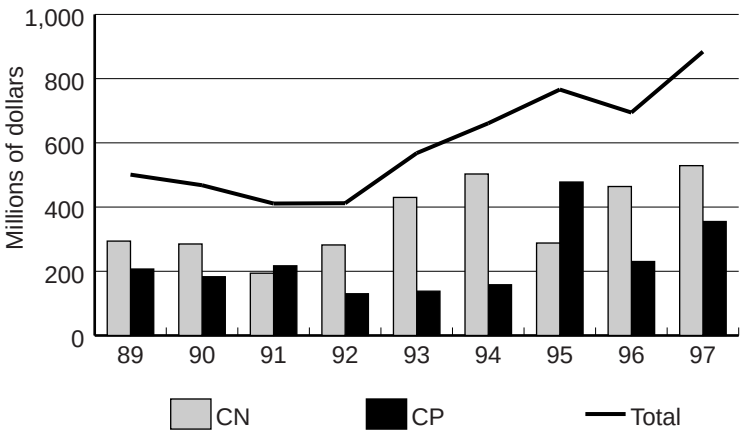
Source: CP Annual Report 1996; CP Press Release of 1997 financial results.

FIGURE 10-14
RAIL FREIGHT TRANSPORTATION IN CANADA
OPERATING MARGINS
1993 – 1997



Source: Statistics Canada, Cat. 52-216; CN, CPR

FIGURE 10-15
RAILWAY CAPITAL EXPENDITURES IN CANADA
BY CN AND CP
1989 – 1997



Source: CN and CP annual reports and official press releases

Regional Carriers

The average operating profit margin of regional carriers was higher than that of national carriers from 1993 to 1995, a period in which both CN and CP were undertaking major restructuring of their operations.

Regional carriers' services are essential to local industries, particularly in the mining and natural resources sectors. As such, these carriers' profitability is closely related to the performance of their clients. For example, BC Rail's profits were affected by lower production levels of the forest and coal industries in 1996.[2]

RaiLink, a rail shortline operator, became a publicly traded company on April 1, 1997. RaiLink became profitable in 1997, reporting $11 million in operating revenues and $2.5 million in operating income in the first half of 1997, with an operating ratio of 76.8 per cent (or an operating margin of 23.2 per cent). Its net income for the six months was $1.3 million, compared with a loss of $0.5 million for the corresponding period in 1996, when the operating ratio was 91 per cent. Figure 10-14 illustrates operating margins for rail freight carriers from 1993 to 1997.

Investments

Both CN and CP have increased capital expenditures since 1993, mostly on new locomotives, to improve efficiency and customer services.

In 1996, capital expenditures of the two main railways' Canadian operations totaled $694 million. CN's capital expenditures, $464 million, mainly included the acquisition of new locomotives,

2 BC Rail Annual Report, 1996.

additions to rolling stock and other equipment, and roadway renewal. CP's capital expenditure level was down in 1996, following the acquisition of a significant number of locomotives in 1995. Figure 10-15 shows CN's and CP's capital expenditures from 1989 to 1997.

The two major railways significantly increased their capital expenditures in 1997 with a combined system total amount of $1.4 billion, of which about $884 million was invested in their Canadian operations. Their investment programs in 1997 were still focused on new high-horsepower locomotives.

At the end of 1996, total net fixed assets of CN and CP amounted to $10.1 billion, including $492 million held under capital lease. Property investments consisted of 65 per cent track and roadways, 22 per cent rolling stock, six per cent buildings and seven per cent other properties. About 93 per cent of CN assets were in Canada, with the remaining seven per cent in the US, while CP had relatively more investments in the US, about 28 per cent. Table 10-9 compares railway net fixed assets as of the end of 1996.

TABLE 10-9
RAILWAY NET FIXED ASSETS
AS OF DECEMBER 31, 1996

($ Million)

	CN	*CP*	*TOTAL*
Track and roadways	3,314	3,267	6,581
Rolling stock	979	1,211	2,190
Buildings	336	299	635
Other	240	470	710
Total	4,869	5,247	10,116
Capital leases included in properties	282	210	492

Source: CN and CP Annual Reports, 1996

VIA RAIL

Passenger revenues from VIA operations (excluding subsidies) accounted for two per cent of total industry revenues. In 1997, VIA generated total operating revenues of $188 million, an increase of 7.4 per cent from 1996.

Although rail passenger services are still subsidized, the cost recovery ratio has significantly increased in recent years, from 33.8 per cent of total operating expenses in 1993 to 49.4 per cent in 1997. Total government subsidies to VIA were $229 million in 1997: $196 million in operating funding and a total of $33 million for capital funding and reorganization charges. These funds are based on the annual operating budgets approved by the government.

TABLE 10-10
FINANCIAL PERFORMANCE HIGHLIGHTS
OF VIA RAIL PASSENGER INDUSTRY
1993 – 1997

($ million)

	1993	*1994*	*1995*	*1996*	*1997*
Operating revenues	164	176	175	185	188
Operating expenses	485	439	397	390	387
Cost recovery ratio (%)	33.8	40.2	43.9	47.3	49.4
Total government funding	348	318	295	245	229

Source: Annual Reports of VIA Rail Canada

Since 1993, the subsidy to VIA has declined by $119 million. The downward trend is expected to continue, as VIA has set its financial goals to further reduce total subsidies to $170 million by 1999[3] through cost reductions and revenue growth strategies. Table 10-10 shows VIA Rail revenues, expenses and government funding from 1993 to 1997.

VIA's labour costs fell by $71 million between 1992 and 1996. At 42 per cent in 1996, the labour share of operating revenues was down five percentage points since 1992. Between 1992 and 1996, strong productivity gains of 47 per cent were observed. The average annual labour cost per employee at VIA is the second highest in the transport industry. Unit labour costs fell 28 per cent over the period.

In 1996, fuel costs represented 4.4 per cent of VIA's operating revenues. From 1993 to 1996, fuel costs increased as a result of higher fuel prices and slower efficiency gains. Another major cost item is marketing (12 per cent).

3 VIA Annual Report, 1996.

TABLE 10-11
COST STRUCTURE AND EFFICIENCY INDICATORS OF VIA RAIL
1993 – 1996

	1993	*1994*	*1995*	*1996*
Cost Structure (In % of Op. Rev.)				
Labour	44.6	45.1	44.2	41.8
Fuel	2.8	3.3	3.6	4.4
Employees (in 000)	4.6	4.3	3.8	3.2
Average Labour Cost per employee ($000)	51.9	50.9	51.3	56.5
Productivity Change (in %)				
Labour	0.9	7.8	15.5	17.2
Fuel	2.7	4.3	10.5	(6.1)
Unit Cost Change (in %)				
Labour	0.7	(11.7)	(10.9)	(8.9)
Total	2.6	(10.0)	(11.0)	(0.8)

Source: Transport Canada, based on VIA data files

TABLE 10-12
OUTPUT AND PRICE CHANGES IN VIA RAIL
1994 – 1997

	1994	*1995*	*1996*	*1997*
Price Changes	5.0	(2.1)	3.1	6.1
Output Changes	1.6	2.5	(0.7)	1.6

Source: Transport Canada, based on VIA data files.

Depreciation and payments to other rail carriers each accounted for ten per cent of VIA's operating costs.

Table 10-11 lists the cost and efficiency indicators of VIA for 1993 to 1996.

In keeping with the reduction of subsidies, VIA's price increases have exceeded general inflation trends, except for a hiatus in 1995. In the past two years, VIA prices rose annually by 4.6 per cent against 1.7 per cent in the economy. In spite of these increases, VIA's output has been growing, albeit at a slower pace (Table 10-12).

TRUCKING

A review of the *Motor Vehicle Transport Act* was initiated. Despite an increase in trucking bankruptcies, the industry's financial performance remained positive, driven by traffic increases mostly in transborder activities.

All Canadians encounter trucking in their daily lives in one way or another. Trucking accounts for significant revenues and jobs across Canada. Estimates suggest trucking is a $31 billion industry and the for-hire sector accounts for nearly half of it. For-hire trucking activities produce approximately 158,000 jobs. Virtually every product a consumer purchases has been transported by truck at least part of the way, sometimes several times before reaching a final destination.

Trucking is popular because it is a flexible mode of transport, constrained only by the extent of the road network. Because of this flexibility, trucking can provide the kind of service required by even the most demanding shippers.

Approximately 118,000 large trucks in Canada haul freight commercially in for-hire operations. Non-commercial trucking operations use farm, utility and service trucks. The courier business that transports mail and small packages also uses trucks.

Figure 11-1 shows the industry structure and its revenues.

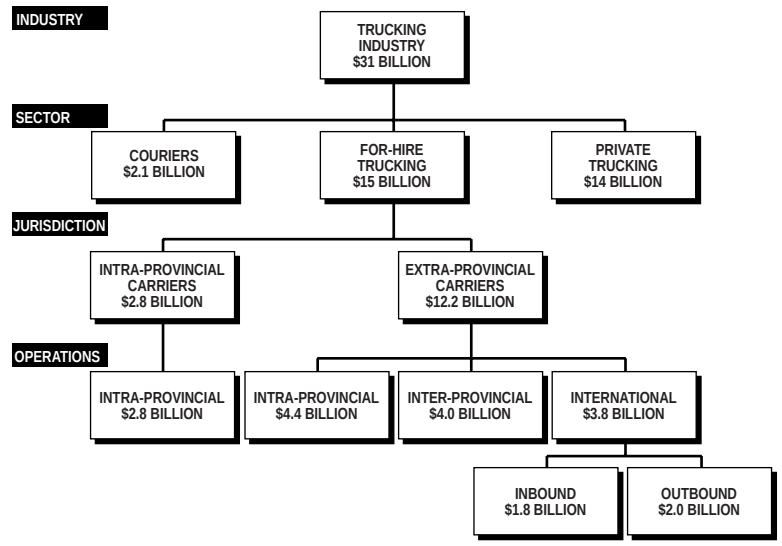
MAJOR EVENTS IN 1997

REVIEW OF THE *MOTOR VEHICLE TRANSPORT ACT, 1987*

Transport Canada started a review of the *Motor Vehicle Transport Act, 1987* in 1996. The Act allows the provinces to regulate extra-provincial motor carrier (bus and truck) activities that are under federal jurisdiction.

During consultations in 1996, the provinces and industry associations agreed that government should focus on regulating carrier safety

FIGURE 11-1
TRUCKING INDUSTRY STRUCTURE AND REVENUES
1996



Source: Statistics Canada, "Trucking in Canada 1995", Cat. 53-222-XPB; Fred Nix, "Trucking in Canada – A Profile"' March 1996; Statistics Canada special study on Couriers: "Couriers in Canada: An Industry Profile", April 1993, A. Mathieson & J. Leduc

and eliminating the last traces of economic regulation in the industry.

The department released a discussion paper in April 1997 that evaluated the results of these consultations and suggested areas requiring changes in the Act.

NAFTA

Two NAFTA groups, the Land Transportation Standards Subcommittee and the Transportation Consultative Group, continued to work toward compatible technical standards and to eliminate barriers to efficient cross-border truck traffic in Canada, Mexico and the US.

To date, the groups have arrived at compatible North American standards for driver age, language and medical requirements; issued a trilingual North American emergency response guide and a trilingual guide to traffic control devices; and published a report on North American vehicle weight and dimension compatibility.

The groups are now focusing on the motor carrier safety assessment process, exchanging motor carrier data, agreeing on vehicle weight and dimension compatibility, and developing a North American dangerous goods code.

AMENDMENTS TO CABOTAGE RULES

Following several years of discussion, Canadian and US government and industry representatives liberalized customs rules governing equipment cabotage, or point-to-point movements in a foreign country, giving trucking companies freedom to use equipment more efficiently and to reduce the number of "empty miles" driven.

Under the new rules, as long as the cargo is international, the equipment will also be considered international and free from cabotage restrictions. Cabotage restrictions on equipment moving without payload will also be ended.

In addition, the US is considering liberalizing its rules on "incidental" movements – the pickup and delivery of domestic cargo during an international movement – to bring them into line with Canada's rules. Canada currently permits domestic pickup and drop-off, provided that the domestic shipment is secondary to the international shipment, and that the route taken for the domestic load does not deviate substantially from the route for the international cargo.

Existing immigration rules governing drivers are not affected by these changes.

CANADA'S INTERNAL TRADE AND NATIONAL HARMONIZATION

The transportation chapter in the agreement on Internal Trade, which came into force in 1995, contains a general commitment to harmonize both standards and regulations, as well as specific commitments to implement national motor carrier safety standards, set uniform vehicle weight and dimension limits, and complete the deregulation of the trucking industry, among other issues.

Second Annual Report

In 1997, federal and provincial transportation ministers fulfilled their commitment under the agreement by submitting their second annual report on the implementation of commitments in the Internal Trade Agreement's transportation chapter.

In the report, they noted several highlights for the year. A

memorandum of understanding was signed, for example, containing nine recommended changes in national standards to make vehicle weights and dimensions more uniform. The proposals reflected current usage – conditions and changes that jurisdictions are willing to make. Work also started on an initiative to implement the new National Safety Code Compliance Review – Safety Rating Standard (Standard 14) in 1998, which will be the key component of proposed new federal motor carrier legislation in an amended *Motor Vehicle Transport Act (MVTA).*

Repeal of Part III of the *Motor Vehicle Transport Act, 1987*

The repeal of Part III of the *Motor Vehicle Transport Act* was scheduled for early 1998 as part of the overall agreement to eliminate the last pockets of economic regulation in trucking. Negotiations on the repeal constituted the major internal trade-related initiative affecting trucking in 1997.

When the Agreement was signed, four provinces maintained some degree of economic regulation in trucking: British Columbia, Saskatchewan, Manitoba and Quebec. Most of this regulation has been or was slated to be eliminated by January 1, 1998. British Columbia and Quebec, however, requested a delay in implementing the Part III repeal to allow their dump trucking and logging transport industries time for transition. These sectors represent less than two per cent of the industry nationally. The two provinces negotiated with the other provinces and territories on this issue. The majority of the other provinces agreed to the delay.

On December 21, 1997, the Minister of Transport agreed to postpone the repeal of Part III until January 1, 2000, as long as British Columbia and Quebec continued to regulate only dump trucking and logging transport.

Vehicle Weights and Dimensions

Vehicle weights and dimensions have a profound effect on trucking cost, productivity and competitiveness. Because of this importance, an interjurisdictional task force, the Task Force on Vehicle Weights and Dimensions, co-ordinates policy through collective action and acts as a forum for the exchange of ideas on provincial initiatives.

In 1997, the task force consulted with industry stakeholders to assess whether greater national uniformity in vehicle weight and dimension regulations would be feasible. They came up with 16 recommendations, nine of which were approved by the Council of Deputy Ministers Responsible for Transportation and Highway Safety, to which the task force is accountable. Provincial officials are still analysing the remaining seven recommendations.

The approved recommendations standardize dimensions for box length, tractor-trailer connections, spacing between axles and axle load limits. Some reflect current usage and conditions, while others represent changes that jurisdictions are willing to make to promote uniformity.

On the North American front, a trilateral working group is examining the standards governing the weights and dimensions of vehicles in Canada, the US and Mexico. Compatibility of vehicle-size characteristics presents a major challenge given the wide range of technical, economic and policy issues that underlie regulations in each country. The group has exchanged information on existing federal, state and provincial restrictions; discussed safety; and reviewed applicable compliance, enforcement and administrative procedures. It issued a report in September 1997 that outlines the issues involved in compatibility and presents options to explore in the future.

Trucking Services

The trucking industry can be divided into two major components: private trucking and for-hire trucking. Private trucking companies maintain a fleet of trucks and trailers to haul their own goods, occasionally using their fleets to haul goods for others. For-hire trucking companies carry freight for a fee under various service types, principally truckload and less-than-truckload.

In addition to servicing domestic and international demand, for-hire carriers can be further differentiated according to where they work in Canada. Intra-provincial for-hire carriers operate within a province and under provincial jurisdiction. Extra-provincial for-hire carriers operate beyond provincial and national boundaries under federal jurisdiction. Extra-provincial carriers derive a significant portion of their income from intra-provincial operations. In 1996, extra-provincial carriers generated over $12 billion, which accounts for 81 per cent of total for-hire trucking revenues. Intra-provincial carriers accounted for the remaining 19 per cent, estimated at $2.8 billion.

Owner-operators and couriers are also important components of the trucking industry. Owner-operators work under contract for either for-hire or private carriers, customarily using their own trucks. Couriers specialize in the delivery of mail and small packages, often enlisting other transporters, including inter-city bus companies, air cargo operators and less-than-truckload truck operators. Most of this chapter is devoted to for-hire trucking, as there is only limited information available on private trucking, owner-operators and couriers.

All carriers, whatever their category, differ according to operating characteristics, such as size, specialty equipment, geography, services and alliances. Companies range, for example, from the single unit owner-operator to large firms operating several thousand power units.

Some carriers use specialized equipment, such as logging trucks, hopper-bottom grain trailers and cement mixers, while others use general purpose vans or flat-deck trailers. Some carriers operate locally within a province, while others cross borders into other provinces and other countries. And some carriers handle general freight in one region only, while others "inter-line" with carriers in other regions.

Other distinctions in the industry differentiate carriers by the category of freight they carry:

- general freight carriers handle many different kinds of freight in vans and general-freight trailers;
- household goods carriers use specialized trailers to transport furniture and other personal household possessions;
- liquid bulk carriers use tanker trucks to transport liquids, such as milk, petroleum and chemicals;
- dry bulk carriers use dump or hopper-bottom trailers to haul goods, such as grain, fertilizer and gravel;
- forest products carriers use special logging trucks to transport logs from forests to mills;
- auto haulers use special trailers to transport cars and trucks from factories to car dealerships; and
- couriers use a variety of transportation modes to transport mail and small parcels.

General-freight carriers are by far the most numerous, accounting for approximately 50 per cent of the carriers.

Grain Transportation

The elimination of rail transportation subsidies and the consolidation of elevator and rail branch-line services have increased the use of trucks to haul grain in Western Canada. The expansion of secondary processing activities, such as milling, meat processing and canola crushing, and the increase in market opportunities in the US and the Asia Pacific region are also factors.

A study by Trimac Consulting Services Ltd. *(Review of Grain Transportation by Truck in Western Canada)*, looked at the 48 million tonnes of grain produced in Western Canada during the 1995/96 crop year. Local trucking over short distances from farms to nearby elevators, inland terminals and rail sidings for local seeding or animal feeding requirements moved approximately 43.5 million tonnes, or 90.5 per cent of total grain production in that year.

Trucking is also used to carry grain from farms, primary elevators and inland terminals to other inland terminals and a variety of processing locations. Approximately 8.1 million tonnes of grain, or 17 per cent of 1995/96 grain production total, was shipped over intermediate distances of less than 800 kilometres. Such intermediate distance trucking tends to be in larger combination trucks and on a for-hire basis. The Trimac study also projected significant growth in intermediate trucking on the assumptions of more secondary processing activity in Western Canada and greater access to US markets.

Long-distance grain trucking over distances greater than 800 kilometres is rare because it is prohibitively expensive.

Traffic

Domestic vs. International

Truck traffic, as measured by the number of tonne-kilometres, has increased steadily since 1992 in both the domestic and international markets. Domestically, tonne-kilometres have increased by approximately 50 per cent, while internationally, they have almost doubled, increasing by 98 per cent. As a result of these increases, the relative traffic share between domestic and international markets has been shifting. Since 1989, the domestic share of tonne-kilometres has decreased by more than 11 per cent, while the international share has increased by a corresponding amount. Table 11-1 shows the distribution of tonne-kilometres by sector from 1990 to 1996.

TABLE 11-1
DISTRIBUTION OF TRUCK TRAFFIC BY SECTOR
1990 – 1996

Millions of tonne-km	1990	1991	1992	1993	1994	1995	1996
Intra-provincial	23,849.9	19,736.4	20,934.4	22,644.4	25,838.1	27,221.0	29,378.5
Inter-provincial	30,851.0	27,976.7	26,822.9	29,333.0	34,307.5	38,585.2	42,127.1
Total domestic	**54,700.2**	**47,709.5**	**47,753.0**	**51,977.4**	**60,145.3**	**65,806.2**	**71,505.6**
Southbound	13,528.9	13,191.9	15,276.4	19,478.4	23,989.1	25,846.5	29,277.1
Northbound	9,540.9	9,719.2	9,913.5	13,157.4	17,737.2	18,358.1	20,350.2
Total international	**23,069.8**	**22,911.1**	**25,190.0**	**32,635.8**	**41,726.3**	**44,204.7**	**49,627.3**
Total domestic & international	**77,770.0**	**70,620.6**	**72,943.0**	**84,613.3**	**101,871.7**	**110,010.9**	**121,132.9**
Sector share			**In per cent**				
Intra-provincial	30.7	27.9	28.7	26.8	25.4	24.7	24.3
Inter-provincial	39.7	39.6	36.8	34.7	33.7	35.1	34.8
Total domestic	**70.3**	**67.6**	**65.5**	**61.4**	**59.0**	**59.8**	**59.0**
Southbound	17.4	18.7	20.9	23.0	23.5	23.5	24.2
Northbound	12.3	13.8	13.6	15.6	17.4	16.7	16.8
Total international	**29.7**	**32.4**	**34.5**	**38.6**	**41.0**	**40.2**	**41.0**
Total domestic & international	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Statistics Canada, Cat. 53-222 and 50-002

TABLE 11-2
FOR-HIRE TRUCKING ACTIVITY REVENUES BY COMMODITY GROUP
1996

Commodity group	*Domestic (millions)*	*Per cent*	*International (millions)*	*Per cent*	*Grand total (millions)*	*Per cent*
General freight	$ 2,552.7	40.6	$ 1,757.7	46.3	$ 4,310.4	42.7
Food and food products	1,119.9	17.8	454.3	12.0	1,574.2	15.6
Forest products	872.0	13.9	599.4	15.8	1,471.4	14.6
Manufactured end products	424.7	6.8	293.7	7.7	718.4	7.1
Chemical products	383.8	6.1	194.6	5.1	578.5	5.7
Petroleum products	344.3	5.5	26.8	0.7	371.1	3.7
Motor vehicles, engines and parts	285.7	4.5	398.7	10.5	684.4	6.8
Non-metallic minerals	205.4	3.3	42.3	1.1	247.7	2.5
Grains	80.2	1.3	25.9	0.7	106.1	1.1
Metallic ores	19.2	0.3	4.6	0.1	23.8	0.2
Total revenues	**$ 6,287.9**	**100.0**	**$ 3,798.1**	**100.0**	**$10,086.0**	**100.0**

Source: Statistics Canada, Special Tabulation.

TRUCK TRAFFIC BY COMMODITY GROUP

In 1996, general freight, which consists primarily of manufactured products and fabricated materials, accounted for the majority of truck traffic, domestically and internationally, with 41 per cent of all domestic and 46 per cent of all international freight transported. The next most important commodities were food products, followed closely by forest products. Table 11-2 shows the revenues that Canadian for-hire carriers generated by commodity in 1996.

General freight, food products and forest products also accounted collectively for over 70 per cent of the carriers' total tonne-kilometres in 1996. Table 11-3 gives the distribution of tonne-kilometres by commodity.

TABLE 11-3
FOR-HIRE TRUCKING TRAFFIC BY COMMODITY GROUP
1996

(Million tonne-kilometres)

Commodity group	*Domestic*	*Per cent*	*International*	*Per cent*	*Grand Total*	*Per cent*
General freight	22,823.9	31.9	18,419.6	37.1	41,243.5	34.0
Forest products	13,877.2	19.4	11,598.1	23.4	25,475.4	21.0
Food and food products	13,244.1	18.5	7,546.3	15.2	20,790.5	17.2
Manufactured end products	5,917.0	8.3	4,193.7	8.5	10,110.7	8.3
Petroleum products	5,245.1	7.3	547.0	1.1	5,792.0	4.8
Chemical products	4,151.0	5.8	2,659.1	5.4	6,810.1	5.6
Non-metallic minerals	3,196.3	4.5	733.8	1.5	3,930.2	3.2
Grains	1,355.0	1.9	611.6	1.2	1,966.6	1.6
Motor vehicle, engines and parts	1,346.7	1.9	3,230.6	6.5	4,577.3	3.8
Metallic ores	349.4	0.5	87.4	0.2	436.8	0.4
Total tonne-km	**71,505.7**	**100.0**	**49,627.3**	**100.0**	**121,133.0**	**100.0**

Source: Statistics Canada, Special Tabulation.

TABLE 11-4
DISTRIBUTION OF TRUCKING ACTIVITY
BY TRAVEL SECTOR

Characteristic:	**Activity Measured in Terms of:**			
Travel sector	*Number of trips*	*Distance traveled*	*Cargo tonnage*	*Cargo output**
Intra-provincial	66.8	39.2	60.4	33.7
Inter-provincial	13.7	39.6	17.9	45.7
Transborder	18.8	20.3	21.0	19.8
Transiting	0.7	1.0	0.7	0.9
Total	**100.0**	**100.0**	**100.0**	**100.0**

***** Cargo output is a representation of work done on a trip, and is calculated as the weight of cargo carried times the distance the cargo moves

Source: Transport Canada

TABLE 11-5
DISTRIBUTION OF TRUCK TRAFFIC
BY TYPE OF CARRIAGE

Characteristic:	**Activity Measured in Terms of:**			
Type of activity	*Number of trips*	*Distance traveled*	*Cargo tonnage*	*Cargo output**
For-Hire	68.7	78.4	76.3	83.8
Private	31.3	21.6	23.7	16.2
Total	**100.0**	**100.0**	**100.0**	**100.0**

***** Cargo output is a representation of work done on a trip, and is calculated as the weight of cargo carried times the distance the cargo moves

Source: Transport Canada

1995 Roadside Survey Results

In fall 1997, federal and provincial transportation officials released the National Roadside Survey, a new profile of truck traffic in Canada. The survey describes heavy-truck activity during one week in 1995 on Canada's National Highway System, as well as an additional 1,100 kilometres of other roads significant to truck traffic in individual provinces and territories. An analysis of one million truck movements and 36,000 driver interviews recorded at 148 survey sites across Canada formed the basis of the survey.

The survey gathered information on truck, carrier, driver, trip and cargo characteristics, as well as measures of trucking activity, including the number of trips, distance traveled, cargo tonnage transported, cargo tonne-kilometres of transportation, gross vehicle weight moved, and vehicle tonne-kilometres of movement.

Tables 11-4 through 11-7 show samples of the information gathered about truck travel, carriers, drivers and vehicles. Complete results are available using the data analysis package that can be downloaded from the Internet at Transport Canada's Web site at http://www.tc.gc.ca or the Web site of the Canadian Council of Motor Transport Administrators at http://www.ccmta.ca.

On the basis of number of trips, intra-provincial trucking accounts for two thirds of inter-city trucking activity on Canada's major highways. Table 11-4 shows that share of activity is lower when viewed using other measures because intra-provincial trips on average are shorter and use relatively smaller trucks than trips in other sectors.

TABLE 11-6
DRIVER DISTRIBUTION OF TRUCK TRAFFIC

Characteristic:	Activity Measured in Terms of:			
Driver type	*Number of trips*	*Distance traveled*	*Cargo tonnage*	*Cargo output**
Company employee	78.9	72.0	76.0	69.3
Owner-operator	17.4	24.6	20.9	28.1
Independent	3.7	3.4	3.1	2.6
Total	**100.0**	**100.0**	**100.0**	**100.0**

* Cargo output is a representation of work done on a trip, and is calculated as the weight of cargo carried times the distance the cargo moves

Source: Transport Canada

TABLE 11-7
TRUCK TYPES ON CANADA'S ROADS

Characteristic:	Activity Measured in Terms of:			
Vehicle type	*Number of trips*	*Distance traveled*	*Cargo tonnage*	*Cargo output**
Semi-trailer	71.2	79.7	77.8	78.8
Train	7.1	9.7	14.8	18.5
Straight truck	20.0	9.4	5.7	1.9
Other	1.8	1.2	1.7	0.8
Total	**100.0**	**100.0**	**100.0**	**100.0**

* Cargo output is a representation of work done on a trip, and is calculated as the weight of cargo carried times the distance the cargo moves

Source: Transport Canada

As indicated in Table 11-5, for-hire truck carriers handle most inter-city trucking. Private truck carriers' share of activity falls from one third of trips to one sixth of cargo output due to shorter average trips and smaller average trucks.

Table 11-6 indicates that while owner-operators (a truck owner working for a carrier under contract) have played an increasingly significant role in trucking in recent years, the majority of activity continues to be handled by company employees.

Table 11-7 shows that semi-trailer trucks handle by far the largest share of inter-city trucking. The different roles played by truck trains and straight trucks are apparent from activity measures. Due to longer average trips and larger average capacity, the 7.1 per cent of trips by truck trains generate 18.5 per cent of the cargo output. Conversely, the shorter average trips and smaller average capacity of straight trucks indicate that their 20 per cent share of trips accounts for only 1.9 per cent of the cargo output.

International Trade

Trade has been the key driver of Canada's economic growth over the past few years. Of the total $389 billion in goods that Canada traded with its NAFTA partners, $262 billion, or 67 per cent, was transported by truck.

TABLE 11-8
CANADA'S EXPORTS BY TRUCK
1996

Motor vehicles and parts	27%
Fabricated material	26%
Equipment miscellaneous	18%
Other	15%
Food	7%
Heavy equipment	7%
Total	**100%**

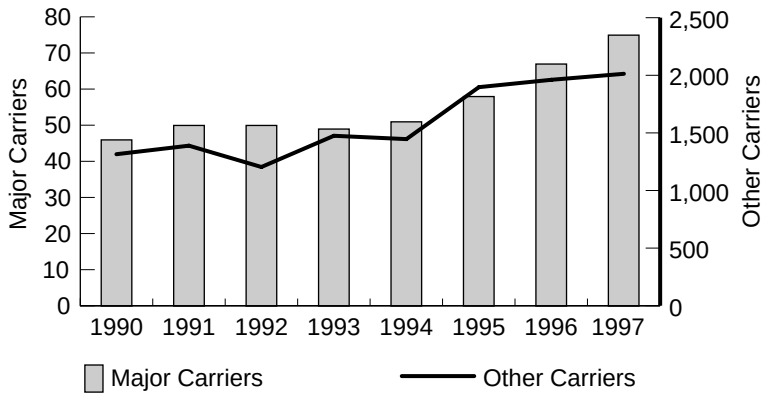
Source: Statistics Canada, Trade Division, special tabulations for Transport Canada

TABLE 11-9
CANADA'S IMPORTS BY TRUCK
1996

Motor vehicles and parts	30%
Fabricated material	21%
Electrical equipment	18%
Other	15%
Heavy equipment and machinery	10%
Food and related	5%
Total	**100%**

Source: Statistics Canada, Trade Division, special tabulations for Transport Canada

FIGURE 11-2
NUMBER OF FOR-HIRE CARRIERS
1990 – 1997



Source: Statistics Canada, special tabulations of Quarterly Motor Carriers of Freight Survey (QMCF).

Exports by Truck

In 1996, Canada shipped $133 billion worth of goods by truck to the US and Mexico, an increase of 24 per cent over 1994. These shipments consisted mainly of motor vehicles and parts, fabricated materials and equipment, and accounted for 59 per cent of total exports carried. Table 11-8 shows the distribution of Canada's exports by truck in 1996.

Imports by Truck

Canada imported $129 billion in goods by truck from the US and Mexico in 1996, accounting for 80 per cent of all goods imported. Imports from Mexico increased by 32 per cent between 1994 and 1996, while imports from the US increased by 13 per cent over the same period. Motor vehicles and parts, fabricated materials and equipment accounted for the majority of Canada's imports. Table 11-9 shows the distribution of Canada's imports by truck in 1996.

TRUCKING INDUSTRY STRUCTURE

NUMBER OF CARRIERS

Estimates in 1995 by the Canadian Trucking Research Institute (Fred Nix, *Trucking in Canada – A Profile*), indicate that there are approximately 9,400 for-hire carriers, 39,000 owner-operators, 450 large private carriers[1] and 2,400 courier companies in Canada. In addition, thousands more organizations engage in some form of trucking but are not captured in Statistics Canada surveys. These include

1 Carriers with operating expenses of over one million dollars annually.

small for-hire carriers, private carriers, farmers, utility companies, municipalities that own trucks, etc. Figure 11-2 illustrates the number of for-hire carriers earning revenues of $1 million or more per year.

Since 1990, the major carriers group (carriers that earn $25 million or more per year) has represented, on average, less than four per cent of the total number of carriers in the Canadian trucking industry.

TABLE 11-10
TRUCKING BANKRUPTCIES ACROSS CANADA
1987 – 1997

Year	Atlantic	Quebec	Ontario	Prairies	B.C. and Terr	Total
1987	17	32	59	136	78	322
1988	22	40	77	163	92	394
1989	27	65	58	143	88	381
1990	57	142	147	213	97	656
1991	98	107	191	223	143	762
1992	70	119	188	171	88	636
1993	70	91	152	130	56	499
1994	37	67	88	125	33	350
1995	31	81	58	141	34	345
1996	74	90	107	197	59	527
1997	82	119	164	178	58	601

Note: "Trucking industries" include general freight, used goods moving and storage, bulk liquids, dry bulk materials, forest products and other truck transport industries.

Source: Industry Canada, Office of the Superintendent of Bankruptcy; Transport Canada

ALLIANCES, MERGERS AND ACQUISITIONS

Trucking is a very competitive industry in a perpetual state of change, with new entries, mergers, acquisitions and bankruptcies happening all the time.

Canadian carriers are joining forces to expand service both within and between provinces and territories, as well as with other regions. Many companies have strengthened their positions by forming alliances, merging with or acquiring other carriers. Some examples in 1997 include:

- the acquisition of Thompson's Transfer Co. of Nova Scotia and Transport Super Rapide of Newfoundland by Cabano Kingsway Inc. to expand its Atlantic Canada and Quebec-based operations;
- the alliance of Ontario-based Challenger Motor Freight Inc. with Daily Motor Freight, which specializes in less-than-truckload services in Ontario and Quebec, to increase its services to the US;
- the acquisition of the Maritime bulk trucking operations of Corporation Provost ltée by Alberta-based Trimac;
- the acquisition of Brookville Group, a large independent truckload carrier in Atlantic Canada by Contrans Corporation of Ontario;
- the agreement between Check Transportation by Logistics of British Columbia and Atomic Transportation System of Manitoba for less-than-truckload service between Eastern Canada and British Columbia; and
- the acquisition of Reimer Express Lines by Roadway Express Lines of Ohio to combine Roadway's extensive network and state-of-the-art information systems with Reimer's developed operations and Canadian marketing expertise.

Canadian carriers are also moving into the US market by forming partnerships with US-based carriers. These alliances not only expand the carriers' markets, they also reshape the way carriers do business by allowing them to offer more services over a much broader territory. In some cases, the companies integrate their information systems and share invoicing and inventory control. A recent example involving a large Canadian carrier is the merger of Ontario's Frederick Group with Michigan's Bill Thompson Trucking to form FTI, which will provide long-haul truckload and local service, just-in-time transportation and logistics services with a combined fleet of 800 tractors and 1,000 trailers.

BANKRUPTCIES

Bankruptcies dropped rapidly in 1993 and 1994, leveled out in 1995, then increased significantly in 1996 and again in 1997. Table 11-10 shows the number of trucking bankruptcies across Canada from 1987 to 1997.

COMPETITION

CONCENTRATION OF CARRIERS

The degree of concentration between the major carriers (those that earn $25 million or more per year) and large carriers (those that earn between $12 million and $25 million) in the for-hire

TABLE 11-11
DISTRIBUTION OF TOTAL FOR-HIRE TRUCKING REVENUES BY SIZE OF CARRIER
1990 – 1996

	Medium Carriers ($1-12M)		*Large Carriers ($12-25M)*		*Major Carriers ($25M)*	
	Revenue (millions of dollars)	*Share (per cent of total)*	*Revenue (millions of dollars)*	*Share (per cent of total)*	*Revenue (millions of dollars)*	*Share (per cent of total)*
1990	3,832.2	45.5	1,204.8	14.3	3,382.6	40.2
1991	4,028.8	47.8	1,107.6	13.1	3,298.2	39.1
1992	4,217.4	49.4	1,072.2	12.5	3,256.1	38.1
1993	4,542.9	49.3	1,268.0	13.7	3,411.1	37.0
1994	5,212.8	47.6	2,208.5	20.1	3,541.4	32.3
1995	5,460.6	45.0	3,090.0	25.5	3,576.9	29.5
1996	5,731.8	43.7	3,453.2	26.4	3,917.7	29.9

Note: Including motor for-hire carriers of freight earning annual revenues of $1 million or more.

Source: Statistics Canada, Annual Motor Carriers of Freight Survey (AMCF) (1990–93); Annual Supplement (Q5) to the Quarterly Motor Carriers of Freight Survey -QMCF- (1994–96); Transport Canada

TABLE 11-12
AVERAGE ANNUAL REVENUES BY SIZE OF CARRIER
1990 – 1996

	Medium Carriers	*Large Carriers*	*Major Carriers*
1990	$ 3,129,070	$ 17,460,435	$ 61,501,636
1991	3,087,172	16,531,597	59,966,691
1992	3,144,945	16,753,031	59,201,036
1993	3,141,716	16,906,867	57,814,458
1994	3,335,147	18,715,788	66,819,736
1995	2,827,883	19,681,611	63,872,446
1996	2,902,177	22,278,710	58,473,134

Note: Including for-hire carriers of motor freight earning annual revenues of $1 million or more.

Source: Statistics Canada, Annual Motor Carriers of Freight Survey (AMCF) (1990–93); Annual Supplement (Q5) to the Quarterly Motor Carriers of Freight Survey -QMCF- (1994–96); Transport Canada

trucking industry is an indicator of the level of competition prevailing in the marketplace.

From 1990 to 1996, the revenues of major carriers as a percentage of total revenues decreased steadily, while the actual number of carriers in this category remained relatively stable at between 53 and 59 carriers. These numbers suggest a reduced level of concentration.

In 1995 and 1996, the number of major carriers began to increase as large carriers acquired more smaller carriers.

In the large carrier group, the proportion of revenues to total industry revenues increased significantly from a low of 12.5 per cent in 1992 to over 26 per cent in 1996.

The proportion of revenues to total industry revenues for the medium group (carriers that earn between $1 million and $12 million) also increased steadily, moving from 45 per cent in 1990 to almost 50 per cent in 1993. The proportion then declined to 44 per cent between 1994 and 1996.

Table 11-11 shows the percentage share of total for-hire revenues for each size of carrier from 1990 to 1996. Table 11-12 illustrates the average annual revenues for each size of carrier over the same period. The two tables indicate that competition within the trucking industry has not diminished from 1990 to 1996.

Output and Price Changes

Trucking revenues rebounded dramatically between 1992 and 1996, growing by more than 50 per cent after the sluggish 1989 – 1992 period during which revenues declined. This growth occurred as prices were falling by 3.8 per cent in nominal terms, or about one per cent per year. Preliminary results for the first half of 1997 indicate that trucking prices have stopped their downward trend. All in all, such a trend in prices is indicative of a mix of competitive forces and strong demand at play in the marketplace.

As previously noted, the major cause of growth in the trucking industry has been increased traffic to and from the US.

Since 1992, trucking performance in transborder markets has been remarkable with output growth reaching close to 18 per cent per year. This growth is tied closely with Canada's 14 per cent average annual increase in trade with the US over the same period. The growth of intra-provincial and inter-provincial trucking activities was also noticeable: 8.3 and 9.8 per cent per year, respectively. For 1997, output

growth was estimated to exceed ten per cent led by strong growth in transborder activity.

Prices for domestic and transborder trucking services have behaved differently. Between 1991 and 1996, for example, prices for intra-provincial and inter-provincial trucking services all fell by approximately 0.9 per cent per year, while transborder prices increased by 0.3 per cent.

Prices do vary more, however, from one year to another and from one type of services to another. Prices for inter-provincial services, for instance, fell by 5.5 per cent in 1996, compared with a drop of 0.3 per cent for intra-provincial services. Transborder price changes remained in between the two, falling 3.4 per cent.

Table 11-13 shows annual price changes for intra-provincial, inter-provincial and transborder trucking services for the years 1994 to 1997.

Over a longer period, from 1986 to 1994, for example, trucking prices increased by 5.5 per cent, while rail prices decreased by more than seven per cent, representing a 14 per cent deterioration in trucking's relative position. In 1997, the gap between the two modes persisted, although it was reduced to an estimated 12 per cent, and yet the trucking industry keeps increasing its market share. This implies that the truck/rail competition is more than simply a question of relative price.

TABLE 11-13
OUTPUT AND PRICE CHANGES IN TRUCKING
1994 – 1997

	1994	*1995*	*1996*	*1997**
Price Changes %				
Intra-provincial	(2.1)	(0.2)	(0.3)	0.8
Inter-provincial	(1.1)	(2.5)	(5.5)	2.5
Transborder	4.0	0.2	(3.4)	2.7
Total trucking	0.3	(0.8)	(3.1)	2.1
Business economy	2.8	3.5	1.9	1.4P
Output Changes %				
Intra-provincial	14.1	5.6	9.6	(0.5)
Inter-provincial	15.5	11.8	9.5	3.1
Transborder	22.9	13.3	11.4	25.3
Total trucking	17.5	10.3	10.2	10.3
Business economy	5.2	2.4	2.8	3.8P

* First two quarters of the year for trucking.
P Preliminary

Source: Transport Canada

FINANCIAL PERFORMANCE

HIGHLIGHTS

The financial performance of the for-hire trucking industry improved in 1997. Revenues of large trucking firms surveyed by Statistics Canada increased by nine per cent in the first three quarters of 1997, compared with the revenues reported over the same period in 1996. Their operating margin also improved, from 3.6 to 4.4 per cent. Moreover, major Canadian trucking firms such as Vitran, Cabano Kingsbury, Mullen, and Trimac, have all reported substantial increases in profits in 1997. Yet Interlink Freight Systems had to declare bankruptcy.

REVENUES/EXPENSES

The Canadian-based for-hire trucking firms (excluding household goods carriers) with annual operating revenues equal to or greater than one million had total operating revenues of $12.6 billion in 1996, up eight per cent from a year earlier.

TRUCKING INDUSTRY COSTS

Labour costs represented less than 28 per cent of the trucking industry's operating revenues,[2] excluding the costs related to hiring owner-operators under contract as shown in Table 11-14. If the owner-operator component were included, labour costs would account for 44 per cent of carriers' revenues.

2 The relative importance of each factor input in the cost structure should be calculated in terms of total costs. But total costs include not only all operating costs, but also an allocation for the cost of capital. Measuring the cost of capital is a complex exercise and not all the information needed to measure it was available. Therefore total operating revenues were used in this report as a proxy for total costs under the assumption that net income is equivalent to the cost of capital.

TABLE 11-14
COST STRUCTURE AND EFFICIENCY INDICATORS OF TRUCKING

	1993	*1994*	*1995*	*1996*
Cost Structure (In % of Op. Rev.)				
Labour	30.5	29.0	30.0	27.9
Labour*	48.4	46.4	44.7	44.3
Fuel	8.4	9.6	9.5	9.8
Fuel *	12.3	13.3	12.6	13.3
Employees (in 000)*	109.8	119.0	120.5	125.0
Average Labour Cost per employee ($000) *	39.4	41.4	43.2	44.6
Productivity Change (in %)				
Labour*	4.1	8.7	9.9	7.4
Fuel*	(2.1)	2.0	9.3	3.5
Total	2.5	2.4	3.4	4.7
Total -Economy	***0.9***	***2.2***	***0.4***	***0.4***
Unit Cost Change (in %)				
Labour trucking *	(0.3)	(3.3)	(5.0)	(3.9)
Total trucking	(1.3)	(1.1)	(0.9)	(1.7)

* Adjusted to reflect the impact of owner-operators

Sources: Transport Canada based on Statistics Canada data

After declining between 1989 and 1992, employment in the trucking industry began to increase in 1993, rising by 20 per cent between 1992 and 1996. Labour costs averaged roughly $44,600 per employee in 1996, 30 per cent above the national average for the whole economy.

Labour productivity during the same period also improved, advancing by 33 per cent in the trucking industry compared with 6.3 per cent in the general economy. Unit labour costs dropped 12 per cent over the same period.

Fuel costs in the for-hire trucking industry accounted for 9.8 per cent of the trucking industry's operating revenues in 1996. If fuel used by owner-operators is factored in, the share of fuel costs increases to about 13.3 per cent.

Fuel efficiency increased by four per cent between 1986 and 1989, but fell by 17 per cent between 1989 and 1993. Fuel efficiency improved by 13 per cent in 1995 and 1996.

PRODUCTIVITY

Productivity in the trucking industry increased by 14 per cent between 1992 and 1996, after a period of stagnation during the early 1990s. Input prices increased at a slower rate than prices in the overall economy. Per unit of output, trucking industry costs show a 4.8 per cent drop since 1992. This productivity gain has allowed the trucking industry to cope with the effect of lower prices without jeopardizing its financial position. In 1995 and 1996, the reduction of prices has been superior to the capacity of the industry to reduce its costs.

A major source of productivity gains has come from capital, mostly trucks. This means that the amount of capital used per dollar of output has been declining, which could be the result of a better utilization of assets, more efficient power units and changes to the fleet mix. While this decline in capital used per dollar of output may be indicative of an improved use of assets, it could also be indicative of the aging of the industry's capital stock.

PROFITABILITY

Based on large carriers' results over the first three quarters of 1997, the profitability of the Canadian for-hire trucking industry improved. After the first three quarters, the average operating margin of large carriers was 4.4 per cent, as opposed to 3.6 per cent over the same period in 1996. For the whole year 1996, the industry reported a 3.3 per cent average operating margin, a deterioration from the margin achieved in 1994 and 1995.

Table 11-15 highlights the financial results of for-hire trucking firms with annual revenues in excess of $1 million over the period 1993 to 1996. Over the four year period, the trucking industry had significant revenue growth, 12 per cent per year on average. However, these revenue increases were, in large part, offset by cost increases. Consequently, the industry's operating margin fluctuated between 3.2 and 4.7 per cent (Figure 11-3).

Table 11-15 also compares, by region, the carriers' operating ratios, which are a key indicator of industry efficiency and profitability. The lower the operating ratio, the higher the operating profit margin.

In 1996, carriers based in British Columbia, the Territories and in the Atlantic Region had the highest average operating ratios, 98 and 97.5 per cent, respectively. Carriers in Ontario had operating

ratios at 97 per cent, higher than the 95.7 reported by Quebec carriers. In 1996, carriers from the Prairie region had an average operating ratio of 96.5 per cent.

INVESTMENTS

At the end of 1996, the trucking industry's capital structure consisted of 56 per cent equity, 38 per cent debt and six per cent deferred taxes, although it is important to note that the capital structure varies significantly from one trucking firm to another.

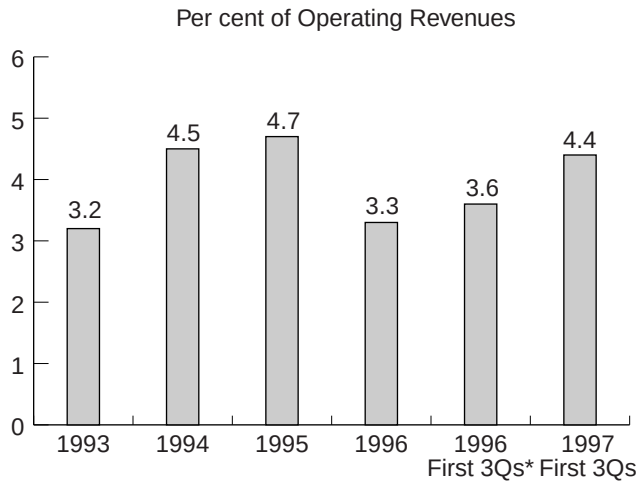
Net fixed assets of carriers earning more than $1 million annually grew from $2.2 billion in 1993 to $3.2 billion in 1996, due partly to the increased number of carriers and partly to capital expansion of the existing carriers.

TABLE 11-15
FINANCIAL RESULTS OF FOR-HIRE TRUCKING FIRMS
1993 – 1996

	1993	*1994*	*1995*	*1996*
	$million			
Operating revenues	8,935	10,559	11,659	12,602
Operating expenses	8,651	10,078	11,116	12,192
Operating income	284	480	543	410
Operating margin (%)	3.2	4.5	4.7	3.3
Number of carriers	1,481	1,616	1,986	2,008
Operating ratios (%) by region of domicile of carriers				
Canada	96.8	95.5	95.3	96.7
Atlantic	96.4	96.5	95.5	98.0
Quebec	96.5	95.0	95.1	95.7
Ontario	97.4	95.1	95.4	97.0
Prairies	96.4	95.8	94.9	96.5
West	96.8	95.8	96.8	97.5
Fixed assets	2,208	2,638	3,071	3,235
Debt ratio (%)	36.2	35.2	38.8	38.0

Sources: Statistics Canada, Cat. 53-222 and Transport Canada

FIGURE 11-3
OPERATING MARGINS OF THE FOR-HIRE TRUCKING INDUSTRY
1993 – 1997



* Annual averages of carriers with revenues ≥ $1 million, while quarterly data are based on large carriers with revenues ≥ $25 million.

Source: Statistics Canada

BUS

Changes in ownership of key bus firms took place in 1997. Charter operations remained the growing segment of the industry.

Scheduled intercity carriers, charter bus operators, school bus operators and urban transit operators make up the bus industry in Canada. Each segment of the industry shares the load for bus travel: carriers primarily providing scheduled services also provide charter services, while carriers primarily providing charter services also provide some scheduled and school bus services.

Scheduled intercity and charter bus operators provide the bulk of long-distance bus transport, both using similar equipment – highway coaches. School bus and urban transit operators carry out short-distance bus transport. However, school bus operations are second in importance in the industry, with more revenue and carriers than those of scheduled intercity and charter buses combined.

Figure 12-1 shows the structure and revenues of the bus industry in Canada in 1996. Table 12-1 summarizes revenues by source of revenue for the same year.

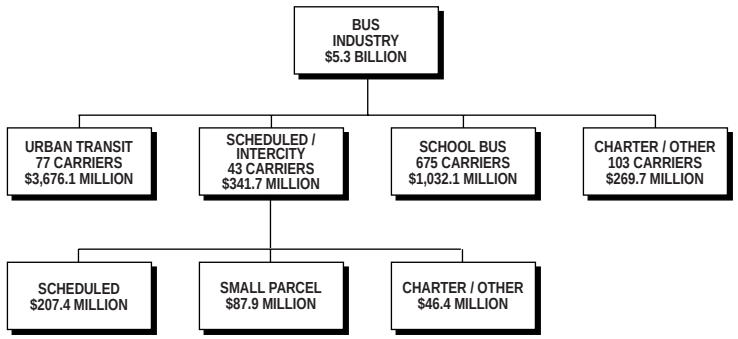
MAJOR EVENTS IN 1997

MOTOR VEHICLE TRANSPORT ACT, 1987 REVIEW

Motor carriers (truck and bus) that operate regularly across provincial boundaries (extra-provincial) fall under federal jurisdiction. Otherwise, bus operations came under provincial jurisdiction. However, the federal government does not actually regulate the operation of extra-provincial bus companies, having allowed each province to do so under the authority of the *Motor Vehicle Transport Act, 1987* (MVTA).

While the MVTA regime varies from province to province, in most cases the province maintains some form of control over rates, schedules, routes, and entry to and exit from the market. Carrier licences are usually quite specific about the type of service the

FIGURE 12-1
BUS INDUSTRY STRUCTURE AND REVENUES
1996



Source: Statistics Canada, Cat. 53-215-XPB

TABLE 12-1
SUMMARY OF REVENUES BY SOURCES OF REVENUE
1996

	Intercity bus operators	*Charter* bus operators*	*School bus operators*	*Urban** transit operators*	*Total*
Number of establishments	**43**	**103**	**675**	**77**	**898**
Sources of revenues			$ millions		
Scheduled services	207.4	19.3	--	--	226.7
Charters and tours	30.9	154.1	95.0	3.2	283.2
School/commercial contracts	7.8	15.5	805.7	3.7	832.7
Urban and suburban services	--	--	--	1,531.5	1,531.5
Other passenger services	7.0	67.6	107.8	5.8	188.2
Parcels, subsidies and other	88.6	13.2	23.7	2,132.0	2,257.4
Total	**341.7**	**269.7**	**1,032.1**	**3,676.2**	**5,319.6**

* *Consists of Statistics Canada's category of "other passenger bus establishments excluding school bus operators"*
** *Includes capital subsidies for urban transit operators.*

Source: Statistics Canada, Cat. 53-215-XPB

carrier is allowed to provide, typically specifying routes for scheduled service or the territory in which the carrier is permitted to offer charter service. Essentially, the *MVTA* obliges a carrier to obtain an operating authority in each province in which it wants to operate.

The economic regulation of the intercity bus industry has been raised in the context of the federal–provincial internal trade negotiations, and no consensus was reached as to whether it constituted an interprovincial trade barrier. The discussions nevertheless provided the impetus for possible changes to the bus section of the *MVTA.*

Transport Canada's 1996 review of the *MVTA* included consultations with the provinces and national industry associations. In April 1997, the *MVTA* Review Discussion Paper was released, which analysed the results of the consultations and suggested areas in the Federal Act requiring change.

The discussion paper proposed deregulating charter bus services and streamlining the regulatory requirements for scheduled bus service through amendments to the Act, followed by full deregulation after a two-year interval.

Transport Canada invited reaction to the paper from all interested parties. Responses revealed, among other things, that there was still no consensus among the provinces or the carriers on whether to ultimately deregulate scheduled service.

In October 1997, the Deputy Minister of Transport announced that Transport Canada would issue a position paper which would respond to the comments received on the discussion paper and set out specific proposed changes to the Act as the basis for a last round of consultations.

INDUSTRY EVENTS

There were several major developments in the industry in 1997, including the sale of charter services operators and of Greyhound Canada bus lines, Canada's leading intercity passenger bus service.

Coach USA Inc., a Texas-based charter operator, purchased two large Canadian charter carriers in 1997 – Autocar Connaisseur of Montreal, Quebec, and Trentway-Wagar Inc. of Peterborough, Ontario. Both acquisitions were approved under the *Investment Canada Act.*

In September 1997, Laidlaw Inc. purchased all outstanding shares of Greyhound Canada bus lines, a transaction with an aggregate value of approximately $100 million. This move complements Laidlaw's local bus operations in Vancouver and Winnipeg, and its charter and tour operations in Victoria, British Columbia, and Banff, Alberta.

CARRIER SERVICES

SCHEDULED INTERCITY OPERATORS

Services

Most of the operating authorities that make up individual bus routes are exclusive to a single carrier. There are exceptions, but the majority of scheduled intercity passenger traffic occurs on bus routes operated under exclusive permits. In addition to passenger service, intercity operators also provide bus parcel-express services from which they generate a significant portion of their revenues.

The number of buses operated by scheduled intercity carriers steadily declined between 1981 and 1989, then increased in 1990 and 1991. But since then, with the exception of 1994, the number of buses has declined every year (Figure 12-2).

Vehicle utilization, as measured by kilometres per unit of equipment operated, improved recently from a low of 107,000 bus-kilometres in 1992, to 129,100 bus-kilometres in 1995, then decreased to 124,000 bus-kilometres in 1996. Figure 12-3 shows how well the intercity fleet has been utilized from 1981 to 1996.

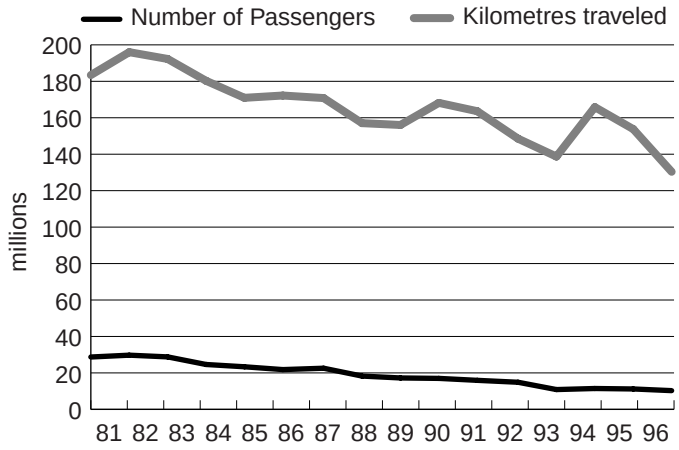
FIGURE 12-2
FLEET SIZE OF SCHEDULED INTERCITY BUS ACTIVITY
1981 – 1996

Source: Statistics Canada, Cat. 53-215

FIGURE 12-3
FLEET UTILIZATION OF SCHEDULED INTERCITY BUS ACTIVITY
1981 – 1996

Source: Statistics Canada, Cat. 53-215

FIGURE 12-4
ANNUAL SCHEDULED INTERCITY BUS ACTIVITY
PASSENGERS AND BUS-KILOMETRES
1981 – 1996



Source: Statistics Canada, Cat. 53-215-XPB

FIGURE 12-5
SCHEDULED INTERCITY BUS ACTIVITY
PASSENGERS PER 100 VEHICLE-KILOMETRES
1981 – 1996

Source: Statistics Canada, Cat. 53-215

Traffic

Long-term trends in the services provided by intercity carriers indicate an almost uninterrupted decline in passenger trips from a peak of 30 million passenger-trips in 1982 to 10.3 million in 1996. The year 1994 was the only exception. Figure 12-4 shows the changes in scheduled intercity passenger levels and the bus-kilometres they travelled from 1981 to 1996.

The relative trends in number of passengers and bus-kilometres travelled illustrates the difficulties faced by the industry in matching its services to the declining number of passengers. The industry is constrained by the minimum capacity offered by a single bus, the use of standard highway buses, preferred by operators for service quality and short-term cost considerations, and the spread of passenger demands over hours and days.

Figure 12-5 plots the number of passengers per bus-kilometre traveled from 1981 to 1996. The trend in passengers per 100 bus-kilometres indicates the average bus loads and shows an almost uninterrupted decline from close to 16 passengers per 100 bus-kilometres in 1981 to fewer than seven in 1994. Since the low of 6.9 passengers per 100 bus-kilometres in 1994, this measure has improved slightly to 7.9 in 1996.

CHARTER OPERATORS

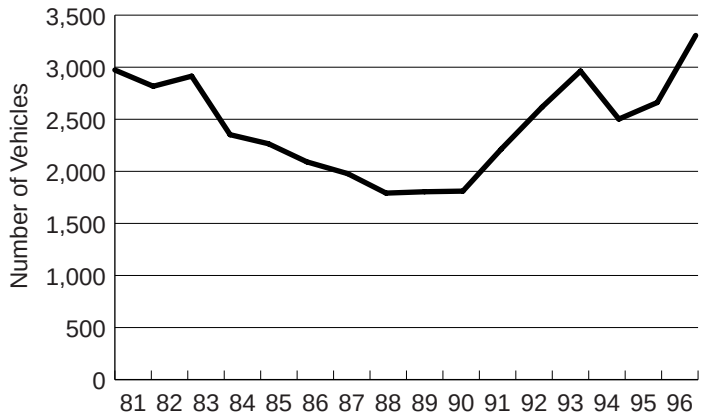
Services

Charter services are generally characterized by a group trip where all passengers embark and disembark at the same point. Generally, charter operators are granted the right to operate trips out of a given location or city and allowed open-ended access to destinations. Operators have the flexibility to offer a broad spectrum of services ranging from a half-day school trip to a three-week excursion to Florida. They can also offer return or one-way trips. Local sightseeing tours are also considered a form of charter service.

Figure 12-6 indicates a steady decline in fleet size from 1981 to 1988, a more stable period from 1988 to 1990, and a steady increase from 1990 to 1993, followed with some variations. The number of buses in charter operations was at its highest level ever in 1996.

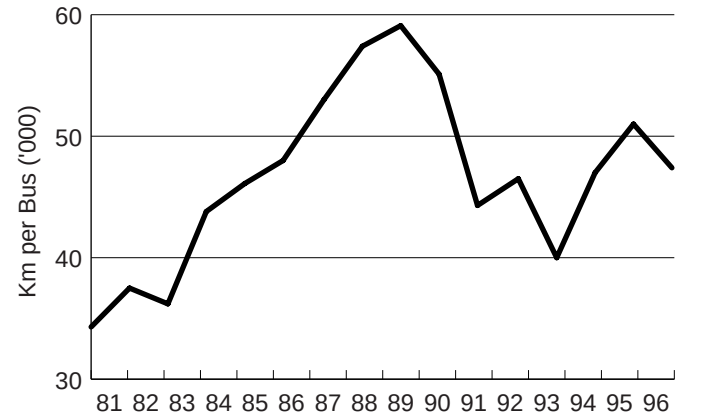
Charter bus use, as measured by the number of kilometres traveled per bus (km/bus), improved steadily between 1981 and 1989, reflecting a decrease in the total number of buses operated. As the fleet size increased in the early 1990s, vehicle use decreased accordingly. In 1994 and 1995, the adjustment downward to the fleet translated into an improvement of the fleet utilization. However, the significant increase in the number of buses reported in 1996 in charter operations translated into a relative drop in the average number of kilometres traveled per bus for that year. Figure 12-7 charts these fluctuations in charter bus fleet size.

FIGURE 12-6
FLEET SIZE OF CHARTER BUS ACTIVITY
1981 – 1996



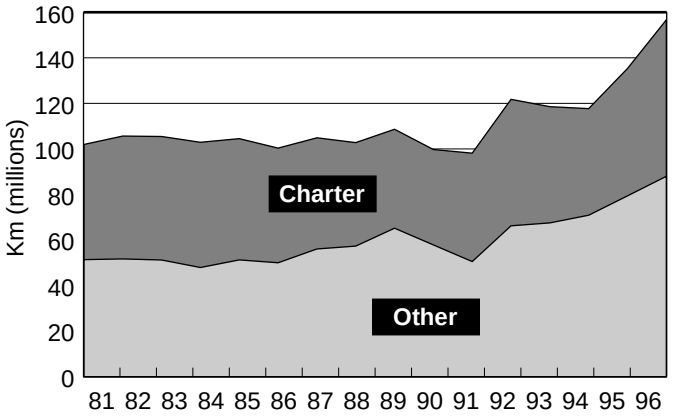
Source: Statistics Canada, Cat. 53-215

FIGURE 12-7
FLEET UTILIZATION OF CHARTER BUS ACTIVITY
1981 – 1996



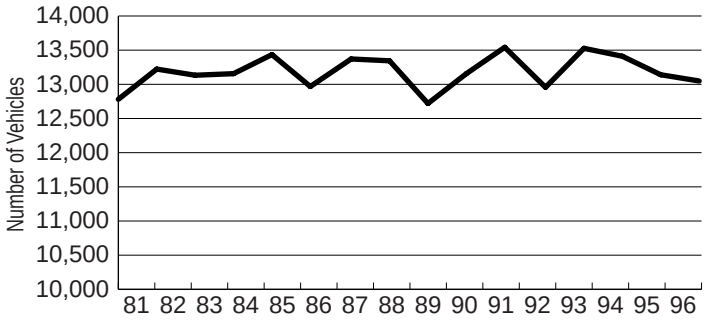
Source: Statistics Canada, Cat. 53-215

FIGURE 12-8
CHARTER CARRIERS' BUS-KILOMETRES
1981 – 1996



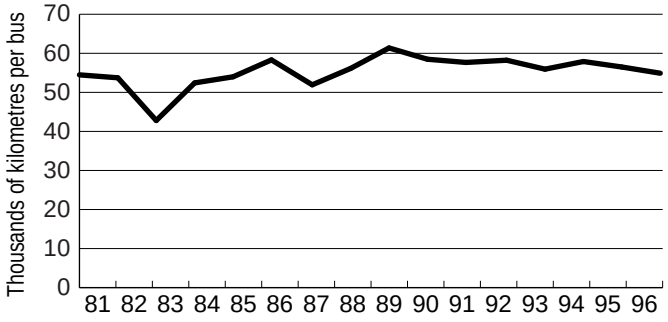
Source: Statistics Canada, Cat. 53-215

FIGURE 12-9
URBAN TRANSIT FLEET SIZE
1981 – 1996



Source: Statistics Canada, Cat. 53-215

FIGURE 12-10
URBAN TRANSIT FLEET UTILIZATION
1981 – 1996



Source: Statistics Canada, Cat. 53-215

Traffic

Figure 12-8 illustrates the development of the charter carriers' services since 1981. Charter business expansion is indicated by the increase in bus-kilometres. Since 1986, bus-kilometres increased by 76 per cent for charter services and by 36 per cent for other services provided by charter operators.

URBAN TRANSIT

Services

Urban transit is, in terms of revenues, the largest component of Canada's bus industry. All major Canadian cities have some form of local bus service. Typically, this service is subsidized by both municipal and provincial governments. Some transit companies offer school and charter services, as well as elderly and disabled services. Many cities, including Vancouver, Calgary, Thunder Bay, Kitchener and Montreal, are adding low-floor buses to their fleets to improve service for the elderly and disabled. Figure 12-9 shows urban transit fleet size from 1981 to 1996.

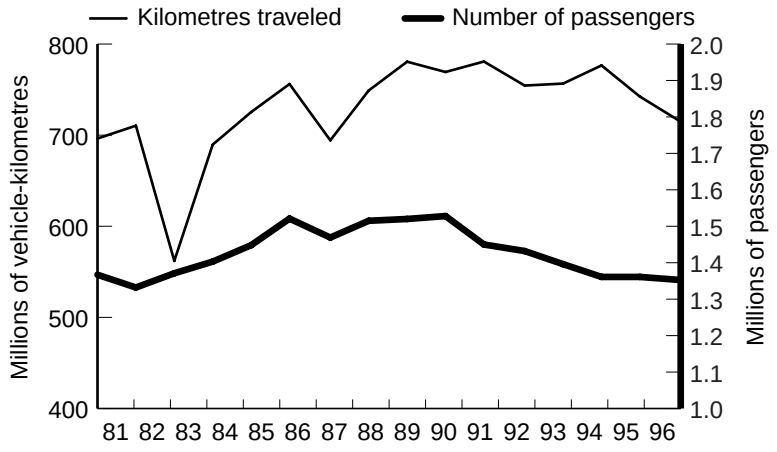
The number of urban transit vehicles and their utilization rate remained fairly stable during the 1990s, with the total number of vehicles ranging from 13,000 to 13,500 and the average annual utilization rate from 55,000 to 58,000 kilometres per vehicle. Since 1993, the number of vehicles in urban transit services has been declining, 1996 being no exception. Over 1,200 minibuses, small buses and vans are included in this urban transit fleet. The composition of the fleet has varied little over the past five years. Figure 12-10 shows urban transit vehicle utilization from 1981 to 1996.

Traffic

Figure 12-11 shows the long-term trends in urban transit. The number of passengers carried has declined continuously since the peak of 1.53 billion in 1990 to 1.35 billion in 1996. The average yearly distance traveled by all vehicles in urban transit operations, while almost unchanged between 1989 and 1994, declined in 1995 and 1996.

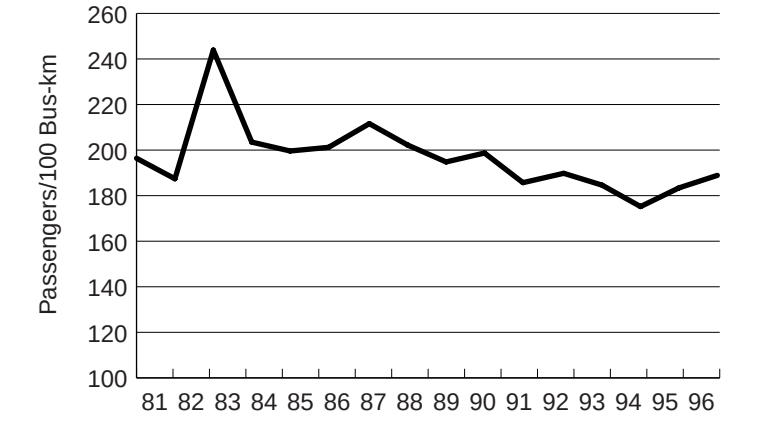
The number of passengers per 100 vehicle-kilometres gives an indication of the average bus load. Figure 12-12 reveals generally a declining pattern since 1983, with a few years with marginal increases over the preceding year (1987, 1990, 1992, 1995, 1996). The peak was observed in 1983 with 244 passengers per 100 vehicle-kilometres, while in 1996 this average load was at 188 passengers per 100 vehicle-kilometres.

FIGURE 12-11
LONG-TERM TRENDS IN URBAN TRANSIT
1981 – 1996



Source: Statistics Canada, Cat. 53-215

FIGURE 12-12
URBAN TRANSIT PASSENGERS PER 100 BUS-KILOMETRES
1981 – 1996



Source: Statistics Canada, Cat. 53-215

FINANCIAL PERFORMANCE

Since 1993, the intercity bus industry has shown significant improvements in operating margins, attributable to cost reductions and price increases. The financial outlook of the industry is stable.

The revenue growth of the industry is coming primarily from tour bus services offered through charter bus operations. The charter segment of the bus industry has shown a relatively higher profitability than other segments since 1994.

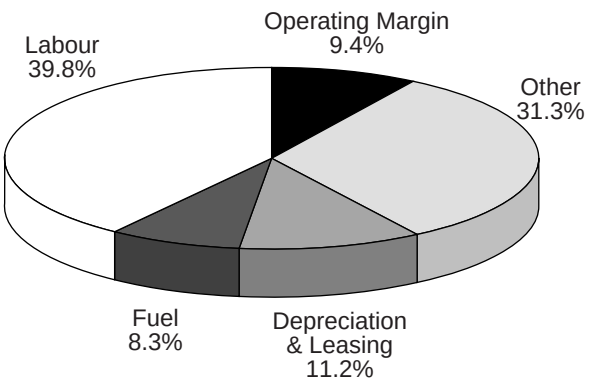
TABLE 12-2
PRICE AND OUTPUT CHANGES IN THE BUS INDUSTRY
1993 – 1996

	1993	*1994*	*1995*	*1996*
Price changes in %				
Regular Bus Services	(3.6)	0.5	2.4	4.9
Charter Bus Services	(3.1)	(2.1)	(4.0)	(0.2)
Total Bus*	(2.7)	(0.6)	(1.8)	0.6
Output changes in %				
Regular Bus Services	(3.2)	(0.2)	(14.0)	(2.6)
Charter Bus Services	2.7	(7.8)	18.8	5.2
Total Bus*	(0.6)	(3.2)	7.5	(2.3)

* Includes other passenger services and parcels

Source: Transport Canada based on Statistics Canada data

FIGURE 12-13
COST COMPONENTS OF THE INTERCITY BUS INDUSTRY
1996



Source: Statistics Canada, Cat. 53-215

REVENUES AND EXPENDITURES

The combined operating revenues for the for-hire bus industry (i.e. the scheduled intercity, school bus and charter segment) and the urban transit bus transport industry totaled $3.3 billion in 1996, excluding subsidies provided to the urban bus transit services. Including government subsidies, total revenues of the sector were in the order of $5.3 billion.

Although urban transit passengers across Canada paid a total of $1.6 billion to use bus services in 1996, this was not sufficient to cover the costs of urban transit operations. The average cost-recovery ratio was about 50 per cent. Therefore, this transport activity received government subsidies. In addition to operating subsidies, governments also contributed to capital expenditures on urban transit systems. Total operating and capital subsidies to this sector amounted to $2.1 billion in 1996.

Total revenues of school bus operators amounted to $1 billion in 1996. While school busing is a large segment of the bus industry in terms of revenues, its business scope is limited to special local services. Consequently, school bus operations are excluded from the financial performance analysis.

The intercity bus industry (i.e. scheduled and charter services) provides passenger services which have to be competitive with other modes of transportation. Total annual revenues from scheduled and charter bus services reached $611 million in 1996, of which scheduled bus operators had a 56 per cent share of the market, while charter bus operations accounted for the remaining

44 per cent. It is important to note, however, that the split of revenues between these two types of services is based on each carrier's main operations. Thus, a carrier classified as a scheduled bus operator may also have generated a smaller percentage of revenues from charter services and vice versa.

TABLE 12-3
FINANCIAL HIGHLIGHTS OF THE CANADIAN BUS INDUSTRY
INTER-CITY SCHEDULED AND CHARTER SERVICES
1993 – 1996

	1993	*1994*	*1995*	*1996*
			$million	
Operating revenues	598	579	608	611
Scheduled	368	381	365	341
Charter & other	230	198	243	270
Operating expenses	565	531	545	554
Scheduled	345	350	333	306
Charter & other	220	181	212	248
Operating income	33	48	63	57
Operating margin	5.5%	8.4%	10.4%	9.4%
Net fixed assets	355	336	375	362
Debt ratio	42.4%	47.8%	47.7%	48.3%

Sources: Statistics Canada data files

Output and Price Changes

The activities of the scheduled and charter intercity bus industry can also be divided as follows: 85 per cent passenger services, 12 per cent parcel services and three per cent other services. Scheduled passenger services used to generate up to 60 per cent of passenger revenues. In 1996, these were contributing less than 45 per cent of passenger revenues. When output measures are used, the differences are more striking.

Between 1992 and 1996, the output of charter services grew by 18 per cent while it declined by 19 per cent for scheduled services. The major factor has been a nine per cent decline in the price of charter services whereas the prices of intercity services rose by four per cent. Overall, the aggregate prices of bus services have nominally declined by four per cent since 1992, a drop of 13 per cent in real terms. In spite of lower prices, output increased by only 1.1 per cent over the 1992 – 1996 period (Table 12-2).

Industry Costs

Total labour costs accounted for 42.5 per cent of revenues[1] in 1993. Over the past three years, however, there has been a steady decline in the labour cost ratio. In 1996, total labour costs dropped to 39.8 per cent of total operating revenues, with drivers' wages and salaries alone accounting for 22 per cent of that total. The average cost of labour has remained well below that of other transportation industries, lower than even the average labour costs within the whole economy.

Within the bus industry, labour productivity was falling in the late 1980s and early 1990s. However, between 1992 and 1996, it increased by 13 per cent. During that same period, unit labour costs fell by almost ten per cent.

In 1996, fuel costs represented only 8.3 per cent of the bus industry operating revenues. Fuel costs have been stable over the past few years at eight per cent of total operating revenues. Since 1992, fuel efficiency has increased in the industry by 24 per cent, the best performance of any transport industry. Other operating costs, which include marketing, materials other than fuel, insurance and miscellaneous expenses, amounted to 46 per cent of operating revenues. The largest expenses are repair and maintenance (ten per cent of operating revenues). In 1996, the operating margin was 9.4 per cent (Figure 12-13).

Productivity

Total factor productivity of the intercity bus industry, after a strong growth in 1993 and 1994, slowed down to 0.7 per cent in 1996. In spite of a small blip in 1996, industry unit costs have declined by nine per cent overall since 1992. Since the unit costs of the bus industry have fallen more rapidly than its prices, the financial viability of the industry has improved over the last several years (Table 12-4).

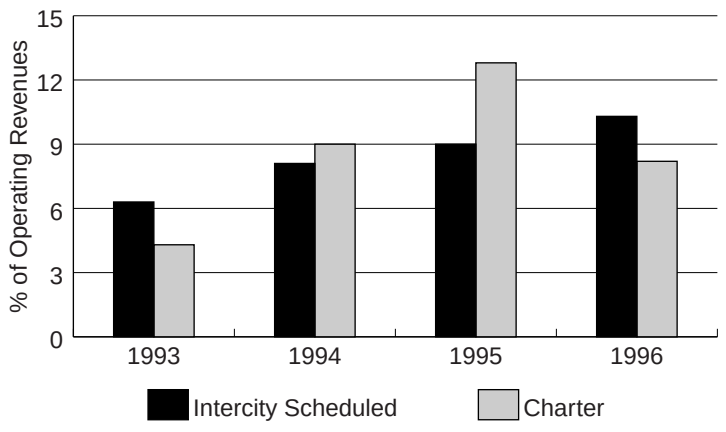
1 The relative importance of each factor input in the cost structure should be calculated in terms of total costs. But total costs include not only all operating costs, but also an allocation for the cost of capital. Measuring the cost of capital is a complex exercise and not all the information needed to measure it was available. Therefore total operating revenues were used in this report as a proxy for total costs under the assumption that net income is equivalent to the cost of capital.

TABLE 12-4
COST STRUCTURE AND EFFICIENCY INDICATORS OF THE BUS INDUSTRY
1993 – 1996

	1993	*1994*	*1995*	*1996*
Cost Structure (In % of Op. Rev.)				
Labour	42.5	41.2	41.7	39.8
Fuel	8.4	8.0	8.5	8.3
Employees (in 000)	8.8	7.9	8.3	8.0
Average Labour Cost per employee ($000)	29.0	30.3	30.4	30.5
Productivity Change (in %)				
Labour	0.9	9.1	(1.6)	4.3
Fuel	6.5	6.1	2.5	1.7
Unit Cost Change (in %)				
Labour	(3.7)	(4.1)	1.8	(3.8)
Total	(4.2)	(4.6)	(0.9)	(0.4)

Source: Transport Canada, based on VIA data files

FIGURE 12-14
OPERATING MARGINS OF INTERCITY SCHEDULED AND CHARTER BUS INDUSTRIES
1993 – 1996



Source: Statistics Canada, Cat. 53-215

PROFITABILITY

Table 12-3 presents the financial highlights of the Canadian intercity bus industry for the period from 1993 to 1996.

Following a year of growth in 1995, the bus industry's revenues leveled off in 1996. Although total revenues of charter bus services increased by 11 per cent, this increase was offset by weaknesses in scheduled bus activities. Nevertheless, in 1996 scheduled intercity bus operations showed an improved profitability, while charter bus services faced a decline in its profit margin. Overall, the industry's operating profit margin came down to 9.4 per cent in 1996, still a significant improvement over the 5.5 per cent of 1993.

The scheduled bus industry was able to improve its profitability by increasing its prices and reducing its costs. On the other hand, the charter bus segment of the industry faced a deterioration in its profitability in 1996, despite higher sale volumes and revenues stimulated by lower average prices.

INVESTMENTS

Total net fixed assets, including equipment and other property, were valued at $362 million in 1996. Provision for depreciation was about $45 million in 1996, but equipment leasing by carriers increased slightly.

On average, the capital structure of the bus industry consisted of 48 per cent debt and 52 per cent equity.

TRANSPORTATION STATISTICS

Regulations were introduced for transport data collection and developmental work on a "Canadian Vehicle Survey" was initiated.

Reviewing the state of transportation in Canada requires information, statistics and analysis. While this report makes extensive use of various sources of data, the limited availability of statistics has narrowed the scope and extent of its coverage. Nevertheless, the usefulness of transport statistics is evolving rapidly.

Owners and/or operators of transportation facilities require statistics to monitor trends and performance, forecast changes, judge the adequacy of their facilities and services, evaluate their competitive position, and develop alternatives to improve efficiency and economic performance. Designers and overseers of transportation policy need to monitor developments in activities and carrier markets. Regulators need to measure the safety and environmental damage control aspects of system performance, design cost-effective interventions, and evaluate their efforts after implementation.

Governments are becoming increasingly concerned with transportation safety and transportation's environmental impacts. As such, they will continue to be involved in prescribing the performance characteristics of transportation infrastructure and vehicles, setting operating and maintenance practices for carriers, and determining shippers' obligations in handling hazardous materials. They will also continue to enforce regulations by inspecting equipment and facilities, testing equipment and operators, auditing enterprises, and controlling road traffic behaviour.

In addition, the travelling and tax-paying public, employees of transportation-related industries, and transportation planners and researchers all have legitimate interests in obtaining comprehensive national statistics on transportation in Canada. Prior to 1997, there was no routine compilation of transportation information in a single source, but that gap is being filled by this

report, as required by the *Canada Transportation Act*.

The legislation directs that the annual report provide extensive quantitative information, which the department interprets broadly to allow non-specialists to understand the transportation system and its performance. The legislation also directs that the previous calendar year be the focus of the report, posing an additional challenge to obtain statistics within a very short time frame.

The report does not, however, assemble a compendium of statistics, but rather provides interpretations of statistics that reveal characteristics and trends. Brief summary tables and graphics present much of the quantitative information, while a data compendium available on Transport Canada's Web site contains the underlying statistics.

Improved National Statistics in 1997

Transport Canada's past, present and future changes to the ownership and operations of transportation in Canada have had important consequences for national statistics. A number of organizations in each mode of transportation – air, marine, road and rail – are no longer covered by routine federal statistics-gathering. For example, organizations that were previously government operations, such as many airports and ports and the air navigation system, used to provide their operating and financial statistics within Transport Canada but are no longer required to do so in the reorganized department. In addition, they are not the subject of Statistics Canada industry surveys.

The *Canada Transportation Act* of 1996 (section 50[1]) provided a solution to this problem. It gave the Minister of Transport the authority to require data on the operations of any transportation undertaking under federal jurisdiction. Once regulations were introduced, the provision further clarified the Minister's authority to obtain data for policy development, operations or program planning, and for the preparation of this annual report.

During 1997, regulations were introduced concerning rail undertakings, marine service undertakings, federal airports and Local Airport Authorities, Nav Canada, and the St. Lawrence Seaway. Subsequent regulations will apply to ports, including those under federal operation and the proposed Canadian Ports Authorities, and to the non-carrier undertakings in grain transportation – elevators and terminals.

Major Remaining Gaps

While these regulations will broaden the information available on commercial transportation enterprises, there continues to be insufficient national statistics on private transportation activities, which account for almost all national passenger travel (passenger-kilometres) and a significant portion of freight traffic (tonne-kilometres). These gaps limit the government's ability to plan for infrastructure and public-carrier service requirements, understand private-transport accident risks and environmental damage, and compare accident risk and environmental damage intermodally.[2]

To be even more effective in the future, the government requires data that includes:

a. descriptions of the road vehicle fleet, distinguishing vehicles by type (i.e., cars, light trucks, and heavy trucks of various sizes);

1 Section 50 reads:
"(1) The Minister may, with the approval of the Governor in Council, make regulations requiring carriers or transportation or grain handling undertakings to which the legislative authority of Parliament extends to provide information to the Minister, when and in the form and manner that the regulations may specify, for the purposes of
(a) national transportation policy development;
(b) annual reporting under section 52;
(c) operational planning;
(d) any safety or subsidy program;
(e) any infrastructure requirement; or
(f) the administration of this Act.

(2) Information required to be provided under subsection (1) may include the following:
(a) financial data;
(b) traffic and operating statistics; and
(c) fitness and ownership information"

2 For the last comprehensive Transport Canada assessment, see Lawson, J: Data Needs Review, Economic Analysis, Transport Canada, July 1993 [available in html on www.tc.gc.ca/tfacts/Report].

b. aggregate descriptions of vehicle-kilometres by road vehicles, according to:
   - type of vehicle,
   - demographics of drivers and other occupants,
   - time (hour, day, month) and
   - age of vehicle;

c. aggregate descriptions of tonne-kilometres, according to:
   - total carried by private freight vehicles, and
   - total arrived by private freight vehicles carrying hazardous commodities; and

d. descriptions of traffic on highways by route or road section according to:
   - annual average daily traffic volume, and
   - proportion of heavy trucks.

REMEDIAL ACTION

During 1997, Transport Canada, in partnership with Statistics Canada, began development of the "Canadian Vehicle Survey," a new national survey to gather information on the road vehicle fleet, vehicle-kilometres and tonne-kilometres.

In collaboration with the Canadian Council of Motor Transport Administrators and the vehicle licencing authorities in the provinces and territories, Statistics Canada draws samples of vehicles from vehicle registration files and asks owners to provide information on activities, including one-to-seven-day logs of all trips. These include the odometer readings for each trip, the start and finish times, driver demographics, the number of occupants for passenger vehicles, and commodities carried for freight vehicles.

Throughout 1997, Statistics Canada and the collaborating agencies formed working groups on a methodology that would allow access to registration files, while still safeguarding confidentiality. In addition, the groups designed questionnaires and tested them on focus groups. By the end of the year, they had started a pilot program, sampling 500 vehicles in Quebec and British Columbia.

If the methods prove sufficiently reliable and cost-effective, the groups plan to begin a national pilot program to test 1,000 vehicles in the first half of 1998, with the intention of full-scale implementation later in the year.

If the national survey proceeds as planned, the next priority for national transport statistics will be to describe the route traffic on Canada's highways. And, if the application of intelligent transportation system technology fulfils its promise of recognizing and recording vehicles cost-effectively, Transport Canada can look forward not just to traffic volume descriptions but also to a wealth of data that describes trips from origin to destination.

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