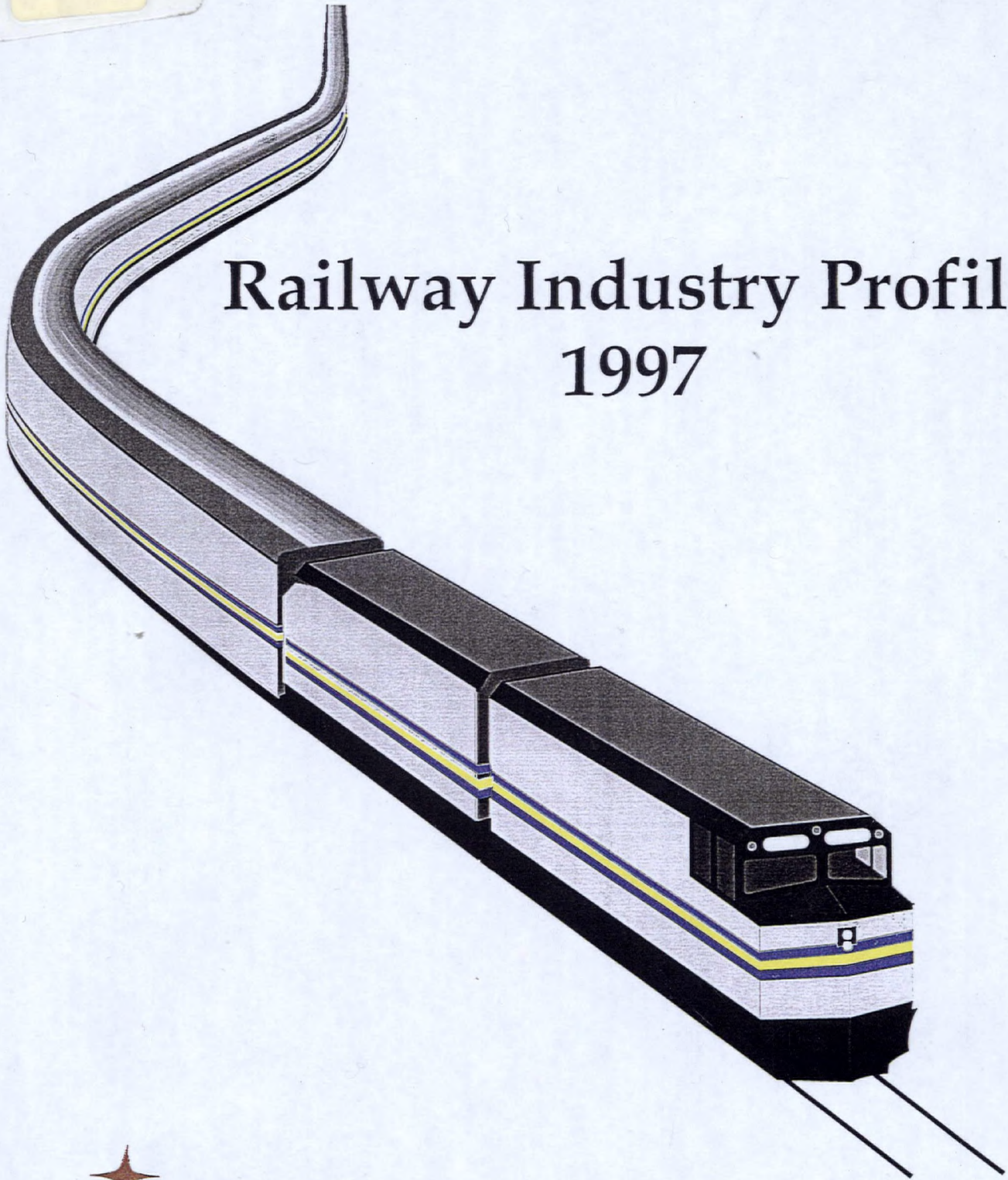


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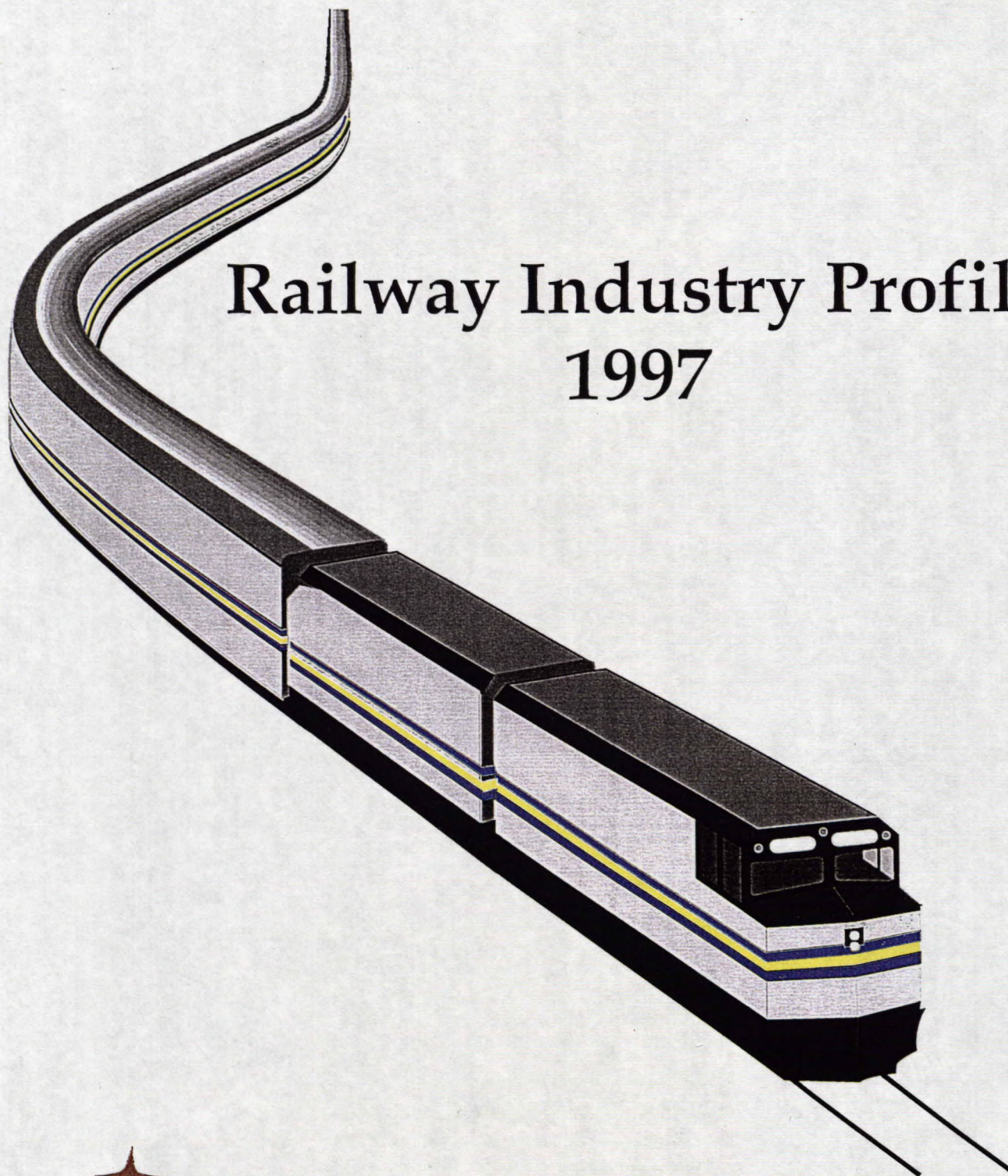


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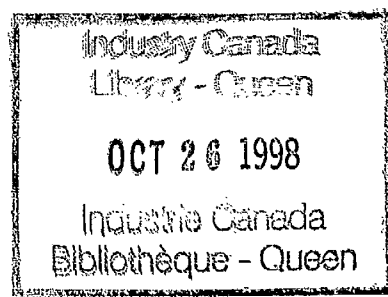


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Railway Industry Profile



Transportation Industries Branch
Industry Canada
March 1997

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Introduction

Railways have formed an important part of the Canadian consciousness since the building of the Champlain and St. Lawrence Railway in 1836. Soon, the Grand Trunk connected Montréal with Toronto and Chicago. Following Canadian confederation in 1867, a railway to the west was seen as an important agent in the successful extension of Canada to the west coast. British Columbia joined Confederation in 1871 on the promise of a railway from the east. The Canadian Pacific Railway Company, financed with investment capital largely from Great Britain and grants of capital and land from the Canadian government, was built and opened for transcontinental operations in 1885.

Canadian National was incorporated in 1918 to take over and manage railway companies owned by the Government of Canada (Canadian Government Railways) such as the Intercolonial, which stretched from Halifax to Diamond and Lévis (near Québec). Between 1918 and 1923, the government was "... obliged to take over the Canadian Northern and Grand Trunk Systems along with other bankrupt lines and merge them into the publicly owned Canadian National Railways."¹ Canadian National became an important Crown corporation. As well as being the largest railway in Canada, it owned and operated a chain of hotels across the country. It also operated enterprises in trucking, communications and ocean shipping, and was for a time the parent company of Trans-Canada Airlines, which later became Air Canada.

Canadian Pacific developed into Canada's first conglomerate, owning its own chain of hotels, shipping fleets that included the world-class Empress passenger liners, Great Lakes steamships and ferries on both coasts, Canada's largest trucking company and an international airline. As well, the company owned total or controlling interest in large enterprises involved in real estate, mining and smelting, forest products and coal. During most of this period, CN and CP provided both freight and passenger services to most points in Canada. In 1977, the federal government set up VIA Rail to take over the intercity and remote passenger services of CN and CP.

This profile discusses both freight and intercity/rural passenger services. Commuter operations and street railways are not discussed other than to note that CN, CP and VIA are active in some aspects of conventional commuter operations in Montréal (for the STCUM), Toronto (for GO Transit) and Vancouver (for BC Transit). While VIA's role in commuter services is limited to equipment servicing and repairs, CN and CP provide commuter lines, crews and other services to the commuter authorities.

¹ *Report of the Royal Commission on Transportation*, Vol. 2 (Ottawa: December 1961), pp. 186-87.

Freight Services

Industry Environment

Global

Canadian railways are *for-profit* privately financed corporations. The Canadian railway sector more closely resembles the U.S. system of shareholder owned railroads than it does the state owned and operated railways prevalent in most of the world. Notwithstanding, Britain is in the process of privatizing British Rail, which was created by the post-Second World War nationalization of its previously privately owned operations. Because railways operate between fixed points, their competition is other nearby railways, trucking companies and sometimes marine carriers.

During the past 20 years, there have been many changes to the structure and regulation of North American rail companies. In the late 1970s, railroads in the eastern United States experienced severe financial difficulties that culminated in the bankruptcy of PennCentral and several smaller companies. These were reorganized into ConRail, which for a number of years resembled a Canadian Crown corporation. It was later privatized. Also, with the objective of achieving a more viable future for its railroads, the U.S. government enacted regulatory changes. These included the *Regional Rail Reorganization Act of 1973* (3R Act), the *Railroad Revitalization and Regulatory Reform Act of 1976* (4R Act) and especially the *Staggers Rail Act of 1980*.

These enactments provided for the restructuring of certain eastern and mid-western railroads, for government funding and latterly for a substantial lessening of economic regulation. Considerable restructuring commenced, with the major line haul carriers spinning off low-density lines to short line operators and with the major regional carriers consolidating into larger regional carriers. Until these changes began, CN and CP were the only transcontinental railways in North America and were larger than most of their U.S. counterparts. Recent mergers, most notably Burlington Northern-Santa Fe and Union Pacific-Southern Pacific, have led to mega carriers that approach transcontinental service. Each carries three times the freight traffic of either CN or CP. The continued interest in a takeover of ConRail by either Norfolk Southern or CSX could create a mega carrier in the east. These consolidations will ultimately change the working relationships with the Canadian railways

and could erode the Canadian companies' bargaining power on movements to and from U.S. gateways.

Canadian Context

Prior to 1980 (the U.S. *Staggers Act*), Canadian railways (under the *National Transportation Act* of 1967) had less economic regulation than their U.S. counterparts. Since 1980, they have been the more tightly regulated. In 1987, Canada enacted the *National Transportation Act, 1987*, which permitted some U.S. style reforms such as confidential contracting while introducing two measures in particular that strengthened the hand of shippers with respect to railway rates — *competitive line rates* (CLR) and *final offer arbitration* (FOA).

The rate setting formulas contained in the CLR provisions proved unworkable, and CLR decisions produced unusually low rates. This issue was reviewed by the National Transportation Act Review Commission, which recommended changes to the CLR provisions. Subsequently, with the enactment and proclamation of the *Canada Transportation Act* (CTA) of 1996, any rate prescribed by the Canadian Transportation Agency (including CLRs) must be “. . . commercially fair and reasonable to all parties.” Since 1987 and particularly since the CTA, the conversion of lines that CN and CP wish to eliminate from their systems into short line operations has been encouraged.

In 1984, Canada eliminated the so-called *Crow's Nest Pass* level of rates on grain from western origins and replaced it with a two-tiered subsidized rate structure under the *Western Grain Transportation Act* (WGTA). There were in effect two rates: one paid by the shipper of the grain, and one paid by the Government of Canada as a subsidy for the movement of the grain. The WGTA was repealed in 1996 as part of the CTA package, the subsidy was eliminated, and shippers (grain companies and producers) now must pay a rate equivalent to the combined shipper and government rates of the WGTA.² These rates will continue at least until the completion of a review in 1999 mandated by the CTA into the effect of that Act and the specific western grain-related provisions therein.

As compensation for the elimination of the subsidized rate structure, western farmers have been given a one-time payment. Farmers are expected to truck longer distances to country

² As under the previous regime the regulatory agency, now the Canadian Transportation Agency, will calculate annual adjustments to the level of rates, at least until 1999.

elevators or inland terminals located on higher-density rail lines either in their own trucks or by using custom truckers. This is expected to result in the closure of smaller elevators and low-density branch lines. Also, now that the subsidized rate regime has ended, the federal government is considering what to do with its large fleet of railway covered hopper cars it had built to assist with the movement of western grain.

Most Canadian railways were developed to move goods on an east-west basis. Connections with U.S. railroads have existed since the earliest days of railroading in Canada but have become increasingly important in recent years. With the implementation of the Canada-U.S. Free Trade Agreement and latterly the North American Free Trade Agreement, the flow of goods north-south has increased, both in absolute and in proportionate terms. In 1990, some 21.5 percent of freight traffic handled by Canadian railways was either destined for or received from U.S. connections. This increased to 26.4 percent by 1994.

Post-Second World War development of intercity trucking and the building of good roads across the country led to a decline in rail's share of the transportation market. Many areas where rail once dominated are now considered to be truck markets. As late as the early 1970s, CP alone ran three 100 car *piggyback* trains between Montréal and Toronto daily. The market now is almost exclusively truck. Truck now is the predominant form of transport for most major intercity movements of non-bulk traffic of less than about 1 300 kilometres.

The railways have largely evolved into carriers of long distance intermodal movements of goods in containers and trailers, of forest products, and of large-volume, low-value commodities such as iron ore, coal, grain and potash. Unit train shipments of coal from Alberta and British Columbia mines for export have risen from very small amounts in the late 1960s to over 31 million tonnes in 1995.

The 13 major commodity groups³ identified in Table 1 comprised 61.2 percent of freight loaded onto railways in Canada in 1995. Overall, Canadian National and Canadian Pacific loaded 71 percent of freight traffic. If iron ore, which is carried exclusively by three specialized railways operating in the Québec-Labrador region, were to be excluded from freight traffic totals, the combined CN-CP share of loadings would increase to almost

³ At this level of detail, the commodity classification contains some 320 commodity groups.

84 percent.⁴ The other heavy loading commodities set out below are traditional areas of railway strength because of the volume of movement (e.g. trainloads of grain for export) and because of the length of haul involved (e.g. forest products to the U.S. market).

Table 1
Major Commodity Groups and Share of Traffic, 1995

Commodity	Tonnes	Share of total
	(000)	%
Live animals	negligible	0.0
Food, feed, beverages and tobacco	31 883	
Wheat, oats and barley	26 012	10.3
Other	5 871	2.3
Crude materials, inedible	125 527	
Iron ore	38 669	15.2
Coal	40 864	16.0
Pulpwood chips	10 491	4.1
Other	36 600	14.4
Fabricated materials, inedible	75 213	
Lumber, woodpulp and newsprint	23 171	9.1
Potash	13 025	5.1
Other	39 017	15.4
End-products inedible	3 918	1.5
Special types of traffic	17 134	
Piggyback, container and pool car	16 580	6.5
Other	554	0.2
Non-carload freight	9	—
Total	253 684	100.0

Source: Statistics Canada, *Rail in Canada*, Catalogue No. 52-216, 1995.

In 1995, CN attributed 17 percent of freight revenue to intermodal, but the data in Table 1 understate this situation, since domestic intermodal traffic is mostly reported within the individual commodity groups. This situation occurs because most of the domestic intermodal traffic handled by the Canadian railways (over 70 percent of domestic intermodal revenue) is marketed directly to the shippers. This contrasts with U.S. rail practices whereby most domestic intermodal traffic results from the railroads wholesaling their services to trucking companies and *third-party* organizations who resell the transportation to the actual shippers.

⁴ Since much freight moves over more than one railway, CN and CP handle an even greater share of freight traffic than these figures suggest.

Some rail intermodal traffic is included in Table 1 under *Piggyback, container and pool car* and some is recorded according to the commodities contained — especially *Fabricated materials, inedible, other*. Intermodal is, however, the fastest-growing segment of railway traffic because it adds flexibility to rail services, allowing the railways to compete at shipper locations without rail sidings and for shipments that are small or time-sensitive. Automobile manufacturing traffic (probably virtually all of *End-products, inedible* in Table 1) is much more valuable than its tonnage suggests. In 1995, Canadian National reported that almost 10 percent of its freight revenues were derived from traffic assigned to CN's auto industry product grouping and that its average revenue per ton-mile was \$0.1631, over four times the average of \$0.0371 for all freight traffic.⁵

Regional Factors

Beginning late in the last century, most small Canadian railways were absorbed either by ownership or (almost) permanent lease into the networks of the larger companies. This was seen as a means of ensuring control of traffic originating or terminating on these lines and whose line haul component was seen as of critical importance to the major railway. Notwithstanding, several regional and more localized carriers continued to exist into the present decade. Commencing with the revision to legislation in 1987, the major carriers have encouraged the redevelopment of short line operations independently from (but tied by connection to) their major activities. The primary advantages to these operations are lower labour costs and greater sensitivity to specific needs of shippers on the line.

The short line operator usually obtains a provincial charter and proceeds to reduce labour cost by avoiding the major rail unions and the strict functional boundaries on which they insist. Usually, short line employees are assigned several functions. The short line operator does not have to invest in freight cars, as they are supplied by the connecting line haul carrier, usually the company that disposed of the line. Labour *successor rights* legislation in Saskatchewan and British Columbia has limited the development of short line railways in those provinces. Ontario also had such legislation, but it was repealed in 1996.

⁵ Basic data were obtained from Canadian National, *Annual Report* (Montréal: 1995), p. 30.

Canadian Industry

During the past two decades, both Canadian transcontinental railways have abandoned large portions of their route networks and have sold much of their non-rail interests. Both have long been out of the water passenger mode. Canadian Pacific Airlines was sold to and merged with Pacific Western to form Canadian Airlines International. Canadian National sold its hotel chain to Canadian Pacific Hotels. Canadian Pacific significantly reduced its large real estate holdings, and continues to do so. Both operate today as smaller and tighter operations, in keeping with the changed demands of current economic and traffic conditions.

Structure

In its booklet *Railway Trends 1996*, the Railway Association of Canada lists 32 member companies. Virtually all railways are members of the association, and the number of short lines is increasing steadily. Notwithstanding, the two major Canadian companies, Canadian National and Canadian Pacific, dominate the industry, with almost 90 percent of the roadway operated. There are three regional carriers, two in Northern Ontario and one in British Columbia. The Algoma Central (ACR), which recently became a subsidiary of the U.S.-owned Wisconsin Central, runs north from Sault Ste. Marie to Hearst, Ontario, while the Ontario Northland Transportation Commission (ONTC), owned by the Province of Ontario, operates the Ontario Northland Railway from North Bay to Moosonee on James Bay, from Cochrane to Calstock, Ontario, and from the north-south line across the provincial boundary to Noranda, Québec. The British Columbia Railway (BCR), is owned by the Province of British Columbia and operates from North Vancouver to Prince George, British Columbia, and points north. All three have connections with both CN and CP.

Three specialized railways operate between the North Shore of the St. Lawrence River and the iron ore mines in the interior of Northern Québec and Labrador. The Québec North Shore and Labrador Railway is owned by the Iron Ore Company of Canada, Wabush Lake Railway/Arnaud Railway by Wabush Lake Mines, and Cartier Railway by Québec Cartier Mining. There are also the Devco Railway in Nova Scotia, which carries primarily coal from local mines to the steel mill at Sydney, and the Roberval Saguenay, which carries primarily aluminum-based commodities between La Baie and Jonquiere, Québec. Both of these railways are effectively owned by their principal shipper.

The remaining Canadian lines are either terminal or short line railways. Some of these have been in business for many years performing switching, and sometimes short haul movements to enable transfer to CN or CP. The Essex Terminal Railway performs this service in the Windsor, Ontario, area, and the Southern Railway of British Columbia carries out the corresponding service in the lower Fraser Valley. The Devco, while predominantly a carrier of coal to the steel mill at Sydney, Nova Scotia, could also be considered in this category.

The others are relatively new short line carriers operating former CN or CP lines. They usually deliver a low volume of traffic to the connections with the former operators of the lines, although some handle important local traffic. Example railways include:

- The Windsor and Hantsport in Nova Scotia operates part of the former Dominion Atlantic Railway's (CP) lines.
- The Central Western Railway operates former CN and CP branch lines in central Alberta.
- The Goderich and Exeter operates a former CN branch line north of Stratford, Ontario, which serves the salt mine at Goderich and several grain elevators.
- The Société des chemins de fer du Québec operates a former CN branch line along the north shore of the St. Lawrence from Québec City to Clermont, essentially providing service to area paper mills.

Canadian Pacific has terminated operations in the Atlantic provinces and has transferred its trackage between Saint John, New Brunswick, and Sherbrooke, Québec, to new transborder operators. In addition, CP recently concluded an agreement with the Central Western Railway to operate its lines in the Ottawa Valley in Ontario. CN obtained concessions from the rail unions enabling it to establish internal short lines in the Okanagan region of British Columbia and in northern Québec. CP has concluded a similar agreement in central Ontario.

Both CN and CP have invested in tunnels in southern Ontario to improve access to and from the United States. Canadian National built a new tunnel between Sarnia, Ontario, and Port Huron, Michigan, on its Toronto-Chicago main line. This tunnel was built to accommodate the largest railway cars now in service, including tri-level automobile carriers and double-stacked containers. In an article on the Port of Halifax, *Traffic World* reported that the

percentage of Halifax-handled containers bound for Chicago increased from 2 percent before the tunnel opened in April 1995 to 10 percent in September 1996.⁶ The president of the Halifax Port Corporation indicated that the port's volumes into Chicago increased from 16 400 TEUs⁷ in the first half of 1995 to 20 600 TEUs during the same period of 1996.⁸ CN is the only railway serving Halifax, while CP, by virtue of its control of ocean liners calling at Montréal, dominates the rail container movements into and out of that port.

When CN announced the new tunnel at Sarnia, CP enlarged one of the two tubes in the joint CN/CP tunnel between Windsor and Detroit to accommodate most dimensional loads except double-stacked domestic containers. CP deemed this investment necessary to maintain its competitiveness with CN, particularly for automobile industry traffic and to maintain the competitiveness of the Port of Montréal for import/export container traffic to and from the U.S. Midwest.

Canadian railways are important players in the United States. Canadian Pacific owns and operates the SOO Line Railroad and the Delaware and Hudson Railroad, while Canadian National owns and operates the Grand Trunk Western and the Duluth, Winnipeg and Pacific. Not only do these roads serve shippers in their areas, but also they provide CN and CP with direct access to important U.S. markets and rail connections.

American railways come into Canada, essentially to connect with the Canadian railways; they do not operate extensive routes here. ConRail operates into Montréal, CSX and Norfolk Southern operate into and through southern Ontario between Niagara Falls and Windsor/Sarnia, and Burlington Northern comes into Winnipeg, Manitoba, and Nelson and Vancouver, British Columbia. Prior to its sale of Canada Southern to CN and CP in the mid-1980s, ConRail had an extensive network in southern Ontario. CSX also had an extensive network, but this has been reduced significantly through line abandonment during the 1990s. In addition, American companies such as RailTex, Iron Road Railways and OmniTRAX are becoming major forces in the operation of short lines in Canada.

⁶ Terry Brennan, "Halifax Midwest Volume," *Traffic World*, September 9, 1996, p. 27.

⁷ TEU refers to 20-foot (6.1 m) equivalent units, the standard measure for marine containers. A 40-foot-long (12.2 m) container would be equal to two TEUs.

⁸ Terry Brennan, "Halifax Midwest Volume," *Traffic World*, September 9, 1996, p. 27.

Performance

Railway profitability has been on a “roller coaster ride” in recent years. This can be partly attributed to massive write-downs of railway assets. One frequently used performance measure is the *operating ratio* (operating expenses/operating revenues). Table 2 shows the operating ratios for the period 1988–95 for CN and CP, individually and combined. Trends are difficult to determine, given the substantial charges for the restructuring and write-down of assets. It is noted, however, that in 1995 the U.S. Class I railroads had a combined operating ratio of 0.86, with the three biggest eastern companies ranging between 0.74 and 0.86 and the three major western companies ranging between 0.79 and 0.92.

Table 2
CN and CP Operating Ratios for Canadian Operations

	CN ^a	CP ^a	Combined ^b	Combined ^{b,c}
1995	0.99	1.22	1.09	0.91
1994	0.89	0.87	0.88	0.86
1993	0.96	0.91	0.94	0.94
1992	1.20	1.11	1.16	0.95
1991	1.00	1.00	1.00	0.92
1990	1.03	0.89	0.97	0.94
1989	0.94	0.92	0.93	0.91
1988	0.95	0.86	0.91	0.92

^a Source: Statistics Canada, *Rail in Canada*, Catalogue No. 52-216, annual.

^b Source: Railway Association of Canada, *Monthly Operating Statistics*, (Montréal: RAC, 1996).

^c Excluding extraordinary items.

Railway revenues and traffic levels were hurt by the downturn in the economy of the early 1990s. For example, according to the Railway Association of Canada, average revenue per tonne-kilometre (a standard railway measure), declined from 2.50 cents in 1988 to 2.32 cents in 1995. Some of this may be attributed to increased bargaining leverage on the part of shippers, while some may be due to a change in the traffic mix with the railways carrying more lower-valued commodities and fewer higher-valued ones.

Analysis of the Canadian Industry

Technological Factors

Electronic Data

For decades, Canadian railways have been industry leaders in the application of computers and information technology. Both CN and CP have invested heavily in recent years to allow for full electronic data interchange (EDI) with shippers and other carriers in order to create a paperless railway system. By early 1996, half of the bills of lading for CN shipments were being received by EDI. Customs information for international shipments is also transferred electronically, and many railway customers can track the status of their shipments via the Internet. Both major railways are currently upgrading the EDI functions at their major intermodal terminals. Overall, these investments are made to provide two basic benefits: improved customer service and reduced costs.

Motive Power and Rolling Stock

After years of rebuilding and overhauling 1970s vintage locomotives when many of their U.S. counterparts were introducing new, high-horsepower ones, Canadian railways have entered into extensive investment programs for new motive power. CN is planning to replace nearly 550 locomotives with 400 new ones over a 15-year period. To date, CN has ordered 105 (with an option for a total of 175) new 4 300 SD-75I units from General Motors. CP took delivery of 83 new 4 000 hp units with AC traction in 1995 and is continuing its locomotive program with new acquisitions and some remanufacturing. New locomotives require less maintenance per unit and are considerably more fuel-efficient per tonne moved, and fewer are required per train.

The railways' fleets of box cars both standard and specialized (e.g. refrigerated, insulated) and other car types are aging. With a nominal service life of about 30 years, many are close to or have exceeded this age. Some have been upgraded or rebuilt to provide continued service beyond this threshold. Not as many new box cars are being built as previously; rather the Canadian railways are replacing much of their box car fleet with domestic containers, both dry box and specialized. These changes account in part for the rapid growth of domestic containerization. While several car types are declining in importance, bulkhead flat cars, open and covered hoppers, and specialized auto and auto parts equipment are not.

Specialized equipment for the carriage of dangerous commodities and chemicals is usually shipper owned or leased.

While the railways own most of the domestic container fleet operating on their lines, Canadian Tire and The Bay are providing containers for the movement of their own shipments. Others may follow. Containers are built by trailer manufacturers such as MANAC and MOND rather than by rail freight car manufacturers.

Recently, the railways have been buying new covered hoppers with a carrying capacity of 100 tonnes, an increase of 10 percent from the previously largest cars.⁹ To accomplish this, the railways have upgraded selected lines to accommodate this traffic. In 1994 and 1995, National Steel Car built 2 500 of these high-capacity covered hoppers for grain transport for CP operations in Canada and the U.S.¹⁰

Intermodal Transport Systems

Intermodal transport is growing, and this growth may be assisted by new forms of intermodal technology. The RoadRailer system (where modified highway trailers are placed on rail and pulled as trains) has been in operation for a number of years, and it has now been joined on a trial basis by the Iron Highway and the Canadian-developed system used by Ecorail.

The Iron Highway is a new form of *piggyback* that provides a module containing two power units and a continuous deck of 1 200 feet (366 m) that can accommodate up to twenty 53-foot-long (16 m) trailers. Several modules can be connected to form a conventional-length train. This system is designed to attract piggyback traffic from for-hire and private truckers, and is best suited for medium-length hauls between urban areas.

Like RoadRailer, the Ecorail operation is based on carless operation; that is, the highway trailer or container chassis is used as the rail car. For movement by rail, bogies are placed under each end of the trailer. This technology is designed to be transferable anywhere the

⁹ Some U.S. railroads (e.g. BN and NS) can now carry up to 315 000 pounds (143 200 kg) total weight with newer cars on selected routes. The previous standard was 263 000 pounds (120 000 kg).

¹⁰ Canadian Pacific Railway web site: <http://www.cprailway.com/steelwh2.html>

tracks are level with a road surface; it does not require specialized unloading facilities or equipment. It is hoped that this system will prove useful for remote locations.

Structural Factors

Canada has two large (by Canadian standards) railways, a few mid-sized and regional companies and a growing number of small operators. Neither CN nor CP are large relative to the mega railroads (BN and UP) now emerging in the United States, and their ability to bargain to retain the long portions of the movements in Canada may be put to the test. The growing trend to *strategic alliances* among connecting carriers such as the Superior Connection partnership of Canadian National, CSX, Wisconsin Central and Illinois Central for the movement of intermodal traffic between western Canada and the United States, may be the route the Canadian railways have to follow in order to protect their revenue share and long haul.

The railways, particularly CN and CP, complain about the "unfairness" of Canadian railway taxation in comparison with competing modes in Canada and with their U.S. railroad competitors. A 1993 study for the Transportation Association of Canada reports that Canadian taxes represented 14 percent of railway gross revenues and 8 percent of motor carriers' gross revenues.¹¹ The Railway Association of Canada reported that its member companies paid \$470 million in locomotive, fuel, property and other sales and excise taxes in 1995.¹² The railways recently received taxation relief on fuel taxes in Manitoba and Alberta, property tax in Ontario, and investment business tax in British Columbia. Notwithstanding, the railways (and to a lesser extent other modes of transportation) remain more heavily taxed than other industrial sectors. This must be expected to affect rail equipment suppliers, rail's customers and the competitiveness of the mode.

In addition, the railways must take longer to depreciate their assets than their competitors in trucking or other railways in the U.S. For example, ". . . more favourable Capital Cost Allowances for the trucking industry mean that highway trailers are assessed a rate one third

¹¹ KPMG Peat Marwick Thorne and KPMG Peat Marwick Stevenson & Kellogg, *Transportation Taxation and Competitiveness* (Ottawa: Transportation Association of Canada, 1993).

¹² Railway Association of Canada, *Railway Trends* (Montréal: RAC, 1996), p. 15.

more favourable than for similar intermodal containers, used for identical purposes by the railways.”¹³

In recent years, there has been much discussion about the consolidation and/or rationalization of railway plant in Canada. CN and CP developed a plan to rationalize their lines in the Ottawa Valley that ultimately did not go ahead. They then considered merging the eastern operations of the two companies and, when that failed, CP offered to buy the eastern assets of Canadian National. This offer, made while CN was a Crown corporation, was rejected by the federal government.

In 1995, the Government of Canada privatized Canadian National after over 70 years as a Crown corporation. Canadian Pacific has been divesting itself of non-core assets and in 1996 relocated its railway management from Montréal to Calgary to be closer to its major sources of traffic, the western-based resource producers. These changes follow 20 years of significant decentralization by both carriers of decision making from the Montréal core to regional offices.

Environmental Factors

Emissions

The effects of various activities and processes on the natural and human environments have been causing substantial concern. In transportation, emissions from transportation fuel consumption are seen as a major environmental concern. Railways are more fuel-efficient than trucking for movements of any distance and therefore hold potential for a reduction in carbon dioxide emission. While rail holds out the promise of lower emission levels, the complexity of industrial shipping patterns may be expected to limit the applicability of rail where transportation decisions are made on a commercial basis.

More stringent U.S. emission standards will have little if any effect on Canadian railways. Their older motive power is used on branch lines and lower-density operations within Canada. Train operations between Canada and the United States would utilize newer equipment and would operate to destinations such as Chicago, often in joint service with

¹³ Railway Association of Canada, Submission to the House of Commons Standing Committee on Transport Concerning Transportation, Trade and Tourism, Ottawa, November 19, 1996, p. 9.

U.S.-based railways. Notwithstanding the higher incidence of older motive power in Canada, much of this has been rebuilt to recent standards and may be more environmentally up-to-date than newer U.S.-operated motive power. In Canada, the railways have a Memorandum of Understanding (MOU) with Environment Canada that provides for a maximum nitrogen oxide emission of 115 kilotonnes a year based on 1989 work effort. If business grows, the permissible limit increases although, with newer fuel efficient locomotives coming onstream, relative emission levels are expected to decline.

Transportation of Dangerous Goods

Up to 10 percent of the total freight traffic carried by CN and CP is classified as dangerous. For the movement of these commodities, special precautions are taken with respect to train makeup, placarding, equipment design and train inspections. Trains or cars handling dangerous goods (DGs) are involved in one quarter to one third of reported railway accidents, but this relatively high level is substantially due to different rail accident reporting criteria. Many of these accidents are so minor that they would not be reportable except for the presence of DGs. In 1995, five railway accidents led to the release of some quantity of dangerous goods; however, 99.9 percent of DG shipments by rail were delivered safely.

Railway Safety Issues

Accidents on Canadian railways have been declining since the late 1970s. CN's and CP's numbers of accidents per train-kilometre are consistently below the average rate for U.S. Class I railroads.

Operation Lifesaver, sponsored by the Railway Association of Canada and Transport Canada in conjunction with various government agencies and member railways, is an example of a railway safety program. This program, in part directed at youth, publicizes the hazards of grade crossings and trespassing on railway tracks. It has been credited with contributing to a significant reduction in grade crossing accidents.

Competitive Assessment

As discussed earlier, U.S. railways are less regulated than are their Canadian counterparts. Much U.S. freight traffic is totally exempt from economic regulation (e.g. intermodal traffic) and the U.S. railroads were able to quickly rationalize their plant by the early 1980s. Only

recently have Canadian railways been able to do so. The absence of economic regulation has allowed more rapid efficiency gains in the U.S. than in Canada.

Domestically, Canadian railways, particularly in eastern Canada, face strong truck competition for most available traffic. As indicated earlier, the railways have lost most of their intermodal traffic originating and terminating in the Québec–Ontario market to over-the-road transport. This loss is due to competition in both service and price. They now are taking steps to try to regain some of this traffic by implementing the EcoRail and Iron Highway concepts.

Line rationalization (abandonment or sale) is an ongoing feature of railway plant rationalization. For example, CN, CP and CSXT abandoned or sold over 1 200 kilometres of track in 1996. In the summer of 1996, CP forecast a further reduction of 2 500 kilometres (13 percent of its network), with most of the change being in eastern Canada. Its Canadian and eastern U.S. holdings have been consolidated in the St. Lawrence and Hudson Railway and are separated corporately from the rest of its system. CN's plan calls for the elimination of nearly 4 200 kilometres of line, mainly in western Canada. This represents nearly 15 percent of its network. CN's published reports also call for the elimination of a further 2 000 kilometres by 1999.

Since 1990, at least 15 new railway companies have been formed to take over operation of 3 600 kilometres of former CN and CP lines. While earlier transfers were branch lines (e.g. Central Western), some of the later transfers to short lines and regional carriers include secondary main lines.

The railways for several years have been successful in improving the efficiency of their operations. This has included (with regulatory approval) elimination of cabooses and reaching agreement with the unions to reduce the size of train crews, a process where Canadian railways had led the North American industry. They are expected to continue the cost reduction process, and the reaction of the rail unions is an open question. Other ways of reducing costs include transfer of low-density lines to short line operators who are not bound by the collective agreements of the major railways and, as previously mentioned, institution of internal short lines through agreement with the unions.

Employment levels on all railways in Canada have declined significantly from over 69 000 in 1990 to under 52 000 in 1995, but average compensation increased from \$41 251 in 1990 to

\$51 602 in 1995. In this respect, it is noted that the increase in average compensation pertains primarily to CN and CP (which can in part be attributed to the elimination of a greater proportion of lower-paid employees); it decreased significantly on VIA.

Evolving Environment

Abandonment of unwanted lines became easier with the proclamation of the *Canada Transportation Act* in 1996. No longer do railways need regulatory approval to abandon trackage. They need only publicly provide three-year plans of lines they do not wish to retain, make them available for sale to interested parties and then governments. If no sale (or transfer) occurs, operations on the line can be discontinued after giving statutory notice to the Canadian Transportation Agency. As a result of the *Canada Transportation Act*, the railways are now able to abandon grain-dependent branch lines that they were previously forced to retain until at least 2000.

The number of short lines is increasing, CP is advertising its Manitowadge subdivision for sale and VIA recently bought the CN Chatham subdivision from Chatham to Windsor in Ontario to protect its passenger operations. The Société des chemins de fer du Québec has recently completed negotiations to acquire the CN line on the south shore of the Gaspé peninsula as far east as Chandler.

The railways are also buying new motive power, particularly high-powered diesel electric units and large, covered hopper cars capable of carrying 100 tonnes of freight (10 percent more than previous cars), and are upgrading selected track segments to handle these larger cars.

Passenger Services

Industry Environment

Most passenger rail operations throughout the world are government-owned and -operated. In many countries, they are the predominant public mode for intercity travel. The United States set the example for Canada with the establishment of the National Railroad Passenger Corporation (Amtrak) in 1971, when it took over the passenger services of the U.S. railroad companies. The arrangement involved a swap of shares in Amtrak for equipment, stations and running rights concessions. In return, Amtrak removed a burden from the freight haulers and provided an integrated rail passenger service.

In Canada, the railways lost most of their passenger traffic with the advent of good roads and air travel. Notwithstanding, the federally regulated railways remained obligated to continue many of their operations and in return received a portion of their losses in subsidy payments. In 1977, in response to the railways' requests for relief, the federal government established VIA Rail to take over most of CN's and CP's passenger operations. By this time, many remaining services were on CN lines, and VIA's operations remain concentrated on CN lines.

In the autumn of 1989, because of increasing losses on the services and concern about the level of government payments, the federal government reduced VIA's operations substantially. This included a 30-percent reduction in the size of VIA's network and a 50-percent reduction in the number of train-kilometres operated. Most regional routes were eliminated, and the frequency of long distance trains was reduced to less than daily. The newly created seasonal tourist train between Vancouver and Jasper/Banff (the Rocky Mountaineer) was sold to a private company, Great Canadian Rail Tours. As a result of all these factors, VIA's ridership fell by 46 percent from 6.5 to 3.5 million passengers in 1990. In 1995, passenger volume was 3.6 million. VIA's fare-based revenues declined from \$244 million in 1989 to \$139 million in 1990.¹⁴ By 1995, revenue had increased to \$162 million.

In 1995, Canadian railways carried about 4.1 million passengers, of whom VIA carried over 88 percent. This is a slight decline from 1991 levels of about 4.3 million passengers, with a

¹⁴ Revenues for the Rocky Mountaineer were \$6.6 million in 1989, the last year of VIA's operation.

¹⁵ A few operate over CN or CP lines or over the lines of the newly established short line railways.

VIA share of 85 percent. The average passenger journey increased from 335 kilometres in

Dog Central in Manitoba and Royal Hudson steam excursions on the BCR. Newer entries in the market include the Train à Vapeur H-C-W and Les Trains touristiques St. Laurent in Québec, the York-Durham Heritage Railway and South Simcoe Railway in Ontario, Alberta Prairie Railway Excursions in Alberta, and the Kettle Valley Steam Railway in British Columbia. Even the White Pass and Yukon Route, which suspended operations in the early 1980s after the loss of its major freight customer, has been reactivated to offer passenger excursions. Patronage in excess of 500 000 has been estimated for tourist railway operations.¹⁶

Performance

Throughout the 1980s, VIA operated in the range of 30 percent operating cost recovery and required federal government capital and operating funding that increased from \$408 million in 1980 to \$637 million in 1988. At the same time, passenger volumes dropped by more than 15 percent, partially in response to a progressive reduction in the number and extent of routes offered.

Since 1989, VIA has increased its operating cost recovery to 44 percent¹⁷ and reduced its total government funding requirements to \$295 million (1995 figures). This has been accomplished through cost cutting, a continuing program of staff reduction and renegotiation of labour agreements, plus modest gains in revenues. Despite the improvements over the years, VIA's financial targets remain formidable; it is seeking to increase its (operating) cost recovery level to 60 percent and reduce subsidy requirements to less than \$200 million by 1998. Failure to meet the funding targets may well result in further cutbacks in VIA's network.

Analysis of the Canadian Industry

Technological Factors

Much of the existing fleet of rolling stock is old. The smaller railways operate very old equipment often purchased from CN, CP, VIA or other railways. Even VIA's fleet is aging,

¹⁶ Report of the Railway Safety Act Review Committee, 1994.

¹⁷ VIA does not include capital amortization in its calculation of cost recovery rates. For 1995, this inclusion would reduce cost recovery to approximately 40 percent.

although the Budd stainless steel equipment from the mid-1950s was recently rebuilt to current standards. Canada has not followed the European lead toward massive public investment in high-speed rail.

Structural Factors

Regular intercity or regional passenger operations are at best maintaining a very limited ridership with significant government funding. The major growth area in recent years has been the development of excursion operations, both steam and diesel.

Competitive Assessment

The once large rail passenger market now is largely restricted to intercity services in the Québec–Windsor corridor, some remote services and services that appeal to tourists. The private automobile dominates short- to medium-length passenger travel and is expected to continue to do so. For longer distance and business travel, air is the preferred mode and will continue to dominate.

One area that has received much attention in recent years is the potential for high-speed rail passenger services in the Québec–Windsor corridor. Over the past 25 years, a number of detailed studies of the concept have been conducted. The major inhibiting factors are the high capital investment and the limited size of the potential market.

Evolving Environment

Changes in the freight railway system present challenges to the maintenance of VIA's network. As rail lines are abandoned or transferred to short line operators, VIA is forced to change. With the transfer of CP's Montréal–Saint John line to other companies, VIA rerouted its Montréal–Saint John–Halifax train over the CN line, and recently, to maintain passenger train service to Windsor, Ontario, VIA had to purchase a 55-kilometre segment of CN's Chatham Subdivision that was scheduled for abandonment.

The Société des chemins de fer du Québec has recently completed negotiations to acquire the CN line on the south shore of the Gaspé peninsula as far east as Chandler¹⁸ and VIA has come to an agreement with this new railway over passenger operations.

VIA Rail is under continuing pressure to reduce its dependence on government payments and to recover more from fares. Over time, VIA's subsidies are scheduled to be reduced. Much of its equipment is old and, while it has been refurbished, will require replacing. Also, as the freight railways abandon more and more lines, it is unclear whether VIA will have the ability to acquire lines in order to maintain its passenger services.

Table 3
Major Canadian Railway Companies

Railway	Ownership	Head office	Jurisdiction
Canadian National Railway	private	Montréal	federal
Canadian Pacific Railway	private	Calgary	federal
Algoma Central Railway	private	Sault Ste. Marie	federal
Ontario Northland Transportation Commission	public	North Bay	fed/prov
British Columbia Railway	public	Vancouver	provincial
Québec North Shore and Labrador Railway	private	Sept Îles	federal
Cartier Railway	private	Port Cartier	provincial
VIA Rail Canada	private	Montréal	federal

¹⁸ While CN has sold the line as far east as Chandler, the balance of the line, operated only by VIA, has not been sold. In fact, it is in poor condition and is a prime candidate for abandonment.

Railway Industry Profile

Table 4
Principal Statistics on Canadian Railways

	1988	1989	1990	1991	1992	1993	1994	1995
Firms (number)					27	27	30	32
Freight revenues (\$ millions)	6 411	5 922	5 816	6 007	5 764	5 842	6 617	6 485
Passenger revenues (\$ millions)	228	254	151	156	159	174	176	181
Government payments (\$ millions)	764	653	515	491	498	500	434	377
Rail operating income (\$ millions)	897	294	388	457	272	329	567	387

Source: Railway Association of Canada, *Railway Trends 1993-1996* (Montréal: 1996), selected tables; Statistics Canada, *Rail in Canada 1989-1995*, Catalogue No. 52-216, annual, selected tables.

Table 5
Canadian Railway Passenger Data^a

	1988	1989	1990	1991	1992	1993	1994	1995
Number of passengers (000)	6 998	7 014	4 022	4 099	4 075	3 961	4 027	3 942
Passenger kilometres (000)	2 411	2 550	1 351	1 404	1 421	1 393	1 422	1 460
Passenger train kilometres (000)	21 331	21 688	11 159	10 988	11 354	11 326	11 548	10 981
Average length of journey (km)	359	378	357	364	370	370	375	385

^a Does not include tour train ridership on regional freight railways or tourist railways.
Source: Railway Association of Canada, *Railway Trends 1996* (Montréal: 1996), p.18.

Table 6
Route Kilometres by Type of Railway as of July 1, 1996^a

	Length	Number
	(km)	
Canadian National and Canadian Pacific	46 105	2
Traditional regionals ^b	4 179	3
Iron ore railways	1 182	3
Traditional short lines/terminals	689	7
New railways (since 1986)	1771	7 ^c
U.S. Railroads in Canada	1 446 ^d	6
Passenger	134 ^e	6 ^f
Total	55 506	34

^a The table excludes about one dozen short railways with an aggregate length of no more than a few hundred kilometres; it also excludes existing railway companies that are part of other railway companies.

^b Includes ACR, ONTC and BCR.

^c Plus two companies in the U.S.

^d At least half of this distance represents trackage rights used by U.S. railroads rather than separate track.

^e Track owned by VIA and GO Transit, which may also be in CN's total; does not include approximately 14 000 route kilometres over which passenger trains have operating rights.

^f Includes AMTRAK, three commuter authorities and one tourist operation.

Source: Railway Association of Canada and other data.

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