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Preliminary Estimates of the Financial Costs and Revenues of Rail Transportation in Canada in 2000

Full Cost Investigation – Phase 1

Economic Analysis Directorate
Transport Canada

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Version 1.1

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Version History

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Referenced Documents

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Investigation of the Full Costs of Transportation: A Discussion Paper	The discussion paper describes the FCI project approach. The paper is available from: http://tcwwwtest/pol/en/Report/FullCostInvestigation/General/General001.htm	Sept. 2003	John Lawson, TC, Economic analysis
Straight Ahead	Vision document available from: http://www.tc.gc.ca/aboutus/straightahead/menu.htm		Transport Canada

1 Background

This document provides estimates for the financial costs and revenues of rail transportation in Canada and forms part of a joint federal-provincial research effort into the full costs of transportation in Canada, where the transport networks assessed will include the road, rail, air and marine transportation networks. The Full Cost Investigation is being steered by a Task Force reporting to the Policy and Planning Support Committee and to the Council of Deputy Ministers responsible for Transportation and Highway Safety.

The impetus for the project can be found in the Transport Canada vision document "Straight Ahead" which includes the principle of "user pricing that better reflects the full costs of transportation activity" as a component of the departmental vision. Given the responsibilities of different levels of government in Canada in regards to transportation, the impact of knowing more about the full costs of transportation and its potential implications on pricing mechanisms and governance structures for public infrastructure are important issues for consideration by all jurisdictions with transportation responsibilities. "Straight Ahead" states "the Government of Canada is interested in collaborating with industry, provincial, territorial and municipal governments and with academia in the search for a broader consensus on the full costs of transportation and practical solutions."

As specified in the introductory document to the FCI project: "Investigation of the Full Costs of Transportation: A Discussion Paper", the project follows a phased approach where the public and private financial costs are initially determined, and subsequent phases determine the social costs. Social costs refer to valuation of the social impacts associated with congestion, accidents, pollution and noise.

The Full Cost initiative encompasses five distinct phases; those five phases are:

- Phase 1: The determination of the annual financial costs and revenues for each of the four transportation modes (air, rail, road and marine), at the national level;
- Phase 2: The determination of the annual financial costs and revenues for each of the four transportation modes, at the provincial level;
- Phase 3: The allocation of costs and revenues to passenger and freight transportation.
- Phase 4: Determination of the total and average social costs associated with each of the four transportation modes; and,
- Phase 5: The estimation of the social and financial marginal costs associated with each transportation mode, by type of vehicle and/or service.

This paper is focusing solely on the rail mode and provides preliminary Phase 1 national estimates of the annual financial costs and revenues for that mode only. The document is divided into three main sections: one section addressing the costs and revenues of Class 1 railways providing freight transportation, another section addressing the costs and

revenues of shortline and regional operators (that may also be referred to as the 'non-Class I operators') and, another section presenting the financial costs and revenues of passenger rail transportation.

Data and information pertaining to the railway companies and used to derive the estimates presented herein were collected from official national statistics, public reports of the companies and Transport Canada's (TC) rail carrier database. Estimates of the financial costs and revenues of rail transportation are developed for:

- Class 1 rail carriers (CN, CPR and VIA Rail), and
- A group of more than forty regional and shortline carriers that for the most part operate within a single province (although there are a number of exceptions).

A list of the rail carriers included in the Investigation analysis is available from Appendix A.

All figures presented in this paper are aggregated at the national level. Figures at the provincial level will be produced during the Phase 2 of the Investigation. The base year for the project is the year 2000.

2 Summary of Methodology

A feature that certainly makes the rail sector unique is the fact that (in most cases) railway carriers own and maintain the rail infrastructure. This is different from the other modes being studied in the Investigation where a clear distinction (in most cases) between the owners of the infrastructure and the users had to be introduced. For the purpose of the project, the rail assets consist of two main large asset categories: equipment and, roadway and structures.

In the Full Cost Investigation, we are limiting our scope to the transportation infrastructure located in Canada. In the case of the rail mode, this means that we are covering operations on the Canadian rail network only. The operations of non-Canadian rail carriers (U.S.-owned) making use of the Canadian rail infrastructure are therefore in scope and financial estimates presented here reflect the Canadian portion of their operations.

Only financial costs are considered in this paper, as social costs will be accounted for in phase four of the project. Financial costs include all operating and financing costs, including the opportunity cost of capital. At this time, the sensitivity range for the opportunity cost of capital used was 5 and 10 percent in real terms.

The rail industry is a capital-intensive industry and both the annual capital costs as well as the current costs to maintain the system and run operations are estimated here. The capital base was calculated using the current value of historical capital expenditures, less depreciation. To do so, the perpetual inventory method was applied to capital expenditure data extracted from historical rail capital expenditure data (collected by Transport Canada (TC)) in order to arrive at an estimate of the current value of the asset base. The asset base, as mentioned earlier, consists of two main categories: equipment and, roadway and structures. The asset life was set at 30 years for equipment and 50 years for Roadway and structures. This is generally aligned with the Generally Accepted Accounting Principles approach and industry practice.

Capital spending records were available for the larger railways but for other companies (non-Class 1 railways) some assumptions had to be made to estimate as accurately as possible their asset base in year 2000.

Land value estimates were treated distinctly from other capital assets as the issue of the treatment of land values is under consideration by the Full Cost Investigation task force. Figures that do include land value estimates are shown separately in the relevant tables being presented throughout the document.

The 5 and 10 percent opportunity cost of capital percentage values referred to earlier was applied to the capital base in order to arrive at a TC estimate of the capital charge. This

figure was applied to all assets used for operations, irrespective of their source of financing, meaning that actual debt-financing costs were not included in the total costs.

On the revenue side, revenues for rail transportation are (in nearly all cases) available by category thereby allowing to clearly distinguish freight revenues from passenger revenues and, other sources of revenues. Government one-time payments and/or subsidies, if any, are also shown separately. Freight revenues are sourced from shippers/clients of the railways while passenger revenues consist of what passengers paid for their intercity journey.

The limited number of Class 1 carriers and the quality and availability of data allows for a fairly straightforward exercise when it comes to freight transportation. However, as noted earlier, the presence of more than forty regional and shortline carriers in the rail freight business and the degree of interaction (interlining) between these carriers and Class 1 carriers definitely adds a degree of complexity to the task and makes for a somewhat more challenging exercise. On the freight side, separate estimates for Class 1 and shortline-regional carriers are developed and presented here. At this stage, all costs and revenues of the Shortline and Regional carriers are allocated to freight transportation. While a number of 'non Class 1 carriers' are known to offer passenger transportation, most of that business is seasonal in nature and consequently does not fall within scope of this Investigation. A closer examination currently in progress will determine if there is a need to incorporate any 'non Class 1' passenger business to the passenger rail portion of this Investigation.

On the rail passenger side, it is common knowledge that annual passenger revenues (net of government subsidies) do not cover VIA Rail's "economic" costs of providing the service and the FCI estimates do not diverge from that widely established fact. One of the key objectives of the Investigation is to establish what portion of the costs associated with a transport mode and its infrastructure are borne by the direct users of that mode versus all other stakeholders. The Investigation is different from a pure accounting exercise and for that reason government subsidies to intercity passenger rail are not combined with revenues directly derived from passengers (direct users of the service). Subsidies are an important source of financing for the intercity rail passenger service but they are presented in this document as revenue not coming from the direct users but as a third party (government) contribution to the service.

Other railway companies besides VIA Rail provide rail passenger service on specific intercity segments (sometimes on behalf of VIA Rail); for instance, CN and CPR do report passenger revenues. In principle, costs for these passenger services will be accounted for separately unless they are deemed not to be significant. In the case of CN and CPR, the fact that a portion of their assets supports the delivery of passenger services requires that a portion of their costs (albeit small) be allocated to the passenger business. For this preliminary set of estimates, the simplistic approach adopted here is to assume that the portion of costs allocated to the passenger business is equivalent to the proportion

of the company's passenger revenues relative to their total revenue base. A number of alternate approaches are possible and may be explored in subsequent sets of estimates.

A number of regional and shortline railways[1] also offer passenger services (sometimes also on behalf of VIA Rail) and several of them receive some government financial assistance (either from the federal or provincial government or both) to provide the service. The preliminary set of estimates presented here treats all regional and shortline railways' business as freight; the next version of this paper will make the distinction and appropriately allocate the passenger portion of the regional and shortline railways business to the rail passenger transportation element of the Investigation (when deemed significant).

One should note that heritage railways and seasonal/tourist operations are not in scope of the Investigation while streetcar/tramway services and commuter rail will be dealt with the Transit portion of the FCI.

With respect to passenger rail infrastructure, VIA Rail owns very little of the network it operates rail passenger services on and consequently payments are made to CN and CPR for use of their tracks. The FCI captures these as well and allows for a framework that acknowledges these as an expense for VIA Rail and a revenue stream for the other two Class 1 carriers.

[1] Some examples of such are: the Quebec North Shore and Labrador railway, Ontario Northland, Hudson Bay Railway, former BC Rail, former Algoma Central (now CN–owned) just to mention a few.

3 Financial Costs and Revenues of Class I Freight Rail Transportation

There are only two Canadian Class I carriers providing freight transportation services: CN and the Canadian Pacific Railway (CPR).

3.1 Assets

The total financial costs of the Class I Rail system includes the cost of capital, depreciation and other operating expenses such as wages, fuel and, property taxes. Prior to determining the cost of capital, the value of the asset base was calculated using the perpetual inventory method mentioned earlier. The current value of the asset base for each year of the 1998-2002 period is presented in Table 3-1. The value of land is not included in these figures.

Table 3-1 - Total Freight Asset Base Estimates 1998-2002, Class I Railways (in '000 of current $, excluding land)

Element Year	1998	1999	2000	2001	2002
Equipment	3,191,728	3,416,989	3,170,233	3,128,027	2,980,603
Depreciation (Equipment)	160,377	168,923	173,403	173,351	176,668
Roadway & Structures	18,425,147	18,413,241	18,342,550	18,380,733	18,280,791
Depreciation (Roadway & Structures)	477,204	489,775	495,826	509,946	518,389
Total Assets	21,616,875	21,830,230	21,512,783	21,508,760	21,261,394

The total value of Class I freight assets in the 1998-2002 period decreased by approximately $355 million or 1.6 percent; a decrease of 6.6 percent was experienced in the equipment category while the roadway and structures experienced a decrease of 0.8 percent.

By and large the asset base over the period examined here remained fairly stable. Nevertheless significant shifts were experienced in the industry during that period and the network rationalization activities undertaken in the early 1990s continued and have had an impact on the asset base of Class I carriers. As much as 7,357 kilometres of Class I rail track were discontinued or transferred to shortline and regional operators in the 1998-2002 period; a smaller number however than the 12,857 kilometres discontinued or transferred in the 1991-1997 period. Table B.1 and Figure B.1 in Appendix B provide further details on railway rationalization during the 1990-2002 period.

3.2 Financial Costs

Table 3-2 contains the financial costs of the Class I freight rail infrastructure for the 1998 – 2002 period. The depreciation figures showing in Table 3.2 are based on the current value of the capital stock and are calculated using the assumptions previously stated.

Table 3-2 – Total Financial Cost Estimates 1998-2002, Class I Railways (in '000 of current $, excluding land)

Element Year	1998	1999	2000	2001	2002
Wages and Benefits	2,527,935	2,416,983	2,382,561	2,323,545	2,219,014
Fuel Costs	506,170	464,519	651,995	674,747	612,778
Equipment Rents	339,160	323,204	314,563	327,688	304,576
Taxes[1]	175,907	113,494	91,910	80,264	85,297
Other Costs[2]	219,713	178,373	141,268	157,338	138,090
Depreciation	631,433	652,956	653,407	667,430	677,948
Cost of Capital					
@ 5%	1,070,451	1,082,005	1,050,177	1,050,462	1,036,881
@ 10%	2,140,901	2,164,011	2,100,355	2,100,923	2,073,762
Total Costs					
@ 5%	5,470,769	5,231,534	5,285,882	5,281,473	5,074,584
@10%	6,541,219	6,313,539	6,336,059	6,331,935	6,111,465

[1] The 'Taxes' category includes Municipal, Provincial and Other taxes.

[2] The 'Other Costs' category includes Marketing costs, and, Insurance, Casualties and Claims costs.

All categories of costs, with the exception of fuel and depreciation, have experienced decreases during the 1998-2002 period. Fuel and depreciation costs increased at an average annual rate of growth of 4.9 and 1.8 percent respectively in the 1998-2002 period. Labour costs have decreased by over 12% in the period (or 3.2 percent per year on average during the period). Total costs decreased steadily over the period by 6.5 to 7.2 percent (or an annual average growth rate (AAGR) of 1.6 to 1.8 percent) depending on which one of the two opportunity costs is used. The five percent difference in the two opportunity cost of capital assumptions gives rise to a difference of a little over $1 billion in total costs in the year 2000.

3.3 Revenues

Table 3-3 presents the total freight revenues from 1998 to 2002. Freight revenues grew by 5.8 percent over the period or by 1.4 percent per year on average. This took place in an environment of declining rates and increasing demand for rail services. Rates declined for nearly all commodities carried and this decline averaged 1.4 percent per year during the period. For its part, demand posted an average yearly increase of 3.2 percent.

Total tonnage carried by Class 1 carriers increased from 216.2 million tonnes in 1998 to 227.4 million tonnes in 2002; an increase of 5.1 percent. When expressed in terms of

revenue tonne-kilometres (RTK), Class 1 output rose from 268.7 billion to 292.2 billion in 2002; an increase of 8.7 percent over the period.

Table 3-3 - Class I Freight Revenues

Year	1998	1999	2000	2001	2002
Freight	6,104,805	6,134,391	6,441,095	6,467,580	6,502,456
Other	271,290	312,690	225,848	242,962	243,742
Total Revenues	6,376,095	6,447,081	6,666,943	6,710,542	6,746,198

3.4 Economic Surplus

The concept of an economic surplus is defined simply as the difference between revenues and the full financial costs including the opportunity cost of capital. Estimates of the economic surplus for the freight portion of Class 1 Railways were derived for each year of the 1998-2002 period and is presented in Table 3-4 below. Once again, 5 and 10 percent were used as the opportunity cost of capital rates.

Table 3-4 - Class 1 Freight Rail Economic Surplus, 1998-2002 (in '000$, excluding land)

Element/Year	1998	1999	2000	2001	2002
Total Freight Revenues	6,376,095	6,447,081	6,666,943	6,710,542	6,746,198
Total Costs (Freight)					
@ 5%	5,470,769	5,231,534	5,285,882	5,281,473	5,074,584
@ 10%	6,541,219	6,313,539	6,336,059	6,331,935	6,111,465
Economic Surplus					
@ 5%	905,326	1,215,547	1,381,062	1,429,069	1,671,614
@ 10%	(165,124)	133,542	330,884	378,607	634,733

With the exception of 1998, where a deficit of $165 million was derived under the cost of capital of 10 percent; all other years present a surplus ranging from $133 million to $1.67 billion. In 2000, the surplus ranges from $330.8 million under the 10 percent cost of capital rate compared to $1.4 billion under the 5 percent cost of capital rate. (As with the other figures presented above, these estimates do not include an opportunity cost of land.)

Another method of presenting the overall return is through the use of a return on assets (ROA) figure. This figure represents the accounting profit (which does not include the cost of capital) as a percentage of the asset base. Essentially, the ROA provides the cost of capital rate at which there would be zero economic return. Table 3-5 presents the ROA, not including any value for land, for all five years of the 1998-2002 period.

Table 3-5 - Class 1 Freight Rail Return on Assets, 1998-2002 (in '000$, excluding land)

Year	1998	1999	2000	2001	2002
Total Revenues	6,376,095	6,447,081	6,666,943	6,710,542	6,746,198
Total Costs	4,400,318	4,149,529	4,235,704	4,231,011	4,037,703
Total Assets	21,616,875	21,830,230	21,512,783	21,508,760	21,261,394
Return on Assets (%)	9.1%	10.5%	11.3%	11.5%	12.7%

The ROA in 2000 indicates that if the cost of capital percentage were 11.3 percent then the economic surplus in table 3-4 would have been zero for the year 2000. The ROA is below 10 percent only in 1998. That year presented an economic deficit in Table 3-4 at the higher estimate of 10 percent for the cost of capital; consequently the ROA would have been less than 10 percent.

3.5 Degree of Cost Recovery

In addition to presenting the economic surplus or deficit, the revenues as a percentage of all financial costs are produced in order to display the extent of cost recovery in each scenario. Table 3-6 below summarizes these results.

Table 3-6 – Class 1 Freight Rail Degree of Cost Recovery, 1998-2002 (in '000$, excluding land)

Year	1998	1999	2000	2001	2002
Total Revenues	6,376,095	6,447,081	6,666,943	6,710,542	6,746,198
Total Costs					
@ 5 percent	5,470,769	5,231,534	5,285,882	5,281,473	5,074,584
@ 10 percent	6,541,219	6,313,539	6,336,059	6,331,935	6,111,465
Cost Recovery					
@ 5 percent	117%	123%	126%	127%	133%
@ 10 percent	97%	102%	105%	106%	110%

Irrespective of the opportunity cost of capital rate used, full financial cost recovery, not including any cost of land use, is achieved every year but in 1998. In the latter case, cost recovery is only achieved with the lower cost of capital rate. Consequently, the degree of cost recovery in the 1998-2002 period ranges from 97 percent in 1998 to 133 percent in 2002.

3.6 Value of Land

All of the data presented up to this point has not included a value or cost of the land used by the Class I railways transportation infrastructure. The issue regarding the value of land has yet to be resolved for the purposes of the FCI project. For the purpose of

providing an idea of the effect of the value of land on the results derived above, a few of the tables are presented again with an estimate of the value of land included.

Table 3-7 presents the estimated current asset value of fixed assets and land in each year of the 1998-2002 period for the freight activity of Class I railways. The estimates for land indicate that this asset category rose 7.8 percent (or at an average annual growth rate of nearly 2 percent) during the 1998-2002 period. This contrasts with the decline of 1.6 percent in fixed assets. Based on these estimates, land adds approximately 10.4 percent on average to the asset base.

Table 3-7 – Class I Freight Rail Asset Base Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Fixed Assets	21,616,875	21,830,230	21,512,783	21,508,760	21,261,394
Land	2,193,325	2,194,783	2,209,354	2,224,938	2,365,188
Total Assets	23,810,199	24,025,013	23,722,137	23,733,698	23,626,582

Table 3-8 below only differs from Table 3-2, by including the estimated opportunity cost of land. This contributes to an increase in costs of between 2 and 3.8 percent or $108 to $231 million in absolute terms, depending on the year and the opportunity cost of capital rate employed. For year 2000 specifically, land contributes to an additional $108 to $216 million in costs.

Table 3-8 – Class I Freight Rail Total Financial Cost Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Operating[1]	3,768,885	3,496,572	3,582,298	3,563,581	3,359,755
Depreciation	631,433	652,956	653,407	667,430	677,948
Cost of Capital					
@ 5 percent	1,179,132	1,190,855	1,158,114	1,159,206	1,152,310
@10 percent	2,358,264	2,381,710	2,316,228	2,318,412	2,304,620
Total Costs					
@ 5 percent	5,579,450	5,340,383	5,393,818	5,390,218	5,190,013
@10 percent	6,758,582	6,531,238	6,551,932	6,549,424	6,342,323

[1] Includes Wages and Benefits, Equipment Rents, Marketing costs, Fuel Costs, Insurance/Claims & Casualties and, Taxes.

Cost estimates including the value of land were used to establish once again the economic surplus, the Return on Assets (ROA) and, the degree of cost recovery of the Class 1 Freight railways; these are shown in Table 3-9 below.

Table 3-9 – Class I Freight Rail Economic Surplus, ROA and, Cost Recovery Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Revenues	6,376,095	6,447,081	6,666,943	6,710,542	6,746,198
Expenses	4,400,318	4,149,529	4,235,704	4,231,011	4,037,703
Cost of Capital					
@ 5 percent	1,179,132	1,190,855	1,158,114	1,159,206	1,152,310
@ 10 percent	2,358,264	2,381,710	2,316,228	2,318,412	2,304,620
Total Costs					
@ 5 percent	5,579,450	5,340,383	5,393,818	5,390,218	5,190,013
@ 10 percent	6,758,582	6,531,238	6,551,932	6,549,424	6,342,323
Total Assets	23,810,199	24,025,013	23,722,137	23,733,698	23,626,582
Surplus					
@ 5 percent	796,645	1,106,698	1,273,125	1,320,324	1,556,185
@ 10 percent	(382,487)	(84,157)	115,011	161,118	403,875
ROA	8.3%	9.6%	10.2%	10.4%	11.5%
Cost Recovery					
@ 5 percent	114%	121%	124%	124%	130%
@ 10 percent	94%	99%	102%	102%	106%

The impact of the land value component on the economic surplus is not significant when an opportunity cost of 5 percent is used; the surplus in each year is reduced on average by $110 million but all years still depict a surplus. When an opportunity cost of capital rate of 10 percent is used, the surplus during the 1998-2002 period are reduced by an average $220 million but more importantly the situation in 1999 changes from an estimated surplus of $133.5 million to an economic loss of $84.1 million. For year 2000, the surplus situation remains.

With respect to the return on assets, as expected, the ROAs are affected when the land piece is brought into the picture. ROAs of 9.1 to 12.7 percent in the previous scenario now range between 8.3 and 11.5 percent as a consequence of the land value component.

When looking at cost recovery for Class I Freight rail carriers, the cost recovery ratios when land value is taken into consideration now range from 0.94 to 1.30 as opposed to 0.97 to 1.33 in the earlier scenario. Again, the most noticeable change happens in 1999 when an opportunity cost of capital of 10 percent is used, with the ratio dropping from 1.02 to 0.99. In 2000, the cost recovery ratios have a value above 1.0 under both opportunity cost of capital rates.

Again it must be noted that the above are based on estimates of the values of land. More precise figures may be calculated when a more definite methodology concerning the value of land is decided with the FCI project.

3.7 Government Fuel Tax Revenues

Freight transportation by rail also represents a revenue source for the federal, provincial and, territorial governments by way of the various diesel fuel taxes levied by the different jurisdictions. Table 3-10 presents these amounts for the observed period.

Table 3.10 – Rail Diesel Fuel Consumption (in millions of litres) and Estimates of Rail Diesel Fuel Tax Paid by Class I Rail Carriers, by Jurisdiction Level (in million $), 1998-2002

Year	1998	1999	2000	2001	2002
Estimated Consumption	1,748.6	1,681.0	1,700.8	1,710.3	1,747.1
Fuel Taxes					
Federal	68.9	72.4	72.7	72.0	66.8
Provincial	96.8	81.3	78.9	77.2	77.6
Total	165.7	153.8	151.6	149.2	144.4

These fuel tax payments are closely linked to the amount of freight rail activity and factors such as: the types of locomotives used, the types of operation, the nature of the commodities being handled and, the terrain over which this traffic moves. The fuel tax payments are included here as revenue generated for governments as a result of rail transportation.

4 Financial Costs and Revenues of Shortline and Regional Rail Carriers

The network rationalization activities undertaken in the early 1990s leading to the rapid devolution of sections of the network to short-line operators quite understandably meant that the Investigation could not limit itself to the main Class 1 railway carriers to depict the rail sector. Significant amounts of Class 1 tracks were discontinued or transferred to shortline and regional operators (notably when the Canada Transportation Act of 1996 was passed) and the portion of the total rail network system owned by Class 1 carriers which stood at 90 percent at one time is closer to 70 percent now. Consequently, a complete view of rail transportation in Canada requires that estimates of the financial costs and revenues of Shortline and Regional railway carriers be identified as well.

While some of the shortline and regional railways are federally regulated and hence, file somewhat detailed company information with TC and other federal agencies, a large number of them are provincially regulated. TC records on the latter typically carry fewer details and were built based on what is filed with Statistics Canada under the Statistics Act. A number of data gaps required additional efforts on TC's part to build as comprehensive a view as possible of the industry and further efforts to validate this data with information available in the public domain made for a relatively complete picture of that segment of the rail industry.

As indicated earlier, Appendix A provides the list of Shortline and Regional railway companies covered by this study. (Please note Appendix A is under construction).

The regional and shortline railway carriers proved to be an interesting challenge from a data perspective. Complete sets of records for all companies for each year of the 1998-2002 period were not available. Moreover, there were a number of mergers and acquisitions during that period and yet again, a number of companies who ceased to operate. For that reason, all efforts were directed at developing the estimates for the Investigation reference year. Consequently, all tables in this section present estimates for year 2000 only.

4.1 Assets

The current value of the asset base for year 2000 is presented in table 4-1. The value of land is not included in these figures.

Table 4-1 – Shortline and Regional Railways Asset Base Estimates in 2000 (in '000$, excluding land)

Element	Year 2000
Equipment	394,144
Depreciation (Equipment)	13,138
Roadway & Structures	2,109,784

Element	Year 2000
Depreciation (Roadway & Structures)	42,196
Total Assets	2,503,928

When looking at the data presented in Table 4-1, we note that the equipment category and the roadway and structures category represent 15.7 and 84.3 percent respectively of the asset base. This is not significantly different from the 14.7 and 85.3 percent noted for the same categories for the Class 1 freight carriers.

4.2 Financial Costs and Revenues

Table 4-2 contains the financial costs of the Class 1 freight rail infrastructure for year 2000. The depreciation figures showing in Table 4-2 are based on the current value of the capital stock and are calculated using the assumptions previously stated.

Table 4-2 – Shortline and Regional Railways Total Financial Cost Estimates in 2000 (in '000 of current $, excluding land)

Cost Element	Year 2000
Wages and Benefits	314,587
Fuel Costs	32,192
Equipment Rents	33,975
Taxes[1]	13,347
Other Costs[2]	356,902
Depreciation	55,334
Cost of Capital	
@ 5%	125,196
@ 10%	250,393
Total Costs	
@ 5%	**931,532**
@10%	**1,056,728**

[1] The 'Taxes' category includes municipal, provincial and other taxes.

[2] The 'Other Costs' category includes marketing costs, Insurance, casualties and claims and, other costs.

For their part, the total revenues for year 2000 for Shortline and Regional railways are estimated at $873.6 million.

4.3 Economic Surplus

Estimates of the economic surplus for the Non-Class I Railways (where the economic surplus is defined simply as the difference between revenues and the full financial costs including the opportunity cost of capital) was derived for year 2000 and is presented in Table 4-3 below. Once again, 5 and 10 percent were used as the opportunity cost of capital rates.

Table 4-3 – Shortline and Regional Railways Economic Surplus, 2000 (in '000$, excluding land)

Element	Year 2000
Total Revenues	873,576
Total Costs	
@ 5%	931,532
@ 10%	1,056,728
Economic Surplus	
@ 5%	**-57,955.9**
@ 10%	**-183,152.3**

A deficit is experienced under both cost of capital rates used, The deficit estimated under the cost of capital rate of 5 percent is nearly $58 million; that deficit reaches $183 million under a cost of capital rate of 10 percent. (As with the other figures presented above, these estimates do not include an opportunity cost of land.)

In Table 4-4, Return On Assets (ROA) figures are presented. Once again, the ROA is the equivalent of the accounting profit (which does not include the cost of capital) as a percentage of the asset base). Table 4-4 presents the ROA, not including any value for land, for 2000.

Table 4-4 – Shortline and Regional Railways Return on Assets, 2000 (in '000$, excluding land)

Element	Year 2000
Total Revenues	873,576
Total Costs	806,335
Total Assets	2,503,928
Return on Assets (%)	**2.69%**

The ROA in 2000 indicates that if the cost of capital percentage were 2.7 percent then the deficit in table 4-3 would have been zero for the year 2000.

4.4 Degree of Cost Recovery

In addition to presenting the economic surplus or deficit, the revenues as a percentage of all financial costs are produced in order to display the extent of cost recovery in each scenario. Table 4-5 below summarizes these results.

Table 4-5 – Shortline and Regional Railways Degree of Cost Recovery, 2000 (in '000$, excluding land)

Element	Year 2000
Total Revenues	873,576
Total Costs	
@ 5 percent	931,532
@ 10 percent	1,056,728

Element	Year 2000
Cost Recovery	
@ 5 percent	**94%**
@ 10 percent	**83%**

Irrespective of the opportunity cost of capital rate used, the Shortline and regional railway sector does not recover its financial cost in 2000; achieving a rate of recovery of 83 to 94 percent at best under the 10 and 5 percent cost of capital rate respectively.

4.5 Value of Land

All of the data presented up to this point has not included a value or cost of the land used by the Shortline and Regional railways transportation infrastructure. The effects of the value of land on the results derived above are presented in Tables 4-6 through 4-8.

Table 4-6 presents the estimated current asset value of fixed assets and land in year 2000 for Shortline and Regional railways. The estimates for land indicate that this asset adds approximately 3 percent on average to the asset base.

Table 4-6 – Shortline and Regional Railways Asset Base Estimates, 2000 (in '000$)

Element	Year 2000
Fixed Assets	2,503,928
Land	75,638
Total Assets	**2,579,566**

Table 4-7 only differs from Table 4-2, by including the estimated opportunity cost of land. This contributes to an increase in costs of between 0.4 and 0.7 percent or $3.8 to $7.6 million in absolute terms, depending on the year and the opportunity cost of capital rate employed.

Table 4-7 –Shortline and Regional Railways Total Financial Cost Estimates, 1998-2002 (in '000$)

Element	Year 2000
Operating[1]	**751,002**
Depreciation	55,334
Cost of Capital	
@ 5 percent	128,978
@10 percent	257,957
Total Costs	
@ 5 percent	**935,314**
@10 percent	**1,064,292**

[1] Includes Wages and Benefits, Equipment Rents, Marketing costs, Fuel Costs, Insurance/Claims & Casualties and, Taxes.

Cost estimates including the value of land were used to establish once again the economic surplus, the Return on Assets (ROA) and, the degree of cost recovery of the Shortline and Regional railways; these are shown in Table 4-8 below.

Table 4-8– Shortline and Regional Railways Economic Surplus, ROA and, Cost Recovery Estimates, 2000 (in '000$)

Element	Year 2000
Revenues	873,576
Expenses	806,335
Cost of Capital	
@ 5 percent	128,978
@ 10 percent	257,957
Total Costs	
@ 5 percent	935,314
@ 10 percent	1,064,292
Total Assets	2,579,566
Surplus	
@ 5 percent	-61,737.8
@ 10 percent	-190,716.1
ROA	2.61%
Cost Recovery	
@ 5 percent	93%
@ 10 percent	82%

As expected, the economic deficit in year 2000 increases once the land value component is taken into consideration. For its part, the return on assets of 2.69 percent in the previous scenario is slightly reduced at 2.61 percent as a consequence of the land value component.

When looking at cost recovery for shortline and regional rail carriers, the cost recovery ratios when land value is taken into consideration now range from 0.82 to 0.93 as opposed to 0.83 to 0.94 in the earlier scenario under both opportunity cost of capital rates.

Again it must be noted that these estimates may change when a definite methodology concerning the value of land is decided with the FCI project.

4.6 Government Fuel Tax Revenues

The fuel tax revenues generated by the shortline and regional carriers providing freight rail transportation are presented in Table 4-9 below. Once again, these are revenues generated by way of the various diesel fuel taxes levied by the different jurisdictions in Canada. The portion of diesel tax revenues paid by shortline and regional carriers was derived as a residual from subtracting Class 1 fuel purchases (as reported from the larger

carriers) from available national consumption figures. Since this data is available in a consistent fashion, estimates are presented here for every year of the 1998-2002 period.

Table 4-9 –Energy Consumption (in million of litres) and Estimates of Rail Diesel Fuel Tax Paid by Shortline and Regional Railways by Jurisdiction Level (in $million), 1998-2002

Element/ Year	1998	1999	2000	2001	2002
Estimated Consumption	187.2	192.4	233.5	218.9	181.2
Fuel Taxes					
Federal	7.5	8.4	10.2	9.4	7.0
Provincial	10.5	9.5	11.0	10.1	8.2
Total	18.0	17.9	21.2	19.4	15.2

Diesel fuel taxes paid by shortline and regional railways over the 1998-2002 period have averaged $8.5 million for the federal portion and $9.9 million for the provincial portion. In both cases, estimates point to declines since year 2000 when fuel taxes (federal and provincial combined) peaked at $21.2 million. This is partly explained by the fact that traffic handled by these carriers has diminished from its 2000 peak level of 121.0 million tonnes to 111.0 million tonnes in 2001 and 116.9 million tonnes in 2002 and possibly as well by the use of more efficient locomotives.

5 Financial Costs and Revenues of Passenger Rail Transportation

This section addresses rail passenger transportation services provided by Canadian Class 1 carriers in Canada. The key provider of this service is VIA Rail but the other two Class 1 carriers are known to provide passenger transportation in a number of areas in Canada on behalf of Via Rail and for that reason we incorporate that segment of the other two Class 1 carriers' business here as well.

In this Investigation's proposed modal classification, intercity passenger rail consists only of the services of VIA Rail (and the less significant Class 1 passenger traffic) while the "heavy rail" commuter-type services of GO Transit, AMT, Capital Railway and, West Coast Express are classified as urban transit services. Again, heritage railways and seasonal/tourist operations (with most being shortline railways) are not in scope of the Investigation.

5.1 Revenues

In order to make for a complete picture in terms of both costs and revenues for Class 1 passenger services, the CN and CPR passenger revenues are combined with VIA passenger revenues. When looking at CN and CPR revenues for the 1998-2002 period, an average 0.09 percent of CN revenues and 0.16 percent of CPR's revenues are generated from passenger services[2]. The total Class I passenger-generated revenues for the 1998-2002 period appear in Table 5.1 below.

During that period, VIA passenger revenues rose by $67.6 million in absolute terms or 35.7 percent overall (or at an AAGR of 8.9 percent). The Other Class I passenger revenues (net of government payments received for commuters and net of payments received from services for VIA) nearly tripled as they increased by $8.5 million during the 1998-2002 period. Total Class I passenger revenues grew by nearly 40 percent (or at an AAGR of 9.8 percent) during the 1998-2002 period.

Table 5-1 - Class 1 Passenger Rail Revenues, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Passenger Revenues					
VIA [1]	189,445	206,159	222,206	239,844	257,053
Other Class I [2]	4,332	3,597	9,568	11,216	12,802
Total Passenger Revenues	193,777	209,756	231,775	251,060	269,855

[1] Revenues are strictly those generated by passenger and exclude subsidies.
[2] Excludes government commuter payments and revenue from services for VIA.

[2] These are strictly passenger revenues collected by CN and CPR and exclude government commuter payments made to CN and CPR starting in 2000 and revenues from services for VIA Rail.

5.2 Assets

It is common knowledge that VIA Rail owns only a relatively small amount of tracks (217 kilometres in 2000) it operates its passenger trains on. However, VIA has extensive running rights over other railways' tracks as it operated its passenger service over 9,430 kilometres of CN track, 540 kilometres of CPR track and 2,740 kilometres of track owned by various Shortline companies in 2000. The fact that this infrastructure (mostly roadway or tracks) is 'shared' and used to carry both businesses (freight and passenger) requires that a portion (albeit small) of the costs related to CN and CPR assets be assigned to passenger services.

The allocation of a portion of the costs related to CN and CPR assets was based on the proportion of passenger revenues relative to their respective total revenue base (this is net of government commuter payments and revenues from services for VIA). As one would expect from railway companies whose core business is freight, the proportion of revenues generated from passenger transportation are small: 0.16 and 0.09 percent on average throughout the 1998-2002 period for CPR and CN respectively. This approach has the advantage of being simple in comparison to more elaborate approaches. Several alternatives acknowledging the contribution and costs borne by the Class 1 Freight carriers in providing passenger service could be explored. One approach (that we may refer to as a 'capacity-driven approach') would involve determining what portion of the Class 1 carriers' networks are used by Via Rail and the other Class 1 carriers. The Investigation may require that several sensitivity analyses based on alternate assumptions like the one alluded here be performed in the very near future.

The value of the asset base was calculated again using the perpetual inventory method mentioned earlier and this in turn, allowed us to determine the cost of capital. The current value of the asset base supporting passenger transportation for each year of the 1998-2002 period is presented in table 5-2. The value of land is not included in these figures.

Table 5-2 – Class I Passenger Rail Asset Base Estimates, 1998-2002 (in '000$, excluding land)

Element Year	1998	1999	2000	2001	2002
VIA Rail					
Equipment	387,857	355,474	320,766	361,424	369,936
Roadway and Structures	373,287	373,628	366,682	509,425	551,776
Sub-Total	761,144	729,102	687,447	870,849	921,713
Other Class 1					
Equipment	2,266	1,939	4,444	5,148	5,522
Roadway and Structures	11,808	9,755	25,672	29,478	33,259
Sub-Total	14,074	11,693	30,117	34,626	38,781
Total Assets All Class 1					
Equipment	390,123	357,412	325,210	366,572	375,458
Roadway and Structures	385,095	383,382	**392,354**	538,903	585,035

Element Year	1998	1999	2000	2001	2002
Grand Total	775,218	740,795	717,564	905,475	960,493

The total value of Class I assets allocated to passenger transportation in the 1998-2002 period increased by approximately $185 million or 24 percent (or at an AAGR of 6.0 percent). The value of equipment slightly decreased by 3.7 percent in the period compared to a rise of 52 percent in the value of the Road and Structures category.

Of the total rail assets assigned to rail passenger transportation, VIA Rail assets account for 96.9 percent on average during the period (95.8 percent in 2000).

When looking strictly at VIA assets, the equipment category dropped by 4.6 percent while the Road and Structures category grew by nearly 12 percent a year on average for an increase in value of $178 million during the 1998-2002 period.

5.3 Financial Costs

Table 5-3 contains the financial costs of the Class 1 passenger rail infrastructure for the 1998 – 2002 period. The depreciation figures showing in Table 5-3 are based on the current value of the capital stock and are calculated using the assumptions previously stated.

Table 5-3 – Class I Passenger Rail Total Financial Cost Estimates, 1998-2002 (in '000 of current $, excluding land)

Element Year	1998	1999	2000	2001	2002
Wages and Benefits	183,559	191,735	186,487	185,994	197,585
Fuel Costs	17,801	17,735	22,048	27,602	25,343
Equipment Rents	87	-178	705	1,455	863
Taxes[1]	13,676	11,528	12,738	11,164	10,607
Other Costs[2]	53,075	50,438	54,062	55,084	58,247
Depreciation	39,514	39,757	40,090	42,760	46,927
Cost of Capital					
@ 5%	38,761	37,040	35,878	45,274	48,025
@ 10%	77,522	74,079	71,756	90,547	96,049
Total Costs					
@ 5%	346,472	348,055	352,008	369,332	387,596
@10%	385,233	385,094	387,886	414,606	435,621

[1] The 'Taxes' category includes Provincial, municipal and, Other taxes.

[2] The 'Other Costs' category includes Marketing costs, Insurance, Casualties and claims and, Other Costs.

Many categories of costs presented in Table 5-3 experienced increases in the 1998-2002 period; when expressed in terms of AAGR, those increases were: fuel (10.6 percent), depreciation (4.7 percent), other costs (2.4 percent) and, wage and benefits (1.9 percent). The 'Taxes' category decreased at an average annual rate of 5.6 percent during that

period. The 'Equipment Rents' category has depicted wide fluctuations during that period (and the reasons for such will require further scrutiny).

Total costs for passenger transportation increased nearly steadily over the 1998-2002 period at an AAGR of 3.0 to 3.3 percent depending on the rate used for the opportunity cost of the capital. This is a sharp contrast to the decrease of 6.5 to 7.2 percent in total costs experienced by the Freight Class I carriers during the same period. The five percent difference in the two opportunity cost of capital rates gives rise to a difference of a little over $35.8 million in total costs in the year 2000.

5.4 Economic Surplus

Estimates of the economic surplus for the passenger portion of Class 1 Railways were derived for each year of the 1998-2002 period and are presented in Table 5-4 below. Once again, 5 and 10 percent were used as the opportunity cost of capital rates.

Table 5-4 – Class 1 Passenger Rail Economic Surplus/(Deficit), 1998-2002 (in '000$, excluding land)

Element/Year	1998	1999	2000	2001	2002
Total Passenger Revenues [1]	193,777	209,756	231,775	251,060	269,855
Total Costs					
@ 5%	346,472	348,055	352,008	369,332	387,596
@ 10%	385,233	385,094	387,886	414,606	435,621
Economic Deficit					
@ 5%	(152,695)	(138,299)	(120,233)	(118,272)	(117,741)
@ 10%	(191,456)	(175,339)	(156,111)	(163,546)	(165,765)

[1] Revenues are strictly those generated by passenger and exclude subsidies.

All years present deficits and they range from $117 to $191 million. Under the 5 percent opportunity cost of capital rate, the deficits have decreased steadily over the period. For year 2000 specifically, the deficit was estimated at $120 and $156 million under the 5 and 10 percent opportunity cost of capital rates respectively. (As with the other figures presented above, these estimates do not include an opportunity cost of land.)

Another method of presenting the overall return is through the use of a return on assets (ROA) figure. This figure represents the accounting profit (or loss) (which does not include the cost of capital) as a percentage of the asset base. Essentially, the ROA provides the cost of capital rate at which there would be zero economic return. Table 5-5 presents the ROA, not including any value for land, for all five years of the 1998-2002 period.

Table 5-5 – Class 1 Passenger Rail Return on Assets, 1998-2002 (in '000$, excluding land)

Year	1998	1999	2000	2001	2002
Total Passenger	193,777	209,756	231,775	251,060	269,855

Year	1998	1999	2000	2001	2002
Revenues [1]					
Total Costs	307,711	311,015	316,129	324,059	339,571
Total Assets	775,218	740,795	717,564	905,475	960,493
Return on Assets (%)	-14.7%	-13.7%	-11.8%	-8.1%	-7.3%

[1] Revenues are strictly those generated by passenger and exclude subsidies.

Not surprisingly, since costs exceed revenues in every year all Return On Assets results are negative; they range from –7.3 to –14.7 percent.

5.5 Degree of Cost Recovery

In addition to presenting the economic deficit, the revenues as a percentage of all financial costs are produced in order to display the extent of cost recovery in each scenario. Table 5-6 below summarizes these results.

Table 5-6 – Class 1 Passenger Rail Degree of Cost Recovery, 1998-2002 (in '000$, excluding land)

Year	1998	1999	2000	2001	2002
Total Passenger Revenues [1]	193,777	209,756	231,775	251,060	269,855
Total Costs					
@ 5 percent	346,472	348,055	352,008	369,332	387,596
@ 10 percent	385,233	385,094	387,886	414,606	435,621
Cost Recovery					
@ 5 percent	56%	60%	66%	68%	70%
@ 10 percent	50%	54%	60%	61%	62%

[1] Revenues are strictly those generated by passenger and exclude subsidies.

Irrespective of the opportunity cost of capital rate used, full financial cost recovery, not including any cost of land use, is never achieved in the 1998-2002 period; the cost recovery ranges from 50 percent in 1998 to 70 percent in 2002. The one positive development during that period is the steady increase noted in the cost recovery ratio; although the rate at which this is happening has somewhat slowed in the later years.

5.6 Value of Land

In this section, we incorporate the value of land used by Class I railways infrastructure in support of passenger transportation. Some of the tables presented earlier in this Section are presented again here with an estimate of the value of land included.

Table 5-7 presents the estimated current asset value of fixed assets and land in each year of the 1998-2002 period for Class I passenger services. The estimates for land indicate that this asset category rose 53.5 percent (or at an AAGR of 13.4 percent) during the

1998-2002 period. Based on these estimates, land adds approximately 7.3 percent on average to the asset base. Total asset value rose by $211 million during the period (or by 25.6 percent).

Table 5-7 – Class I Passenger Rail Asset Base Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Fixed Assets	775,218	740,795	717,564	905,475	960,493
Land					
VIA Rail	46,591	51,062	56,078	61,413	69,447
Other Class 1	1,545	1,259	3,100	3,672	4,425
Total Land	48,136	52,321	59,178	65,085	73,871
Total Assets	823,354	793,116	776,742	970,560	1,034,365

In Table 5-8, the total financial cost estimates for passenger rail transportation including the estimated opportunity cost of land are presented. That element contributes to an increase in costs of $2.4 to $7.4 million in absolute terms, depending on the year and the opportunity cost of capital rate employed. For year 2000 specifically, land contributes to an additional $3 to $6 million in costs.

Table 5-8 – Class I Passenger Rail Total Financial Cost Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Operating[1]	268,198	271,258	276,039	281,298	292,645
Depreciation	39,514	39,757	40,090	42,760	46,927
Cost of Capital					
@ 5 percent	41,168	39,656	38,837	48,528	51,718
@10 percent	82,335	79,312	77,674	97,056	103,436
Total Costs					
@ 5 percent	348,879	350,671	354,967	372,587	391,290
@10 percent	390,047	390,327	393,804	421,115	443,008

[1] Includes Wages and Benefits, Equipment Rents, Marketing costs, Fuel Costs, Insurance/Claims & Casualties and, Taxes.

Cost estimates including the value of land were used to establish once again the economic surplus or deficit, the Return on Assets (ROA) and, the degree of cost recovery of the Class 1 railways providing passenger services; these are shown in Table 5-9 below.

Table 5-9 – Class I Passenger Rail Economic Surplus, ROA and, Cost Recovery Estimates, 1998-2002 (in '000$)

Year	1998	1999	2000	2001	2002
Passenger Revenues	193,777	209,756	231,775	251,060	269,855
Expenses	307,711	311,015	316,129	324,059	339,571

Year	1998	1999	2000	2001	2002
Cost of Capital					
@ 5 percent	41,168	39,656	38,837	48,528	51,718
@ 10 percent	82,335	79,312	77,674	97,056	103,436
Total Costs					
@ 5 percent	348,879	350,671	354,967	372,587	391,290
@ 10 percent	390,047	390,327	393,804	421,115	443,008
Total Assets	823,354	793,116	776,742	970,560	1,034,365
Surplus/Deficit					
@ 5 percent	(155,102)	(140,915)	(123,192)	(121,526)	(121,434)
@ 10 percent	(196,270)	(180,571)	(162,029)	(170,054)	(173,152)
ROA	-13.8%	-12.8%	-10.9%	-7.5%	-6.7%
Cost Recovery					
@ 5 percent	56%	60%	65%	67%	69%
@ 10 percent	50%	54%	59%	60%	61%

The impact of the land value component adds anywhere from $3 to $6 million to the economic deficits depending on the opportunity cost of capital rate used and year. For year 2000, the deficit was estimated to range between $123 and $162 million. On the return on assets front, as expected, the ROAs are still negative for all years in the period. This indicates that the passenger rail industry was not able to recover its total costs even before the cost of capital is applied.

When looking at cost recovery for Class I carriers providing passenger services, the cost recovery ratios when land value is taken into consideration now range between 50 and 69 percent as opposed to between 50 and 70 percent in the earlier scenario. In 2000, the cost recovery ratios were estimated to range between values of 59 to 65 percent.

Again all figures presented here may change once a more definite methodology concerning the value of land is decided with the FCI project.

5.7 Other Elements

The federal government financially assists intercity rail passenger transportation; it has done so since VIA Rail's inception in 1977. While the level of financial assistance has declined in the past few years, the subsidies remain significant as shown in Table 5-10 as they still amounted to nearly $150 million in 2002.

The economic loss associated with the rail passenger service provided by the Class I carriers (mostly VIA Rail) can be portrayed as a subsidy per passenger. In essence, the loss is known to be absorbed (mostly or entirely) by the federal government. However, this subsidy per passenger decreased steadily over the 1998-2002 period from $47.12 in 1998 to $37.65 in 2002, a decrease of 20 percent. In the same period, the revenue per passenger (excluding subsidies) increased steadily from $51.27 in 1998 to $63.48 in

2002, an increase of nearly 24 percent. Consequently, the portion of total revenues borne by the passenger increased from 52 to 63 percent in the 1998-2002 period.

Table 5-10 – Federal Government Subsidy to VIA Rail and Total VIA Rail Passengers, 1998-2002

Year	1998	1999	2000	2001	2002
VIA Rail Subsidy ('000$)	170,463	165,640	164,975	158,968	149,869
VIA Passenger Revenues[1] ('000$)	185,487	201,843	217,721	234,588	252,708
Number of Passengers	3,618,000	3,569,000	3,795,000	3,865,000	3,981,000
Revenue per Passenger					
From Passengers ($)	51.27	56.55	57.37	60.70	63.48
From Subsidy ($)	47.12	46.41	43.47	41.13	37.65
Total ($)	98.39	102.96	100.84	101.83	101.13

[1] Revenues strictly generated by passengers (exclude subsidies).

Similar to the freight situation however, passenger transportation by rail also represents a revenue source for the federal and provincial governments by way of the various diesel fuel taxes levied by the different jurisdictions. Table 5-11 presents estimates of these amounts for the observed period.

Table 5-11 – Rail Diesel Fuel Consumption Estimates (in millions of litres) and Rail Diesel Fuel Tax Revenues from VIA Rail, by Jurisdiction Level (in millions $), 1998-2002

Year	1998	1999	2000	2001	2002
Consumption	58.6	58.4	61.0	61.4	60.8
Federal Fuel Tax Revenues	2.3	2.6	2.7	2.6	2.4
Provincial Fuel Tax Revenues	3.3	2.9	2.9	2.8	2.8
Total Fuel Tax Revenues [1]	5.6	5.4	5.5	5.5	5.1

[1] May not add up due to rounding.

Again, these fuel tax revenues are tied directly to the amount of passenger rail activity and represent revenue for governments.

The government contribution to intercity passenger transportation (all jurisdictions combined) once revenues from fuel taxes are taken into consideration is shown in Table 5-12 below as the net subsidy. The estimates of the net subsidy per passenger are derived using the passenger base identified in Table 5-10. This does not indicate that all passengers have been subsidized by these amounts, as it is only an average across the entire system. Essentially, what the table is trying to show is the revenue shortfall on an average per-passenger basis.

Table 5-12 – Net Subsidy per Passenger, Class I Passenger Rail Service ($), 1998-2002

Year	1998	1999	2000	2001	2002
Government					
Subsidy (in '000$)	170,463	165,640	164,975	158,968	149,869
Fuel Tax Revenues	5,647.3	5,431.2	5,526.2	5,450.7	5,116.5
Net Subsidy	164815.7	160208.8	159448.8	153517.3	144752.5
VIA Net Subsidy per passenger ($)	45.55	44.89	42.02	39.72	36.36

The net government subsidy per VIA passenger (once revenues generated from the fuel taxes are accounted for) ranges between 36 and 45 dollars as opposed to 37 and 47 dollars in the previous scenario (ignoring fuel tax revenues). In 2000, the net subsidy is estimated to be $42.02 compared to an average $57.37 sourced directly from the VIA passenger; the passenger thereby contributing 57.7 percent of VIA revenues.

6 Conclusion

The phase 1 estimates exposed herein could possibly benefit from further refinements. Additional efforts with the appropriate industry associations are actually underway to further improve the estimates for shortline and regional railways and Class 1 carriers were also approached with several points requiring further clarifications.

Direct contacts in particular with some industry players and other agencies may be established and may provide a means to improve the information with respect to freight and passenger movements and to better understand the dynamics of the feeder/branch line to major carrier/mainline operations framework that prevails on the Canadian network. Those are only two areas where additional information may prove valuable for subsequent phases of this Investigation.

A number of other issues such as: costs by type of rail track, the impact of leased equipment and, other costs (e.g. inspection costs) borne by third parties (e.g. government agencies) could be further researched and several sensitivity analyses performed in the near future. This may necessitate that national (Phase 1) and provincial/territorial (Phase 2) estimates be further refined.

Phase 2 of the Investigation will focus on the allocation of estimates of costs and revenues at the provincial/territorial level.

The allocation process will need to factor in the physical location of the assets as well as the transportation activity taking place over the network. For railway carriers operating strictly within a single province or territory, the allocation of infrastructure costs will be straightforward but for companies with a presence in/operating in multiple jurisdictions (Class 1 carriers and six to eight shortline/regional railways), the allocation process will be somewhat more complex and will command the appropriate attention.

Appendix A – Class 1, Regional and Shortline Railway Companies

Table A.1 – Class 1, Regional and Shortline Railway Companies

Railway Company	Owner	Operator	Regulation	Date Started	Operating Locations
Alberta Railnet Inc.	North America RailNet Inc.	ARI	Provincial	June 27, 1999	AB
Algoma Central	CN	CN	Federal	August 11, 1899	ON
Arnaud Railway	Stelco, Dofasco, Wabush Iron Co (Joint)	Arnaud	Federal	February 12, 1997	QC
Athabasca Northern	Cando Contracting	Cando Contracting	Provincial	October 6, 2000	AB
Baie des Chaleurs					
Barrie-Collingwood	Cities of Barrie and Collingwood	Cando Contracting	Provincial	January 19, 1998	ON
BC Rail	BC Government	BCR	Provincial	April 1, 1972	BC
Burlington Northern (MB)	BNSF	BNSF	Federal	June 30, 1997	MB
Burlington Northern Sante Fe	BNSF	BNSF	Federal		BC
Canadian American					
Canadian Pacific Railway			Federal		
Cape Breton & Nova Scotia	RailAmerica	CBCNS	Provincial	October 1, 1993	NS
Carlton Trails	OmniTRAX	OmniTRAX	Provincial	December 15, 1997	SK
Cartier	Cartier Mining Co.	Cartier	Provincial	January 1, 1961	QC
Central Manitoba	Cando Contracting	Cando Contracting	Provincial	May 2, 1999	MB
Central Western	RailAmerica	RCW	Provincial	March 1, 1986	AB
Chemin de fer Charlevoix	Société des chemins de fer du Québec	CFC	Provincial	November 1, 1994	QC
Chemin de fer Matapedia (QC)	Société des chemins de fer du Québec	CFM	Federal	January 26, 1998	QC, NB
Chemin de fer Quebec-Gatineau	Genesee Wyoming	CFQG	Provincial	November 11, 1997	QC

Railway Company	Owner	Operator	Regulation	Date Started	Operating Locations
CN			Federal		
CSX (ON)	CSXT	CSX	Federal	September 24, 1999	ON,QC
CSX (QC)					
E&N Railway	RailAmerica	ENR	Provincial	December 29, 1998	BC
Essex Terminal	Essex Morterm Holdings Ltd	ETR	Federal	January 1, 1902	ON
Goderich-Exeter	RailAmerica	GEXR	Federal	January 1, 1992	ON
Hudson Bay	OmniTRAX	HBR	Federal	August 20, 1997	MB, SK
Huron Central	Genesee Wyoming	HCR	Provincial	July 29, 1997	ON
Kelowna Pacific	Nighthawk Transportation (65%), New York and Lake Erie (35%)	KPRR	Federal	January 30, 2000	BC
Lakeland & Waterways	RailAmerica	RLW	Provincial	September 2, 1987	AB
Mackenzie Northern	RailAmerica	MNR	Federal	May 3, 1998	AB, NT
New Brunswick East Coast	Société des Chemins de fer du Québec	NBEC	Provincial	January 26, 1998	NB
New Brunswick Southern	Irving Group	NBS	Provincial	January 1, 1995	NB
Norfolk Southern	NS	NS	Federal	December 19, 1996	ON
Okanagan Valley	OmniTRAX	OmniTRAX	Federal	November 21, 1998	BC
Ontario Northland	Ontario Government	ONR	Provincial		ON
Ontario Southland	OSR	OSR	Provincial	February 26, 1999	ON
Ottawa Central	Société des chemins de fer du Québec	OCRR	Federal	December 13, 1998	ON,QC
Ottawa Valley	RailAmerica	OVR	Federal	October 30, 1996	ON,QC
Quebec North Shore & Labrador	Iron Ore Co. of Canada	QNSL	Federal	June 30, 1997	QC, NF
Quebec Southern					
Roberval & Saguenay	Alcan	RS	Provincial	January 1, 1908	QC
Southern Manitoba	Tulare Valley	SMR	Provincial	August 22, 1999	MB
Southern Ontario	RailAmerica	SOR	Federal	September 20, 1997	ON
Southern Rails Co-operative	Privately Owned - Farmer's Cooperative	SRC	Provincial	June 1, 1990	SK
Southern Railway of	Washington	SRBC	Provincial	1950	BC

Railway Company	Owner	Operator	Regulation	Date Started	Operating Locations
BC	Organization				
St. Lawrence & Atlantic	Genesee Wyoming	SLAR	Federal	November 30, 1998	QC
St. Thomas & Port Colborne					ON
VIA Rail	Government of Canada	VIA Rail	Federal	1977	
Wabush Lake					
Windsor & Hantsport	Iron Road	WHR	Provincial	August 1, 1994	NS

Appendix B – Railway Network Rationalization

Table B.1 - Railway Rationalization in Canada – Discontinuances and Transfers 1990-2002 (in kilometres)

Year	Discontinuances	Transfers	Total	CN & CP Total	CN & CP As % of Total
1990	1,334.5	68.4	1,402.9	1,392.1	99.23
1991	454.4	0.0	454.4	454.4	100.00
1992	716.1	396.0	1,112.1	1,093.1	98.29
1993	586.0	384.0	970.0	960.1	98.99
1994	1,548.4	232.1	1,780.5	1,696.5	95.28
1995	866.0	208.9	1,074.9	876.9	81.58
1996	1,366.4	1,149.9	2,516.3	2,471.5	98.22
1997	917.6	3,117.9	4,035.5	3,912.6	96.95
1998	536.0	2,743.8	3,279.8	3,213.5	97.98
1999	377.5	1,795.7	2,173.2	2,173.2	100.00
2000	504.5	1,595.0	2,099.6	1,456.8	69.39
2001	78.8	496.5	575.3	144.5	25.11
2002	324.9	101.9	426.7	369.7	86.63

Figure B.1 – Track Discontinuances and Transfers 1990-2002 (in kilometres)