

Halifax Gateway Council Economic Impact Study

Final Report

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Halifax Gateway Council

Prepared by:



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Executive Summary

Halifax is an international gateway to the world. Halifax International Airport is one of Canada's fastest growing airports and the Port of Halifax is Canada's third largest container port. In addition, Halifax is a major hub in Atlantic Canada for both rail and trucking. With a capacity crisis occurring at west coast North American ports, and the expected explosion of the Chinese and Indian economies in the years ahead, the time is ripe to take proactive action to further develop the Halifax Gateway for the economic and social benefit and wellbeing of Atlantic Canada.

The Halifax Gateway Council was established in 2004 with the purpose of providing meaningful input into federal, provincial and local policy discussions on improving the competitiveness and efficiency of the Halifax Gateway. Gateway Council members include:

- Atlantic Container Line
- Air Canada Jazz
- CanJet
- CN Rail
- Halifax International Airport Authority
- Halifax Port Authority
- Destination Halifax
- Greater Halifax Partnership
- Halifax Chamber of Commerce
- Halifax Regional Municipality
- Nova Scotia Business Inc.
- Province of Nova Scotia
- Transport Canada
- Atlantic Canada Opportunities Agency

In order to develop and promote the Halifax Gateway, it is necessary to understand and quantify the economic importance of the Gateway. The purpose of this report is to document the economic impact of the Halifax Gateway. The measures of economic impact in this report include:

- Employment and wages generated by Halifax Gateway businesses;
- GDP and economic output contribution of the Halifax Gateway to the Nova Scotia economy;
- Taxes and fees paid to the federal, provincial and municipal governments.

The main findings of the report are:

The Halifax Gateway is a major employment generator for Nova Scotia, generating 11,930 direct jobs in the province

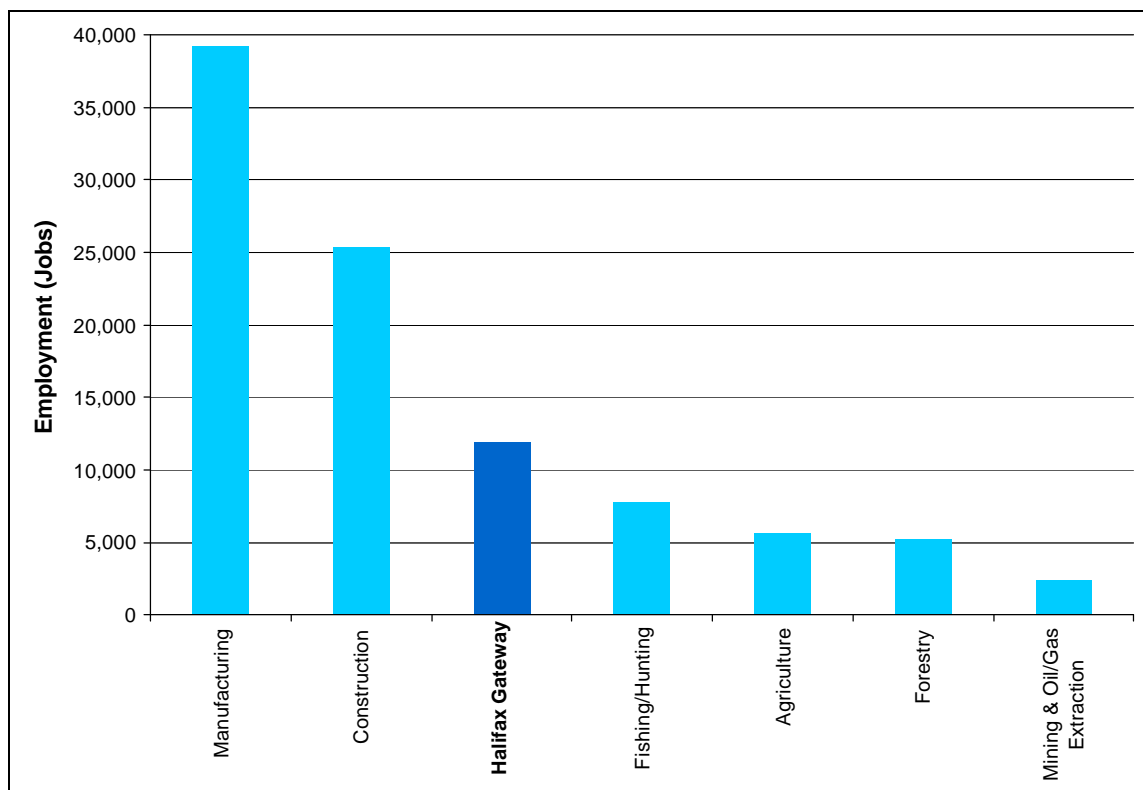
As shown in **Table ES-1**, The Halifax Gateway is a major generator of jobs in Nova Scotia with an estimated 11,930 jobs generated by Gateway related activities, equivalent to 11,200 person years of employment.¹

¹ A full-time position for one year constitutes a person year of employment (also known as a full-time equivalent). As some jobs are part-time or seasonal, these jobs have been converted to person years.

Table ES-1: Direct Jobs, Person Years and Wages Generated by the Halifax Gateway

	Jobs	Person Years	Wages (\$ millions)
Port of Halifax	4,780	4,620	\$ 212.2
Halifax International Airport	6,120	5,560	\$ 221.0
Rail	440	440	\$ 24.3
Trucking	590	580	\$ 19.5
Total Direct Employment of the Halifax Gateway	11,930	11,200	\$ 477.0

Statistics Canada data indicates that the Nova Scotia economy generated roughly 441,000 jobs in 2004. On this basis, the direct employment generated by the Halifax Gateway (11,930 jobs) represents nearly 3% of provincial employment. **Figure ES-2** compares Halifax Gateway related employment with that of six different Nova Scotia economic sectors. While smaller than the manufacturing and construction sectors, Gateway related employment is larger than that associated with fishing/hunting, agriculture, forestry, and mining & oil/gas extraction. The Gateway generates slightly more than half (55%) the total number of direct jobs associated with the province's natural resource industries (agriculture, forestry, fishing, mining, and oil and gas extraction combined).

Figure ES-2: Comparison of the Halifax Gateway Direct Employment with Selected Major Sectors in the Nova Scotia Economy

Source: Statistics Canada Table 282-0007

The jobs generated by the Halifax Gateway are high wage positions, with an average wage 32% higher than the Nova Scotia average

The direct employment generated by the Halifax Gateway is estimated to earn a total of \$477 million in wages. This equates to an average annual compensation per direct person year of \$42,590. This average wage is approximately 32% higher than the average wage in Nova Scotia.

Indirect and induced employment is also generated by the Halifax Gateway

In addition to the 11,930 direct jobs generated by the Halifax Gateway, the employment impacts extend into many other industries in the province. Using Statistics Canada multipliers it is possible to estimate indirect and induced employment:

- *Indirect employment* is created in industries supplying the Gateway businesses. A total of 7,260 indirect jobs, equivalent to 6,820 person years of employment, are generated by the Gateway.
- *Induced employment* is generated as direct and indirect Gateway employees spend their wages in the community. A total of 9,300 induced jobs, equivalent to 8,730 person years of employment, are generated by the Gateway.
- Combining direct, indirect and induced employment, the Gateway potentially generates 28,490 jobs or 26,750 person years of employment.

The Halifax Gateway makes a significant contribution to the Gross Domestic Product and Economic Output of the Nova Scotia Economy

As shown in **Table ES-3**, the Halifax Gateway generates \$602 million in direct GDP and \$1.5 billion in direct economic output. With multiplier effects, the Gateway contributes \$1.6 billion in GDP and \$3.7 billion in economic output for the Nova Scotia economy.

Table ES-3: Total Employment and Economic Impacts in Nova Scotia of the Halifax Gateway

	Jobs	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	11,930	11,200	\$ 477	\$ 602	\$ 1,482
Indirect	7,260	6,820	\$ 217	\$ 458	\$ 1,044
Induced	9,300	8,730	\$ 342	\$ 523	\$ 1,189
Total	28,490	26,750	\$ 1,036	\$ 1,583	\$ 3,715

Ships and Planes Arrive - People Work

The employment of the Gateway is driven to a great extent by ships docking at the Port of Halifax and aircraft landing at Halifax International Airport. This report includes examples of how many jobs are created by specific Gateway services:

- Each time an aircraft from Toronto, operated by a full service carrier, lands at Halifax International Airport, 106 hours of labour are generated. Over a year, this service, with 11 flights daily, generates 220 direct person years of employment.
- Each time an aircraft from Toronto, operated by a low cost carrier, lands at Halifax International Airport, 104 hours of labour are generated. Over a year, this service, with four flights daily, generates 80 direct person years of employment.
- Every time a container ship docks, it generates 4,621 employment hours, equivalent to just over three (3) direct person years of employment.
- Each cruise ship arriving at the Port of Halifax generates 3,877 employment hours, or 2.3 direct person years. Some of this employment is the result of \$164,000 of tourism spending each cruise ship brings to Halifax.

The Halifax Gateway generates tax and other revenues for all levels of government totalling over \$254 million

The range of activities at the Halifax Gateway generates taxes and other revenues for the federal, provincial and municipal governments. These taxes are paid by Gateway businesses, their employees, and air passengers on their air travel.

Table ES-4 provides a breakdown of the tax revenue by type of tax payer and level of government. The federal government is the largest recipient of tax revenues, receiving \$169 million, or 67% of the total amount. The Nova Scotia provincial government receives \$79 million, 31% of the total, and municipal governments receive just over \$6 million.

Table ES-4: Halifax Gateway Tax Contribution (\$ millions)

Taxpayer	Federal	Provincial	Municipal	Total
Gateway Businesses	\$ 28.1	\$ 21.2	\$ 6.2	\$ 55.5
Gateway Employees	\$123.1	\$ 44.5	-	\$ 167.6
Air Passengers	\$ 18.2	\$ 13.0	-	\$ 31.2
Total	\$ 169.4	\$ 78.7	\$ 6.2	\$ 254.3

The capital investment plans of the Halifax Gateway businesses will also support significant numbers of jobs in the construction and other industries

In addition to the economic impact of on-going operations of the Halifax Gateway, the planned capital investments of the Gateway businesses will generate a one-time economic impact in the construction and related industries.

Halifax Gateway businesses are expected to invest a total of \$433 million over the next five years. This averages to \$87 million per annum flowing into the construction, equipment and manufacturing industry. The economic impact of this planned capital investment is presented in **Table ES-5**. A total of 3,180 direct person years of employment is estimated to be generated by capital investment over the next five years. This averages to 636 direct person years per annum.

Table ES-5: Economic Impact of Capital Investment by Halifax Gateway Businesses in Nova Scotia, 2005-2010

	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	3,180	\$ 140	\$ 152	\$ 347
Indirect	1,070	\$ 38	\$ 60	\$ 138
Induced	1,800	\$ 53	\$ 89	\$ 386
Total	6,050	\$ 231	\$ 301	\$ 871

1.0 Introduction

1.1 Background

Halifax is an international gateway to the world. Halifax International Airport is one of Canada's fastest growing airports and the Port of Halifax is Canada's third largest container port. In addition, Halifax is a major origin and destination point in Atlantic Canada for both rail and trucking. With a capacity crisis occurring at west coast North American ports, and the expected explosion of the Chinese and Indian economies in the years ahead, the time is ripe to take proactive action to further develop the Halifax Gateway for the economic and social benefit and wellbeing of Atlantic Canada.

To realize its true potential, the Halifax Gateway will need to deal with the real competition posed by several Canadian and U.S. airports and ports, including Toronto, Montreal, New York, and Boston. In addition, the Gateway and its transportation partners in Halifax will need to address several key issues, including government policy, infrastructure development and funding, market development, and economic and industrial development in the region.

As a multimodal transportation hub, the Gateway plays a critical role in the economy of Atlantic Canada. The Halifax Gateway Council was established in 2004 with the purpose of providing meaningful input into federal, provincial and local policy discussions on improving the competitiveness and efficiency of the Halifax Gateway. Gateway Council members include:

- Atlantic Container Line
- Air Canada Jazz
- CanJet
- CN Rail
- Halifax International Airport Authority
- Halifax Port Authority
- Destination Halifax
- Greater Halifax Partnership
- Halifax Chamber of Commerce
- Halifax Regional Municipality
- Nova Scotia Business Inc.
- Province of Nova Scotia
- Transport Canada
- Atlantic Canada Opportunities Agency

In order to develop and promote the Halifax Gateway, it is necessary to understand and quantify the economic importance of the Gateway. Therefore, in 2005, InterVISTAS Consulting Inc. was retained by the Halifax Gateway Council to conduct an economic impact study on the Gateway. This report presents the findings of this study, describing and measuring the economic impact of transportation and logistics activity in the Halifax region.

1.2 What is Economic Impact?

Economic impact is a measure of the spending and employment associated with a business, a sector of the economy, a specific project (such as the construction of a new facility), or a change in government policy or regulation. Economic impact can be measured in various ways. Two of the most popular ways to assess economic impact are in terms of the dollar value of output produced or in terms of person years (also known as full-time equivalents - FTEs) of employment generated. These attempt to assess the gross level of activity or expenditure. As such, they are not “net” measures that weigh benefits against costs, but nevertheless these measures can be useful in developing an appreciation of businesses, projects, investments and economic sectors.

This study measures the economic impact of the Halifax Gateway in a number of ways:

- Employment;
- Wages;
- Economic Output;
- Gross Domestic Product (Value-Added);
- Taxes.

In addition, the transportation and logistics activity of the Halifax Gateway generates three types of economic impact: direct, indirect and induced economic impacts.

Direct economic impact is employment, value-added or economic output that can be attributed to the operation and management of the Gateway businesses and associated transportation services. This includes all economic impacts at Halifax International Airport, the Port of Halifax, railways, trucking companies, airlines, terminal operators and other related businesses.

Indirect economic impact is employment, value-added or economic output created in industries that supply goods and services to Gateway businesses. For example, a parts distributor that supplies the terminal operators with replacement parts for their container cranes or other equipment would contribute to the indirect economic impact of the Gateway. Likewise, a wholesale food distribution company that supplies food to airlines would also be part of indirect economic impact.

Induced economic impact is employment, value-added or economic output generated because of expenditures by individuals employed directly or indirectly by the Gateway. For example, if a stevedore at one of the Port of Halifax's terminals decides to expand or re-model his/her home, this would result in additional (induced) employment hours in the general economy.

Total economic impact is the sum of direct, indirect and induced effects. The multiplier (indirect and induced) economic impacts represent the maximum potential stimulus to the economy resulting from activity of Halifax Gateway related businesses.

1.3 On-going, One-time and Micro Economic Impacts

This study provides estimates of a number of aspects of the economic impact of the Halifax Gateway:

- **On-going economic impact of Gateway operations and activities.** This is the recurring economic impact generated by the day-to-day activities of Halifax Gateway businesses involved in the transportation of goods and passengers through the Gateway. The figures provided in this report of on-going impacts are estimates of the economic impact generated *each year* by this activity.²
- **Micro economic impacts.** Micro studies measure the economic impact of specific activities. For example, the economic impact of a container ship docking at the Port of Halifax, or the impact of a passenger aircraft landing at Halifax International Airport. The micro studies highlight aspects of the on-going economic impact of the Halifax Gateway.
- **One-time economic impact of capital projects.** This is the economic impact generated by one-off capital investments by Halifax Gateway businesses in infrastructure and equipment expansion and upgrades. For example, this would include employment in the construction industry generated by the construction of new port or airport facilities. These economic impacts are not recurring, lasting only for the duration of the capital project.

1.4 Report Outline

This report is designed to provide a snapshot of the Halifax Gateway employment and its economic impact in 2005.

- *Chapter 2* is a background chapter on the Halifax Gateway, describing the Gateway infrastructure, as well as the volume of goods and passengers passing through the Gateway.
- *Chapter 3* explains the methodology used to estimate the economic impact of the Halifax Gateway.
- *Chapter 4* provides estimates of the amount of direct employment related to the Halifax Gateway in four specific sectors: port, airport, rail and trucking.
- *Chapter 5* introduces the concept of multipliers and uses them to infer indirect and induced employment and economic impacts of the Gateway. It also provides, as a separate account, the tourism industry employment facilitated by the Gateway through air and cruise passengers.
- *Chapter 6* measures the tax contribution of the Halifax Gateway business community.
- *Chapter 7* examines the micro economic impact of four specific activities within the Gateway – two major air passenger services, container ships and cruise ships.
- *Chapter 8* estimates the economic impact generated by capital spending by the port and airport authorities and other businesses.
- *Chapter 9* provides a summary of the report's findings.

² This activity includes regular repair and maintenance but not major capital investment, which is included in the one-off impacts.

- The *Appendices* contain detailed explanations of the study methodology and calculations.

2.0 Overview of the Halifax Gateway

A Gateway can be defined as a total transportation system serving the through movement of cargo and passengers. A key concept behind the Gateway is the co-operation and co-dependence of all modes. A major part of the Gateway is the port and airport, which act as intermodal facilities allowing goods and passengers to change from one mode of transport to another (e.g., ship to rail, air to truck). A Gateway is where the logistical interface between modes takes place.

A Gateway can also *add value* to cargo and passenger services. Time is literally money in the movement of goods. Goods which sit on the dock waiting to be unloaded or reloaded are unproductive and costly. Banks do not lend capital so that goods sit in port, rather than on store shelves or on the factory floor. In other words, there are significant opportunity costs to unproductive goods. A Gateway which provides timely handling of goods or which moves passengers from origin to destination in the least amount of time, creates considerable value.

The following sections describe the current infrastructure and operations that make up the Halifax Gateway, as well as volumes and make-up of the goods and passengers utilising the Halifax Gateway.

2.1 Airport

2.1.1 Infrastructure

Halifax International Airport is the largest international airport in Atlantic Canada. The airport is located on a 2,370-acre site, approximately 30 minutes from downtown Halifax. Halifax is one of only four Canadian airports that offers simultaneous intersecting runway operation, which provides the airport with increased capacity and less delays. The airport operates 29 gates and two runways equipped with instrument landing systems (ILS), one of 8,800 feet and the other of 7,700 feet. **Figure 2-1** provides an aerial view of Halifax International Airport and its two runways.

Figure 2-1: Aerial View of Halifax International Airport

Passenger Services. Several years ago, Halifax International Airport embarked on a multi-year Airport Improvement Program (AIP). Phases of this program have already been completed, including improvements to the air terminal building, expansion of the public parking lot, and construction of a public observation area. Halifax International Airport currently has a single passenger terminal building, which was recently expanded to approximately 54,000 m². The facility has approximately 65 check-in positions and 5 baggage carousels. A variety of services are also available in the passenger terminal building, including retail, banking machines and foreign exchange, food and beverage, meeting rooms, passenger observation deck, a chapel, and a children's play area.

With 16 passenger airlines operating to/from the airport, Halifax International Airport offers travellers a wide variety of passenger services. The major airlines operating at Halifax International Airport include:

- Air Canada
- Air Canada Jazz
- Air Transat
- American Eagle
- CanJet
- Continental Express Airlines
- Delta Airlines
- Northwest Airlines
- Provincial Airlines
- Skyservice Airlines Inc.
- WestJet
- Zoom Airlines

As of July 2005, the airport had direct service to 24 destinations – 14 in Canada, four in the U.S. and six international.

Air Cargo. Halifax International Airport's cargo operations are run out of four terminal buildings and several warehouses. The airport's location, away from the city centre, ensures that no curfews are in place for aircraft movements, thereby permitting very flexible service.

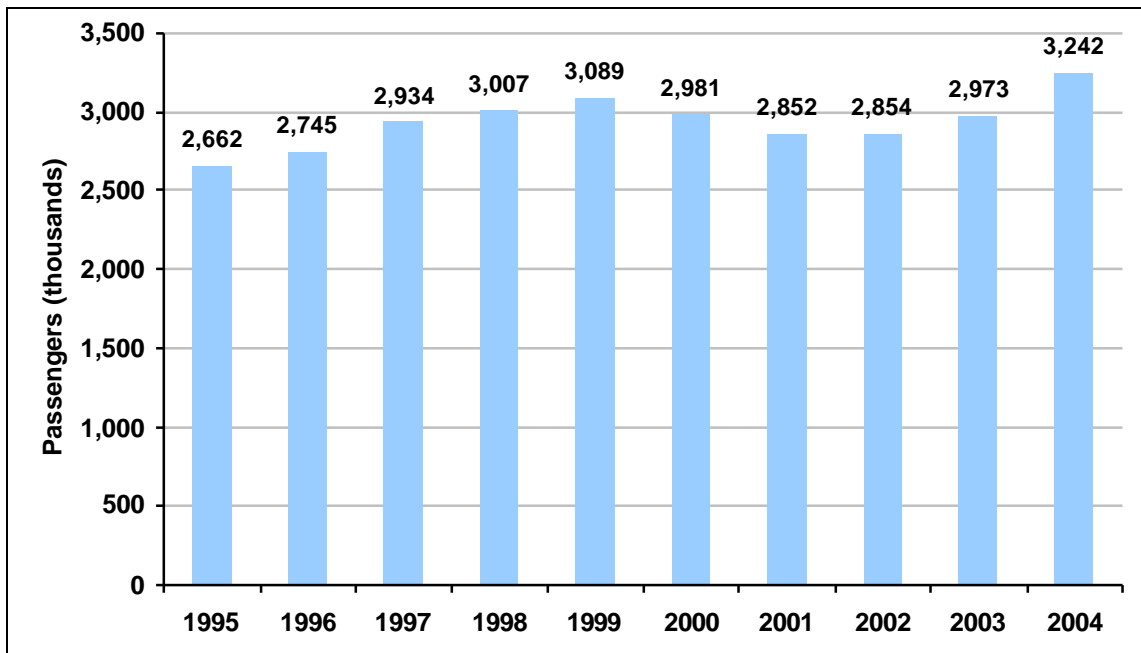
Halifax has five primary cargo operators that ship and receive cargo: Air Canada, Purolator, Federal Express, CargoJet and Prince Edward Air. In addition to general cargo, sensitive cargo can be handled at the airport through special storage facilities:

- Heated Storage
- Air-conditioned Storage
- Refrigerated Storage
- Radioactive Goods
- Animal Quarantine
- Fresh Meat Inspection
- Dangerous Goods

2.1.2 Traffic

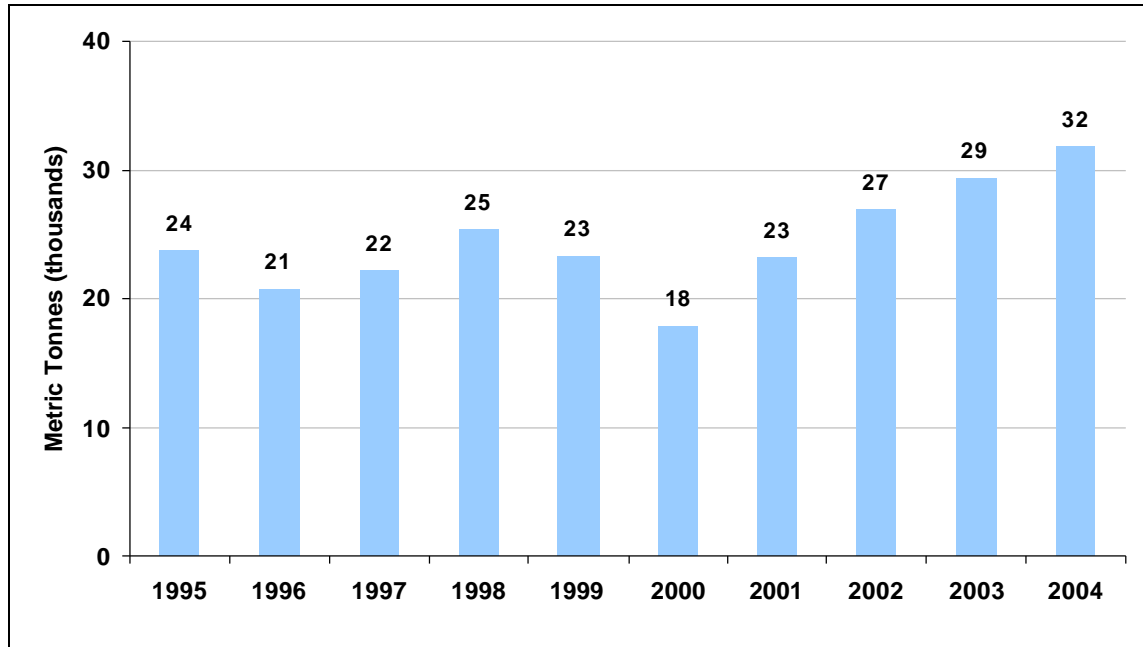
Passenger. Passenger traffic has grown steadily at Halifax International Airport during the past 10 years, with the exception of the period between 2000 and 2001 (**Figure 2-2**). During the latter period, traffic at the airport fell by approximately 8% due to changing economic and industry conditions, and the September 11th, 2001 terrorist attacks in the U.S. Since 2002, traffic at Halifax International Airport has increased steadily, reaching a record high of over 3.2 million passengers in 2004.

Figure 2-2: Halifax International Airport Passenger Traffic, 1995-2004



Air Cargo. Air cargo traffic at Halifax International Airport has undergone a number of cyclical changes over the past 10 years but has showed strong growth since 2000, reaching 31,800 tonnes in 2004, an average annual growth rate of 16%.

Figure 2-3: Halifax International Air Cargo Volumes, 1995-2004



2.2 Port

2.2.1 Infrastructure

In 2004, approximately 14 million metric tonnes of cargo passed through the port, making the Port of Halifax the third-busiest container port in the country behind Vancouver and Montreal. The port plays a vital role in serving world markets, with more than 20 direct liner services as well as transshipment and feeder services.

Proximity to Europe and good intermodal rail, truck, water and air connections are key factors which make Halifax a major Atlantic port of call. Another advantage for the Port of Halifax are its deep berths (16.8 metres), which makes it one of two east coast North American ports that can handle fully laden post-Panamax container ships.

The Port handles these types of vessels:

- General cargo
- Liquid bulk
- Dry bulk
- Offshore oil & gas
- Roll-on / Roll-off
- Container
- Container / ro-ro
- Cruise ships

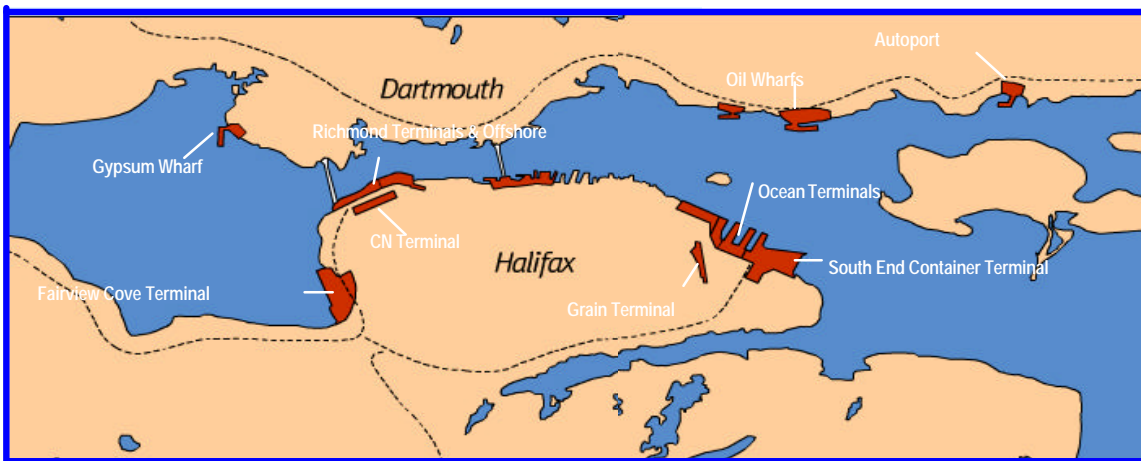
Figure 2-4: Map of the Port of Halifax

Figure 2-4 shows the location of several of the Port's terminals. Combined, the Port's terminals provide more than 13 berths, over 10 cranes, and a total storage capacity of 68,000 square metres. Each of major terminals are described below:

- *South End Container Terminal:* The South End Container Terminal (Halterm) is the oldest common user terminal in Canada and comprises 75 acres, 1,171 metres of quay, and six gantry cranes (including two post-Panamax units). This terminal's current customers include Zim Integrated Shipping Services, Costa Container Lines, Melfi Marine Lines, China Shipping Container Line and the Oceanex short sea service.
- *Fairview Cove Terminal:* The Fairview Cove Terminal is operated by CeresGlobal, a unit of Nippon Yusen Kaisha (NYK). The facility is approximately 70 acres, with 660 metres of quay and four gantry cranes (including one post-Panamax unit). This terminal's customers include Grand Alliance members of Hapag-Lloyd, OOCL, NYK, P&O Nedlloyd, as well as ACL and a short sea service to New England operated by Halship Inc.
- *Ocean Terminals:* Ocean Terminals comprises four piers at the Port of Halifax, providing its services to container, ro-ro, breakbulk and heavy-lift cargo traffic. Piers A and A1 offer deep water berths with good truck and rail access, and almost 18,000 square metres of covered storage space. Piers 23 and 24 are equipped with a rail siding adjacent to the pier, which makes direct loading from rail to ship (and vice versa) a possibility. These two piers offer approximately 4,700 square metres of covered storage.
- *Halifax Grain Elevator:* The Halifax grain elevator, operated by Halifax Grain Elevator Company, has 140,000 tonnes of storage capacity, with maximum loading capacity of 2,000 tonnes per hour. The facility has both on dock rail and truck access and well as direct ship discharge.
- *Seawall:* The Seawall is the Port of Halifax' primary cruise ship facility. The three berths that make up the Seawall offer over 2,000 feet of contiguous berth space. The Cruise Pavilion (at Pier 21) is the main cruise ship facility offering 48,000 square feet of interior space with amenities for passengers.
- *Richmond Terminals:* Piers 9 and 9A make up Richmond Terminals, and handle break-bulk and container traffic. Pier 9A is leased to Scotia Terminals, which offers almost 1,400 square metres of open area and 5,600 square metres of shed.

- *Richmond Offshore Terminals:* Piers 9B, C and D are offshore oil and gas supply bases that are leased to the EnCana Corporation. They provide two berths (216m and 140m), one shed of 5,875 square metres, and two open areas of 9,290 square metres and 21,306 square metres.
- *CN Terminal:* Halifax Intermodal Terminal is operated by CN and offers double stack train service direct to Toronto, Montréal and Chicago. In terms of capacity, two gantry cranes can handle 150 units per day.
- *Autoport:* Autoport is a 100-acre facility owned by CN Rail that handles roll-on and roll-off cargo. It has five rail sidings for inward and outward vehicle processing. Autoport processes European import vehicles and domestic vehicles destined for Atlantic Canada. The facility received ISO 9002 certification in 1997, becoming the first vehicle processing and trans-shipment facility in North America to attain this designation.
- *Gypsum:* National Gypsum owns and operates a facility in Wright's Cove for the shipment of raw gypsum mined at their site in Milford. The berth is 197 metres and the open area is 24.7 acres. The facility has storage capacity for 180,000 metric tonnes of cargo and receives cargo in unit trains powered by CN Rail directly from the mine.
- *Imperial Oil:* Crude and refined petroleum account for the largest tonnages handled at the Port of Halifax. Imperial Oil operates docks at Woodside for unloading crude oil and loading refined product for consumption in Atlantic Canada. The facilities include three berths, two measuring 67 metres in length and the third measuring 122 metres. The depths of the three berths range between 10.4 metres and 14.9 metres. The refinery also provides bunkering facilities, either directly at the refinery or via a bunker barge. The largest vessel that can be accommodated at Imperial Oil is 70,000 tonnes.
- *Woodside Atlantic Wharf:* Nova Scotia Business Inc. (NSBI) owns a common user dock in Woodside Atlantic Wharf, which has 229 metres of berth and an open area of 5.5 acres. Water depths are 8.8 metres. The common user dock in Woodside is used for vessel lay ups, ship repairs and rebuilds, and to support oil and gas drilling activities.

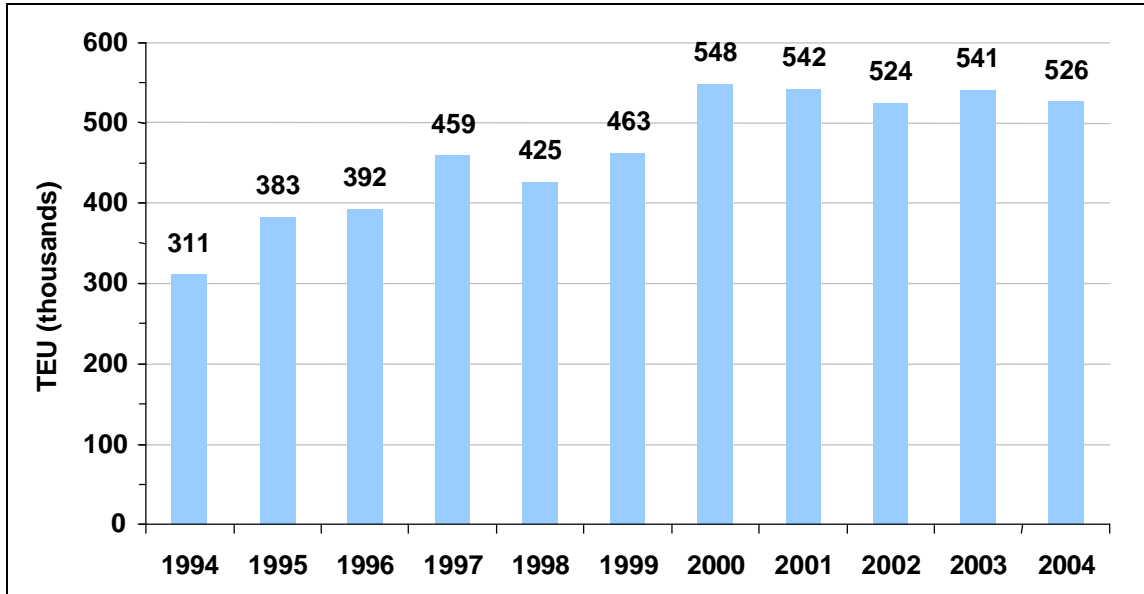
2.2.2 Traffic

This section briefly discusses the level of traffic that has been handled by the Port of Halifax.

Container. The Port of Halifax can handle the world's largest container ships due to the Port's deep waters and infrastructure. As can be seen in **Figure 2-5**, between 1995 and 2004, container traffic at the port increased by over 37%. In 2000, the Port of Halifax handled a record 548,000 TEUs.³ Since then, traffic has remained fairly flat albeit with annual fluctuations (2004 traffic totalled almost 526,000 TEUs). The range of containerised goods moved through the Port of Halifax varies greatly, from computers and electronics to fresh produce.

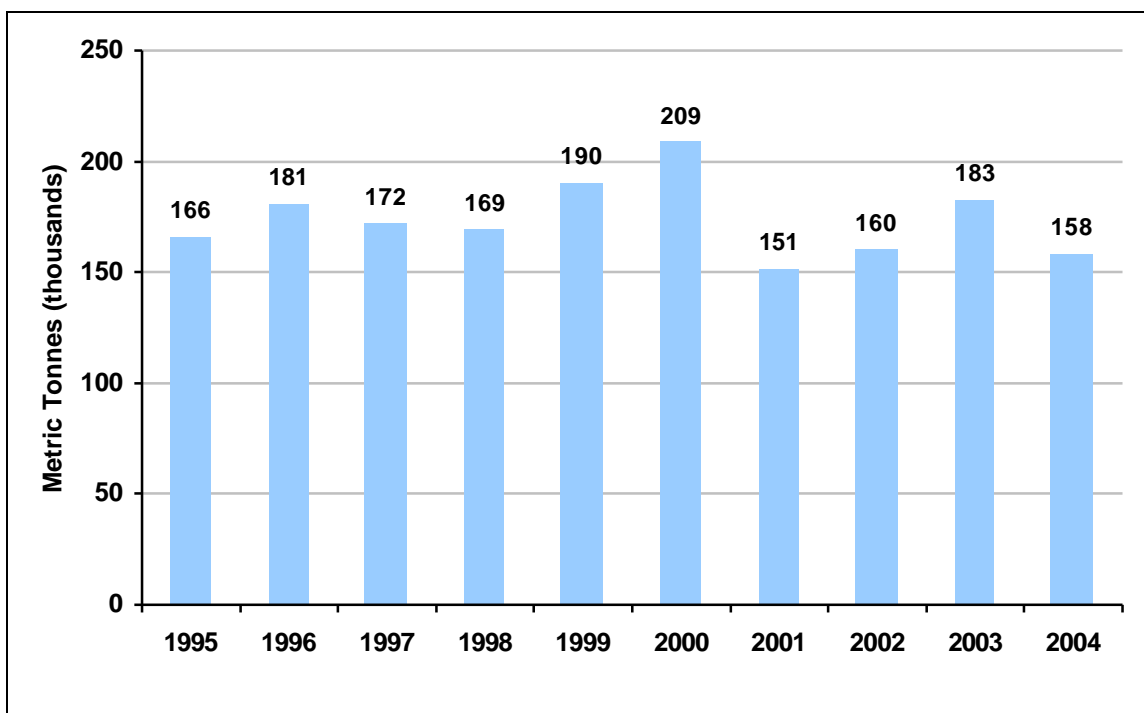
³ A TEU, or twenty-foot equivalent unit, is a standard unit for measuring container volumes based on a container 20 feet in length. Some containers are actually longer than 20 feet, so a container 40 feet in length is equal to two TEUs.

Figure 2-5: Container Traffic, 1994-2004



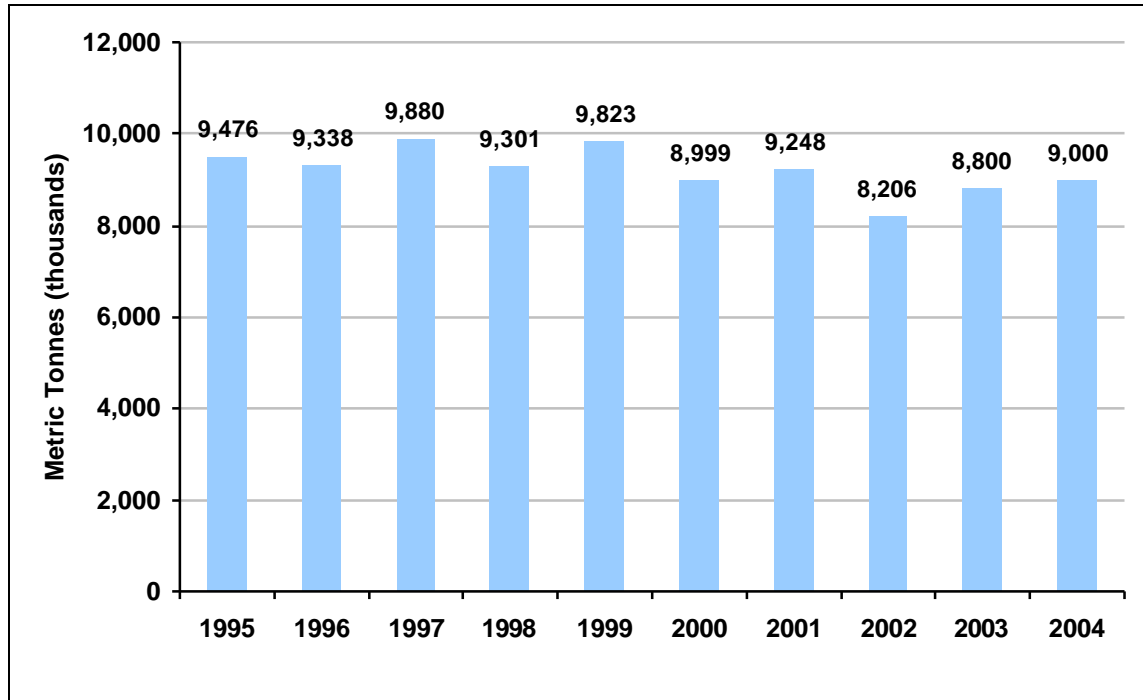
Break-Bulk. Break-bulk is cargo that is carried in bags, bundles or packages in a ship's cargo hold. In 2004, 158,286 metric tonnes of break-bulk was handled at the Port of Halifax, a 4% decrease from 1995. **Figure 2-6** displays the annual volumes of break-bulk cargo handled by the Port of Halifax since 1995. Break-bulk accounts for a very small percentage of total cargo volumes. Typical break-bulk shipments at the Port of Halifax include paper, lumber, iron/steel, machinery and rubber.

Figure 2-6: Break Bulk Traffic, 1995-2004



Bulk. In 2004, almost 9 million metric tonnes of bulk cargo was handled at the Port of Halifax. This represents a 1% increase from 2003, but a 5% decrease from 1994. Typical bulk shipments at the port include crude oil, refined fuels, gypsum and grain.

Figure 2-7: Bulk Traffic, 1995-2005



Ro/Ro. Ro/Ro traffic, including autos, accounted for only 1% of total cargo at the Port of Halifax in 2004. Almost 200,000 metric tonnes of Ro/Ro cargo was handled, which represents an 8% decrease from the 2003 level.

Cruise. The number of cruise vessels that have passed through the Port of Halifax has increased significantly over the past ten years. In 2004, 123 cruise ships visited the Port of Halifax, a 213% increase from the 39 in 1995. In terms of passengers, almost 212,800 cruise passengers were handled at the Port in 2004, an increase of over 600% since 1995.

Figure 2-8 displays cruise passenger throughput, vessel calls, and the number of different vessels calling on the Port of Halifax between 1995 and 2004. While the overall passenger throughput has significantly increased since 2002, the total vessel count has remained fairly consistent, and the number of vessel visits has decreased since 2003. This trend indicates that the Port is receiving larger, higher passenger capacity ships, which deliver more cruise visitors.

Figure 2-8: Cruise Passenger Traffic

Year	Passengers	Cruise Calls	Cruise Operators	Cruise Ships	Pax Per Ship Call	Pax % Growth	Ship % Growth
1995	30,257	39	15	16	776	-25.0%	0.0%
1996	36,584	46	13	13	795	+17.3%	+15.2%
1997	44,328	46	14	15	964	+17.5%	0.0%
1998	47,798	53	16	18	902	+7.3%	+13.2%
1999	107,837	73	16	19	1,477	+55.7%	+27.4%
2000	138,371	93	16	20	1,488	+22.1%	+21.5%
2001	160,237	96	15	23	1,669	+13.6%	+3.1%
2002	157,036	87	16	20	1,805	-2.0%	-10.3%
2003	170,697	104	15	23	1,859	+8.7%	+15.0%
2004	212,834	122	16	28	1,730	+24.7%	+17.9%

2.3 Rail

2.3.1 Infrastructure

In the Greater Halifax region, CN Rail is the only Class 1 rail carrier that provides rail services to markets inland. Halifax is CN Rail's eastern terminal of the CN transcontinental mainline (see **Figure 2-9** and **Figure 2-10**). Freight trains typically arrive or depart from Rockingham yard, where traffic is dispatched to the Port of Halifax container terminals (Fairview Cove Terminal, South End Terminals, and Halifax Intermodal Terminal). CN Rail also serves oil refineries, using the Dartmouth switching yard, and Autoport, which is the final point at the end of the Dartmouth subdivision.

Figure 2-9: Nova Scotia Rail Map

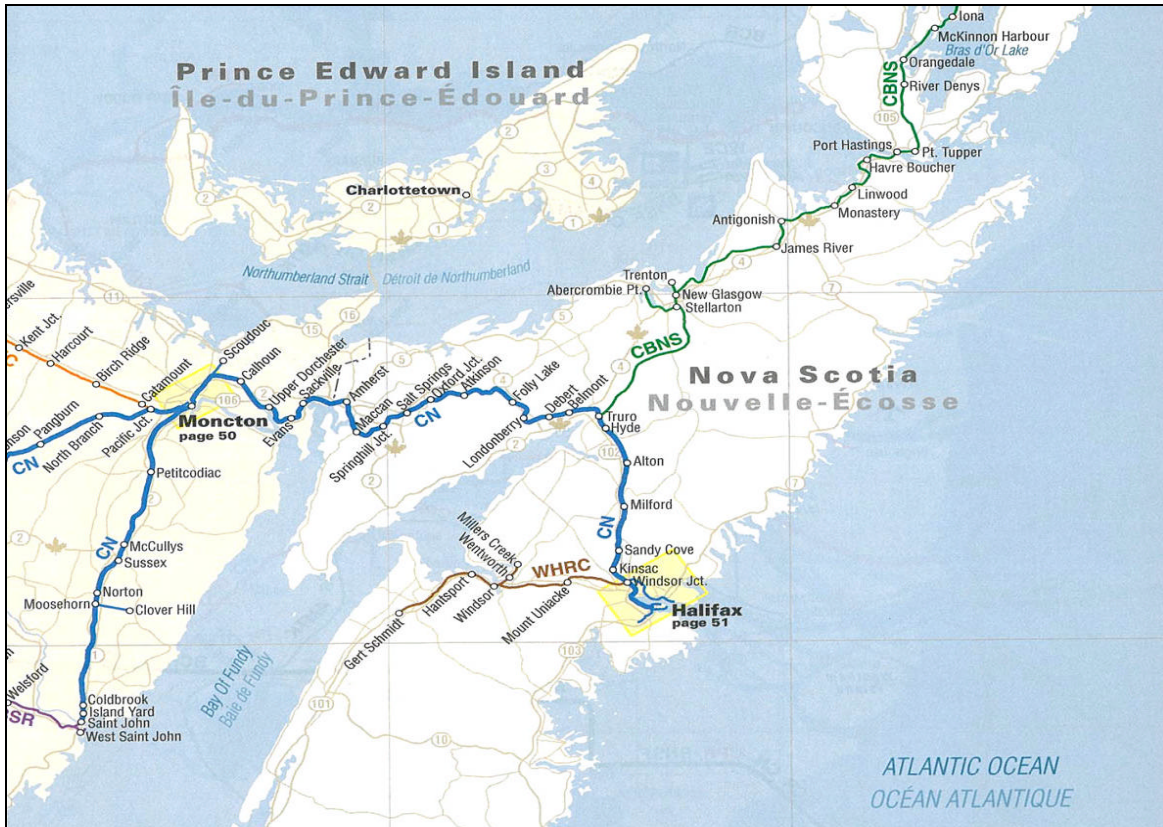
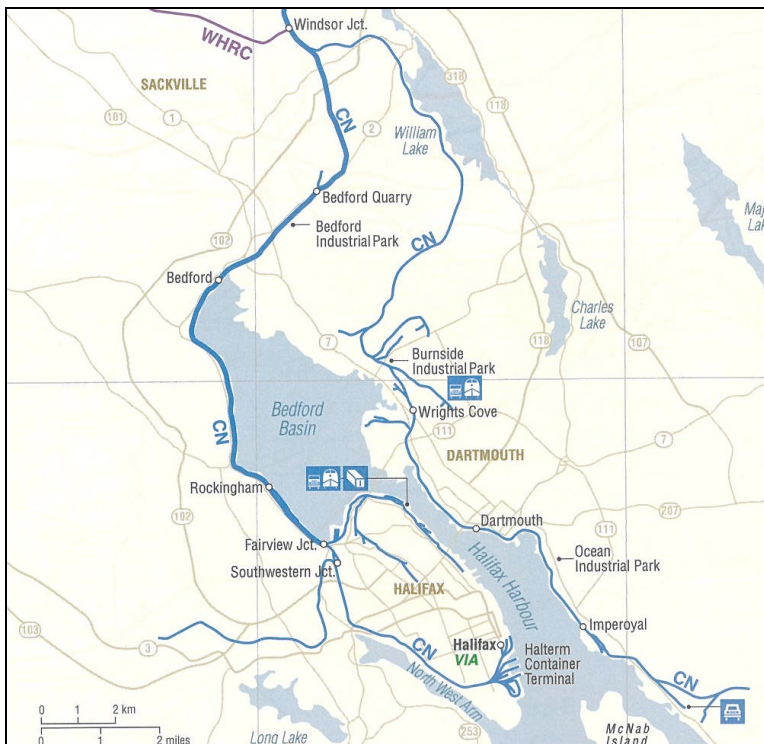


Figure 2-10: Greater Halifax Rail Map



2.3.2 Traffic

In 2004, CN Rail handled 76,000 cars and 211,000 containers. **Figure 2-11** and **Figure 2-12** display detailed historical rail traffic from 2000 to 2004 in terms of car volumes and container volumes to/from Halifax, respectively. From 2000 to 2004, the volume of cars and containers have decreased by 6% and 11%, respectively.

Figure 2-11: Historical Car Volumes (2000 to 2004)

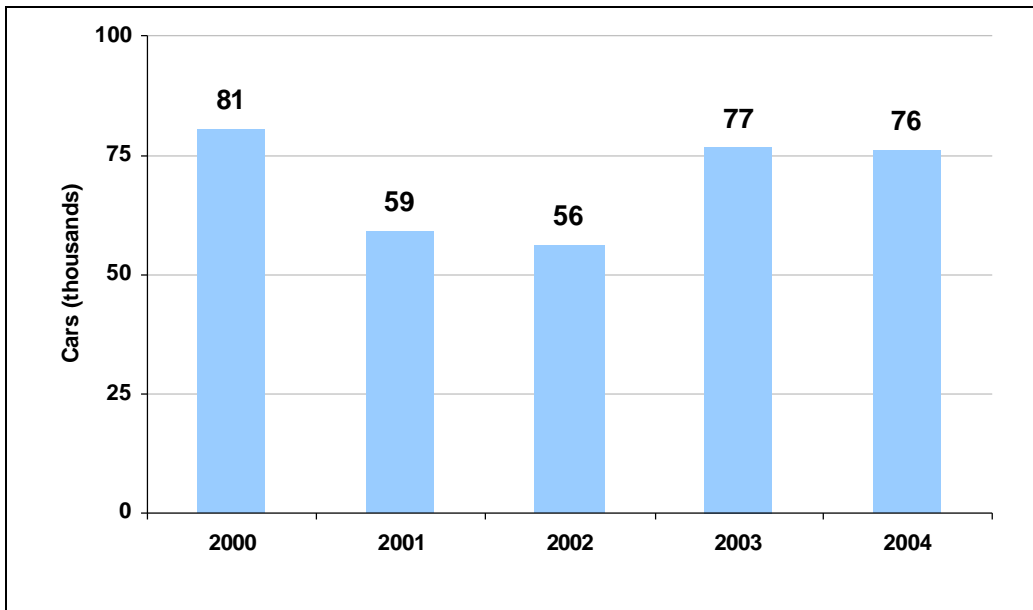
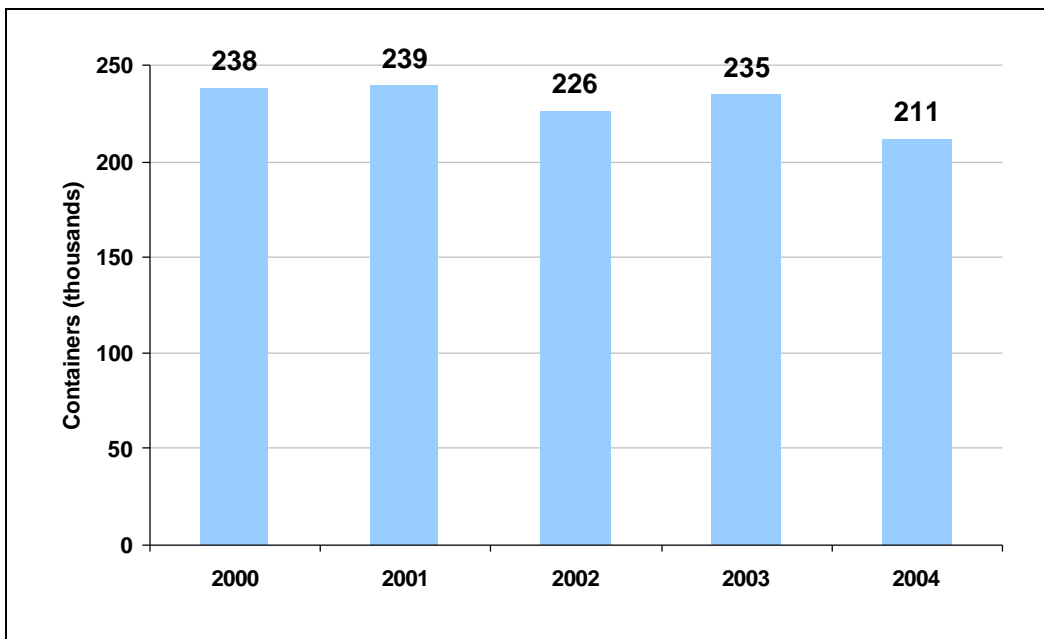


Figure 2-12: Historical Rail Container Traffic (2000 to 2004)



2.4 Trucking

2.4.1 Infrastructure

Trucks: In 2001, there were 1,310 businesses providing trucking services in the province of Nova Scotia. In terms of employment, there were 8,190 drivers employed by firms of more than 2 employees and approximately 1,000 owner-operators in the province. There are approximately 17,000 commercial trucks, trailers and semi-trailers registered in the province.

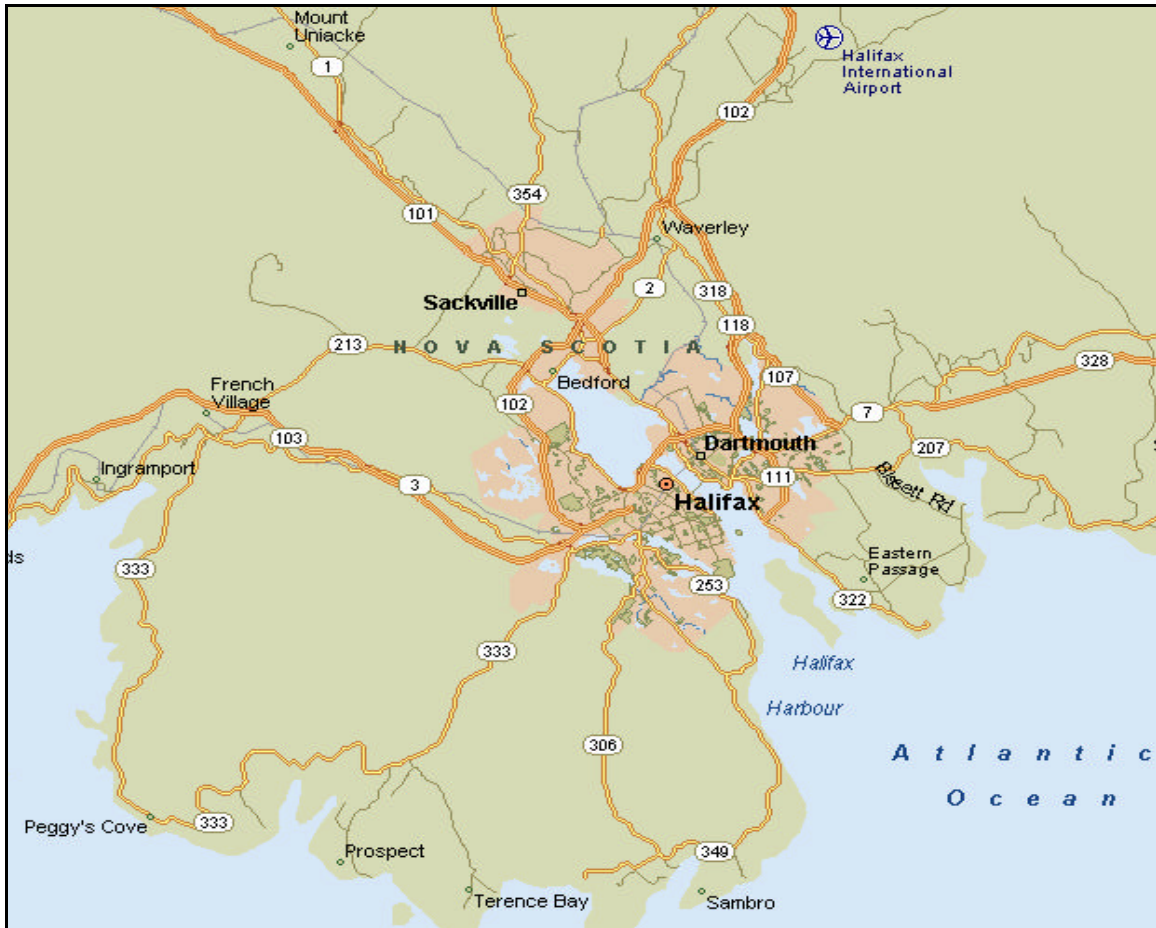
Roads. Road infrastructure in and out of the Greater Halifax region is made up of several highways:

- Highway 101 leads to the Annapolis Valley;
- Highway 102 is the main transportation corridor connecting Halifax to the Trans-Canada Highway at Truro and also serves as the access route to the Halifax International Airport;
- Highway 103 leads to points on the South Shore; and
- Highway 107 serves the Eastern Shore.

Figure 2-13 provides a map of the highway network surrounding Greater Halifax.

Bridges. Two bridges provide access to the Halifax peninsula, the Macdonald Bridge and the MacKay Bridge.

- **Macdonald Bridge:** This bridge has three lanes, one in each direction and one reversing depending on the predominant traffic flow. Access to this bridge is limited to automobiles and very light pick-up trucks.
- **MacKay Bridge:** This bridge has two lanes in each direction and handles a large amount of truck traffic since it is the most convenient route between container terminals on the Halifax peninsula and the major industrial centre of Burnside Industrial Park.

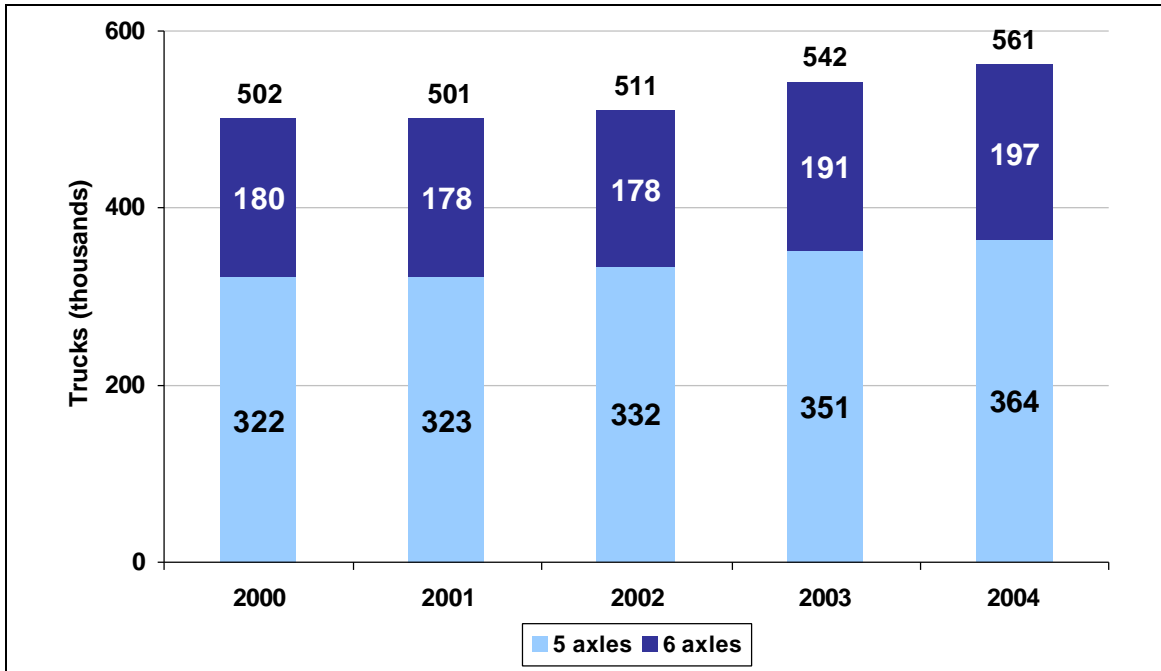
Figure 2-13: Map of the Arterial Road Network Serving Greater Halifax

2.4.2 Traffic

The data that exists for the trucking industry is very limited. However, toll stations in Nova Scotia provide some information regarding the total truck traffic in the region. The total number of five and six axle commercial vehicles that pass through the Cobequid Pass is a proxy for the combined domestic and international traffic. In 2004, the estimated freight truck volume over this stretch of road was approximately 560,000 trucks.

Since the estimated ocean freight truck volume over this road is between 50,000 and 60,000 trucks per year, domestic traffic volumes appear to be 9 to 10 times as much as the international freight volumes shown in **Figure 2-14**.

Figure 2-14: Historical Traffic on the Cobequid Pass (2000 to 2004)



3.0 Methodology

3.1 Scope of the Study: The Halifax Gateway Logistical Chain

In order to appreciate the economic impact of the Halifax Gateway, it is important to precisely define what types of businesses and activity constitute the Gateway. While at first glance this may seem straightforward, in practice there are nuances that need to be considered.

Clearly, all traffic that travels to Halifax, switches modes and travels out of Halifax can reasonably be considered Gateway traffic – for example, locomotives produced in London, Ontario transported by rail or truck to the Port of Halifax for export. Likewise, goods arriving by ship from China or India, transported from the Port of Halifax by rail to regions outside of Halifax can be considered Gateway traffic.

Similar movements by trucking to or from the port or airport can also be considered Gateway traffic. But should local trucking activity be considered Gateway related? For example, the local delivery of furniture from a retail store to a local residence is likely not Gateway related.

For goods originating in or destined for Halifax, the boundary lines become more vague. Some goods are clearly Gateway traffic. Consider raw chocolate made in Europe and shipped to Halifax for manufacture. When the finished goods are then shipped to their ultimate destination, such as the United States, the Gateway process is complete. Not only have the European inputs transited Halifax, but Halifax has added value. This is Gateway traffic because two separate shipments were made, intersecting at Halifax.

Another consideration might be a manufacturing firm based in Halifax shipping goods to other parts of Canada. This would not normally be considered a Gateway activity. However, an argument can be made that this firm would not have based itself in Halifax if Halifax did not have the logistical links to Canada and the rest of the world. So it can be argued that the production activity of this firm could be included in the economic impact of the Halifax Gateway. A similar argument can be made for the tire industry in Nova Scotia. Without the access to export markets that the port and airport provide, the tire manufacturing industry would not be of the scale that it is today.

However, in this study we have defined the boundary of the Gateway in order to be consistent with previous economic impact studies and to provide conservative, defensible results.

For the purposes of this study, Gateway businesses are all transportation and logistics businesses and organisations associated with the movement of goods and passengers through Halifax's port and airport. Anything "crossing the tarmac" at the airport or "crossing the dockface" at the port is considered Gateway traffic.

The economic activity of manufacturing, fishing or other industries which are dependent on Gateway access for their sales and operations, are not considered part of the direct economic impact of the Gateway. These are businesses for which the gateway "facilitates" operations.

The economic impact of tourism spending by airport passengers and cruise passengers in Halifax is *not* included in the *direct* Gateway economic impact figures.⁴ However, the Gateway is clearly an important facilitator of tourism in Nova Scotia as many tourists to the region arrive by air or sea. Therefore, the *direct* economic impact of tourism spending by air and cruise passengers has been provided in a separate account, which can be found in Chapter 5.

3.2 Surveying and Estimating Direct Employment

The primary tool for estimating the economic impact of the Gateway was an employment survey. This was augmented by existing data from previous economic impact studies as well as other sources.

A questionnaire was sent to 358 potential Gateway related businesses to elicit information on their employment base, including full-time, part-time, seasonal and contract employment. As not all of a business's activity and employment may be Gateway related (e.g., they may also be involved with local transportation movements as well), the questionnaire included questions to determine the proportion that is Gateway related, and identify which modes their business involves (e.g., port, airport, rail, trucking).⁵

Airport and aviation related businesses were not included in the survey as a recent economic impact study had been conducted for Halifax International Airport using a similar methodology.⁶ It was felt that the data from the existing study was still valid to be used to estimate airport related impacts. Some additional analysis was carried out on the airport data to ensure that it was consistent with the rest of study.

Follow-up telephone calls were conducted to increase the response rate of the survey. In cases where firms did not respond to the survey, their employment was inferred using a proven and accepted methodology.⁷ This included using other sources of employment information such as past employment surveys or using survey results for firms of similar types. A conservative approach was taken when using other survey or employment information to infer for non-responding firms.

For example: if 20 freight forwarders were given surveys but only 15 returned them, even after follow-up telephone calls, the following approach was used to estimate the employment of the five non-responding firms. A mean number of employees (excluding any outliers) was determined from the 15 freight forwarders that responded to the survey. This average was then scaled down by

⁴Some of the economic impact of the tourism spending makes up part of the *indirect* impact of the Gateway, estimated using multipliers from the Statistics Canada Input-Output model (see Section 3.4). Therefore to include it in the direct impacts would be to double count the impact.

⁵The question was also used to screen out firms that responded that none (or very little) of their business was Gateway related; their employment was not included in the direct employment estimate.

⁶ *Halifax International Airport Economic Impacts 2003*, SGE Acres Ltd, October 2004.

⁷ The methodology employed in this study to infer for non-respondents is also used by the federal government for estimating the national income and product accounts.

roughly 25% to ensure that the results were conservative estimates, then used to infer employment for the non-responding freight forwarders.

Further details on the employment survey can be found in **Appendices A** and **B**. In the case of trucking, a somewhat different methodology was used to estimate employment. This is described in **Appendix C**.

3.3 Person Years

Often employment is measured by counting the number of jobs. However, when part-time and/or seasonal workers are used, this can be a misleading measure resulting in an overstatement of economic impact. For example, one firm with 100 part-time employees may have a similar overall economic impact to another firm with 50 full-time employees.

Whenever possible, employment impacts are measured both in terms of the number of jobs and the number of person years.⁸

3.4 Economic Impact Multipliers

The direct employment of the Halifax Gateway was estimated using an employment survey. However, as discussed in Chapter 1, the employment impact of the Gateway does not end with the direct impacts; other sectors of the economy are dependent on the Gateway. *Indirect* employment is generated at suppliers to the Gateway business and *induced* employment is generated in the general economy as direct and indirect employees spend their wages.

In addition to employment impacts, there are other measures of the economic contribution of the Halifax Gateway. The two most common measures are *economic output* (Output) and *Gross Domestic Product* (GDP). Economic output roughly corresponds to the *gross* revenues of goods or services produced by an economic sector, while GDP measures only *value-added* revenues. As such, GDP removes the revenues to suppliers of *intermediate* goods and services and only includes the contributions from labour and capital. Alternatively, economic output adds all revenues at each stage of production together as a measure of total production in the economy. Economic output will always be greater than GDP (also termed as value-added).

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of such employers, the survey would need to cover thousands of firms for indirect employment. For induced employment, the entire regional economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect. It would be difficult for a hardware wholesaler, for example, to identify employee hours associated with servicing a ship chandler, only one of potentially thousands of customers.

⁸ A full-time position for one year constitutes a person year of employment (also known as a full-time equivalent). As some jobs are part-time or seasonal, these jobs have been converted to person years.

As an alternative to costly and inaccurate surveys, indirect and induced effects are typically measured by the use of *economic multipliers*. Multipliers are derived from economic/statistical models of the general economy. They come in a variety of forms and differ greatly in definition and application. The indirect and induced employment impacts and the GDP and output impacts have been estimated using economic multipliers produced by the Nova Scotia Department of Finance.⁹ These multipliers are based on a Statistics Canada Input-Output model of the Nova Scotia economy, maintained by the Nova Scotia Department of Finance. Great care must be exercised in choosing the appropriate set of multipliers to use. In addition, the use of multiplier analysis is limited by a number of factors, these being:

- the accuracy of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

The multiplier impacts present the potential indirect and induced impacts that can be achieved under a given set of economic conditions. In reality, these conditions may not all apply, and the multiplier impacts may be somewhat different. That said, the multipliers used are based on the best model and data available, which are maintained by the government and widely used and quoted across Canada. In general, the focus of our report is on the direct impacts which are the most accurate and verifiable figures. While multiplier impacts are useful and important, the user should be mindful of their limitations.

⁹ The source of the multipliers is the Statistics Canada Interprovincial Input-Output Model for Nova Scotia.

4.0 On-going Economic Impact: Direct Employment

This chapter reports the direct employment generated by the Halifax Gateway, expressed in terms of person years, jobs and wages. Breakdowns are provided into the port, airport, rail and trucking sectors. The majority of direct employment is generated in Greater Halifax. However, in the case of rail, the employment impacts extend into the rest of Nova Scotia.

4.1 Port

The Port of Halifax direct employment comprises employment involved in the processing and handling of maritime cargo, as well as employment generated by businesses servicing the cruise ships that dock at the port between May and October each year. The businesses involved in both sectors include:

- Halifax Port Authority;
- Terminal operators;
- Stevedoring companies;
- Pilotage authority;
- Tugs and towing;
- Export/import;
- Customs agents and other government inspectors;
- Ship chandlers;
- Fuelling/bunkering;
- Shipping agents, customs brokers and freight forwarders.

Rail and trucking employment connected with the transportation of goods to and from the port are not included in this section as they are reported in Sections 4.3 and 4.4.

The direct jobs, person years and wages generated by the Port of Halifax are provided in **Figure 4-1**.

The maritime cargo sector generates 4,580 jobs, equivalent to 4,460 person years of employment. The ratio of jobs to person years is approximately 1.03 due to a small proportion of seasonal and part-time jobs in this sector. Less than 5% of the jobs in this sector are part-time/seasonal.

In addition, the cruise sector generates a further 200 jobs, equivalent to 160 person years of employment. The seasonal nature of the cruise industry means that a significant proportion of jobs (40%) are seasonal or part-time, resulting in a ratio of jobs to person years of 1.25.

In total, the Port of Halifax generates 4,780 jobs, equivalent to 4,620 person years of employment (not including rail and trucking). These jobs earn a total of \$212 million in wages (based on 2004 wages), an average wage of \$45,930 per person year of employment.

Figure 4-1: Direct Jobs, Person Years and Wages Generated by the Port of Halifax in Greater Halifax

	Jobs	Person Years	Wages (\$ millions)
Maritime Cargo Related	4,580	4,460	\$ 207.0
Cruise Related ¹⁰	200	160	\$ 5.2
Total Direct Employment	4,780	4,620	\$ 212.2

4.2 Airport

The economic impact estimates for Halifax International Airport are based on a recent study conducted for the airport.¹¹ Certain adjustments have been made to these figures to ensure they are consistent with, and do not overlap with, the figures estimated for the other modes and sectors. Also, a small amount of employment generated at hotels in downtown Halifax by airline employees and connecting passengers overnighing in Halifax has been added (this figure was not included in the original study), as described in **Appendix D**.

The businesses included in the economic impact of Halifax International Airport include:

- Halifax International Airport Authority;
- Airlines such as Air Canada, CanJet, WestJet, Provincial Airlines, etc;
- Courier and cargo companies;
- Ground handling and airline catering companies;
- Government agencies;
- Car rental companies;
- Airport retail/food & beverage;
- Aircraft engineering and maintenance companies based at the airport;
- Hotels.

The total direct jobs, person years and wages generated by Halifax International Airport are provided in **Figure 4-2**.

¹⁰ Includes only employment involved in the servicing, cleaning, re-supplying, fuel, etc of the cruise ships. It does not include the employment generated by the tourism spending of cruise passengers while in port.

¹¹ *Halifax International Airport Economic Impacts 2003*, SGE Acres Ltd, October 2004.

Figure 4-2: Direct Jobs, Person Years and Wages Generated by Halifax International Airport in Greater Halifax

	Jobs	Person Years	Wages (\$ millions)
Direct Employment - Airport Related	6,120	5,560	\$221.0

A total of 6,120 direct jobs, or 5,560 person years of employment, are generated by Halifax International Airport. The majority (82%) of these jobs are full-time. A total of \$221 million in wages are generated by airport related employment, equivalent to \$39,750 per person year of employment.

4.3 Rail

CN operates the only rail connection linking Halifax with the rest of Canada. CN also provides direct access to a number of terminals at the Port of Halifax. Two shortline operators also provide service within Nova Scotia with interchanges with CN - *Cape Breton & Central Nova Scotia Railway* and *Windsor & Hantsport Railway Company*. Some of the traffic handled by these carriers is not Gateway related – e.g., the movement of goods within Nova Scotia. However, other movements involve the transportation of goods to and from the port which can be considered Gateway movements. The figures provided in this section reflect only the employment generated by Gateway related goods movements.

The total direct jobs, person years and wages generated by Gateway related rail traffic is provided in **Figure 4-3**. Due to the extensive network provided by the rail carriers, the direct employment impacts of the Gateway traffic extends into the rest of Nova Scotia.

Figure 4-3: Direct Jobs, Person Years and Wages Generated by Gateway Related Rail in Greater Halifax and the Rest of Nova Scotia

	Jobs	Person Years	Wages (\$ millions)
Direct Employment in Greater Halifax	380	380	\$21.0
Direct Employment in the Rest of Nova Scotia	60	60	\$3.4
Total Direct Employment	440	440	\$24.3

A total of 440 direct jobs are generated in the rail sector by Gateway traffic, over 80% of which was in Greater Halifax. A total of \$24.3 million in wages are generated by Gateway related rail employment, equivalent to \$55,230 per person year of employment.

4.4 Trucking

The trucking sector is a complex, but important, contributor to the economic impact of the Halifax Gateway. In 2003, there were approximately 17,000 commercial trucks, trailers and semi-trailers registered in the province of Nova Scotia, operated by 1,310 trucking companies and 1,000 owner/operators.¹² As described in **Appendix C**, the estimation of trucking employment was based on employment surveys of a select but representative sample of trucking companies. This sample included all of the major trucking companies operating in the region, including those serving the container industry, as well as a representative sample of the smaller trucking firms.¹³ While the majority of employment estimated for the trucking industry is based on actual survey responses, a certain amount was inferred by factoring up by the number of Gateway related trucking trips made in Halifax. The figures provided in this section reflect only the employment generated by Gateway related goods movements.

The total direct jobs, person years and wages generated by Gateway related trucking is provided in **Figure 4-4**.

Figure 4-4: Direct Jobs, Person Years and Wages Generated by Gateway Related Trucking in Greater Halifax

	Jobs	Person Years	Wages (\$ millions)
Direct Employment – Trucking	590	580	\$ 19.5

A total of 590 direct jobs, or 580 person years of employment, are generated in the trucking sector by Gateway traffic. The majority (98%) of these jobs are full-time. A total of \$20 million in wages are generated by Gateway related trucking employment, equivalent to \$33,620 per person year of employment.

¹² Source: Nova Scotia Department of Transportation and Public Works – “The Trucking Industry in NS”.

¹³ Surveying all of the trucking companies was not a practical or efficient use of resources, as many are small businesses or owner/operators that are difficult to the contact and, based on previous experience, provide a very low response rate.

4.5 Total Direct Employment Impacts

Combining the direct employment generated by the port, airport, rail and trucking described above, the total direct employment of the Halifax Gateway is provided in **Figure 4-5**.

Figure 4-5: Direct Jobs, Person Years and Wages Generated by the Halifax Gateway in Greater Halifax and the Rest of Nova Scotia

	Jobs	Person Years	Wages (\$ millions)
Greater Halifax			
Port of Halifax	4,780	4,620	\$ 212.2
Halifax International Airport	6,120	5,560	\$ 221.0
Rail	380	380	\$ 21.0
Trucking	590	580	\$ 19.5
Total Greater Halifax	11,870	11,140	\$ 473.7
Rest of Nova Scotia (Rail)	60	60	\$ 3.4
Total Direct Employment of the Halifax Gateway	11,930	11,200	\$ 477.0

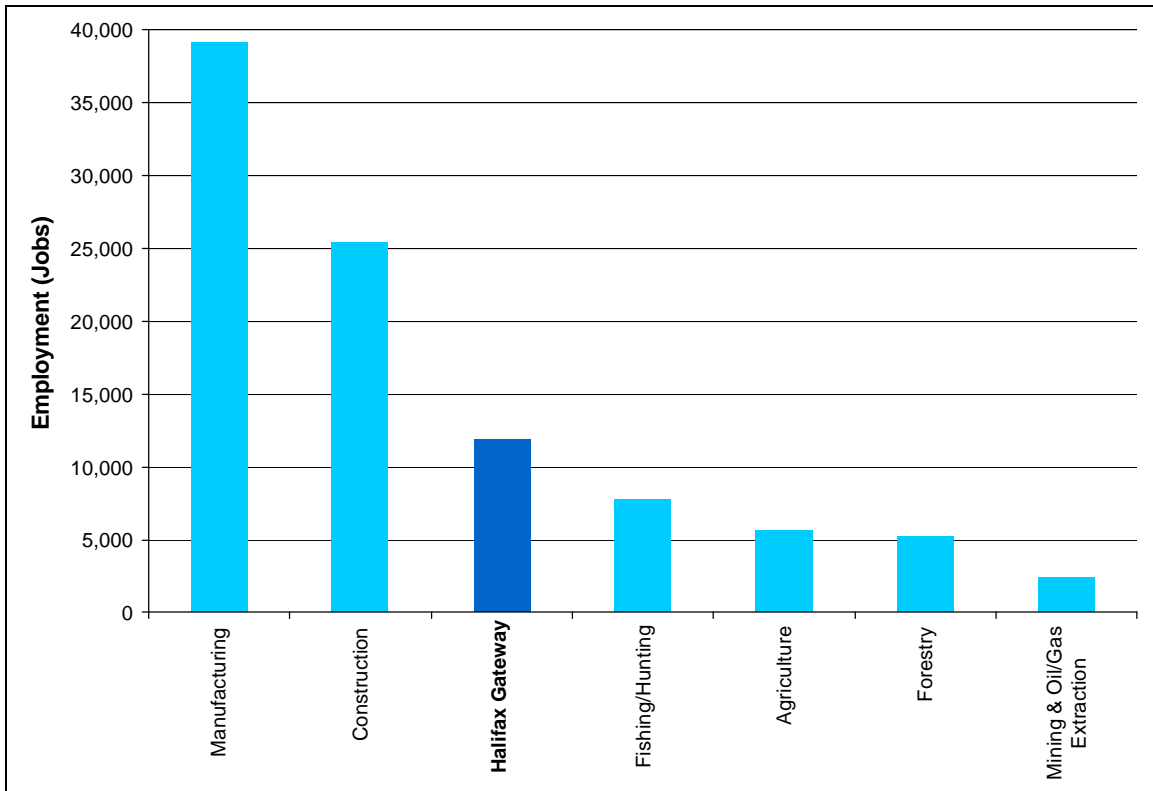
A total of 11,930 direct jobs, or 11,200 person years of employment, are generated by the Halifax Gateway. The majority (94%) of these jobs are full-time. A total of \$477 million in wages is generated by Gateway related employment, equivalent to \$42,590 per person year of employment (based on 2004 wages). This average compensation is 32% higher than the average wage in Nova Scotia, making the Halifax Gateway a relatively high wage sector.¹⁴

To illustrate the scale of employment generated by the Halifax Gateway, a comparison was made with overall employment in Nova Scotia and employment in major sectors of the Nova Scotia economy. Statistics Canada data indicates that the Nova Scotia economy generated roughly 441,000 jobs in 2004. On this basis, the direct employment generated by the Halifax Gateway represents nearly 3% (11,930 jobs) of provincial employment.

Figure 4-6 compares Halifax Gateway related employment with that of six different Nova Scotia economic sectors. While smaller than the manufacturing and construction sectors, Gateway related employment is larger than that associated with fishing/hunting, agriculture, forestry, and mining & oil/gas extraction. The Gateway generates slightly more than half (55%) the total number of direct jobs associated with the province's natural resource industries (agriculture, forestry, fishing, mining, and oil and gas extraction combined).

¹⁴ According to Statistics Canada, the average wage in Nova Scotia in 2004 was \$32,240.

Figure 4-6: Comparison of the Halifax Gateway Direct Employment with Selected Major Sectors in the Nova Scotia Economy



Source: Statistics Canada Table 282-0007

5.0 On-going Economic Impact: Multiplier and Tourism Impacts

This chapter provides estimates of the indirect and induced employment impacts of the Halifax Gateway, as well as the Gross Domestic Product (GDP) and economic output (Output) generated by the Gateway.

In addition, this chapter provides an estimate of the economic impact of tourism spending by airport and cruise passengers.

5.1 Multiplier Economic Impacts of the Halifax Gateway

The estimated multiplier effects (along with the direct impacts already provided in Chapter 4) are presented in **Figure 5-1** below. These multiplier impacts are for the whole of Nova Scotia.¹⁵

Figure 5-1: Employment and Economic Impacts in Nova Scotia of the Halifax Gateway

	Jobs	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	11,930	11,200	\$ 477	\$ 602	\$ 1,482
Indirect	7,260	6,820	\$ 217	\$ 458	\$ 1,044
Induced	9,300	8,730	\$ 342	\$ 523	\$ 1,189
Total	28,490	26,750	\$ 1,036	\$ 1,583	\$ 3,715

The Halifax Gateway as a whole generates 11,930 direct jobs, equivalent to 11,200 person years of direct employment. Including multiplier effects, the Gateway potentially generates 28,490 jobs or 26,750 person years of employment in Nova Scotia. This employment generates over \$1 billion in wages.

As well as employment, the economic contribution of the Halifax Gateway can be measured in terms of GDP and economic output. As such, the Gateway generates \$602 million in direct GDP and \$1.5 billion in direct economic output. With multiplier effects (i.e., direct + indirect + induced), the Gateway is estimated to generate a potential \$1.6 billion in GDP and \$3.7 billion in economic output for the Nova Scotia economy.

¹⁵ Due to the confidentiality requirements of Statistics Canada for use of the multipliers, separate breakdowns of the multiplier impacts of the four major modes (port, airport, rail and trucking) cannot be provided.

5.2 Economic Impact of Tourism Spending

The Halifax Gateway is an important facilitator of tourism for Nova Scotia and the rest of Atlantic Canada. In 2004, over 636,000 visitors to Nova Scotia arrived via Halifax International Airport, around 27% of total visits to the province.¹⁶ In addition, around 212,800 cruise ship passengers visited Halifax via the Port of Halifax in 2004.

Nearly all of these visitors spent money in the province on food and beverage, accommodation, retail, tours, ground transportation, etc. Around \$470 million of tourism spending can be attributed to users of the airport, around 36% of total tourism spending in the province.¹⁷ In 2004, cruise passengers spent an estimated \$20 million while visiting Halifax;¹⁸ on top of that, another \$5 million was spent by cruise ship crews while their vessel was in port.¹⁹

All of this spending generates employment in the province across a variety of tourism related sectors. **Figure 5-2** provides an estimate of the direct employment, wages and economic output generated by tourism spending by air passengers, cruise passengers and cruise ship crew in 2004. The economic impact estimates for air passengers are taken from the 2003 airport economic impact study; monetary figures have been adjusted for inflation.²⁰ The cruise passenger and crew impacts are based on the spending estimates provided above. Statistics Canada multipliers have been applied to these spending figures in order to estimate the employment and wages impacts.

Figure 5-2: Economic Impact of Tourism Spending Facilitated by the Halifax Gateway in Nova Scotia - Direct Impacts Only

	Jobs	Person Years	Wages (\$ millions)	Output (\$ millions)
Air Passengers	8,775	4,190	\$62.5	\$470.0
Cruise Passengers	400	190	\$6.0	\$20.0
Cruise Ship Crew	85	40	\$1.2	\$5.0
Total Direct Impact	9,260	4,420	\$69.7	\$495.0

Source: For air passenger impacts, *Halifax International Airport Economic Impacts 2003*, SGE Acres Ltd, October 2004.

¹⁶ Source: *Tourism Activity by Region 2004*, Department of Tourism, Culture and Heritage, www.gov.ns.ca/dtc/pubs/insights.

¹⁷ Source: *Halifax International Airport Economic Impacts 2003*, SGE Acres Ltd, October 2004. Figure has been updated for inflation.

¹⁸ Based on the *2003 Port of Halifax Cruise Ship Study*, conducted for the Halifax Port Authority by Corporate Research Associates Inc, November 2003. Figure has been updated to reflect 2004 visitor numbers and inflation.

¹⁹ Source: *Port of Halifax Crew Study*, conducted for the Halifax Port Authority by Corporate Research Associates Inc, November 2004. The report estimates crew spent \$4-6 million in Halifax in 2004.

²⁰ Figures are based on spending by visitor to the province using Halifax International Airport. They do not include the spending of Halifax residents using the airport or connecting passengers.

The tourism spending facilitated by the Halifax Gateway generates 4,420 direct person years of employment, or 9,260 jobs (the majority of tourism related employment is seasonal or part-time). This employment earns nearly \$70 million wages. This employment accounts for 38% of total tourism employment in the province of Nova Scotia.²¹

²¹ Source: *Economic Impact by Region 2004*, Department of Tourism, Culture and Heritage, www.gov.ns.ca/dtc/pubs/insights. Total tourism employment in 2004 was estimated to be 11,700 person years or 24,500 jobs.

6.0 On-going Economic Impact: Tax Impacts of the Halifax Gateway

This chapter of the report documents the revenues received by government resulting from businesses and activities within the Halifax Gateway.²² This includes tax revenues received by federal, provincial and local governments, as well as other payroll related payments such as Employment Insurance and Canadian Pension Plan.

Revenue contributions are divided into three groups, based on which group is making the payment:

- **Taxes paid by businesses.** This includes corporate income tax, property taxes (or payments in lieu of taxes) and commercial occupancy taxes.
- **Taxes paid by employees.** These include income taxes and other payroll related payments (such as social insurance contributions) for all direct employment associated with the Gateway.
- **Taxes paid by passengers using Halifax International Airport.** This includes HST on domestic ticket purchases for flights from Halifax (booked within Nova Scotia), HST on the Air Traveller Security Charge and Airport Improvement Fee, and HST on spending at airport concessions.

For each category, taxes and payroll related payments paid to the federal, provincial and local levels of government are separately identified.

The purpose of this section is to present the tax revenue contributions resulting from the activity attributable to the Halifax Gateway. As with all such studies, a conceptual decision has to be made as to how broad a definition of *economic activity* should be used in measuring the impacts. For this study we have taken a relatively narrow definition. For example, we have **not** included:

- Taxes associated with indirect or induced employment (i.e. multiplier effects);
- Consumption taxes (GST and PST) paid by employees when they spend their income;
- Excise or import taxes on cargo;
- Taxes paid by airport users outside of the airport;
- Property taxes paid by employees directly or indirectly employed by the Gateway;
- HST and other taxes paid on airport and cruise passenger tourism spending in Halifax.

Further details on the tax calculations are provided in **Appendix E**.

²² All estimates are based on 2005 tax rates, unless otherwise stated.

6.1 Summary of Tax Contributions

Economic activity at the Halifax Gateway generates annual tax contributions and other payroll related payments to all levels of government of over \$254 million, as shown in **Figure 6-1**. Key findings:

- Gateway businesses pay \$56 million in taxes to the federal, provincial and municipal governments, 22% of the total.
- Gateway related employees pay \$168 million in taxes and related payments to all levels of government, 66% of the total.
- Taxes paid by air travellers on their air travel generates over \$31 million, around 12% of the total.
- The federal government receives \$169 million, 67% of the total amount of tax contribution of the Halifax Gateway.
- The Nova Scotia provincial government receives \$79 million, 31% of the total tax revenue.
- Municipal governments within Greater Halifax receive a total of \$6 million, 2% of the total.

A breakdown of the tax contributions by the three types of taxpayers is provided in **Figure 6-1** below.

Figure 6-1: Halifax Gateway Annual Tax Contributions (\$ Millions)²³

Taxpayer	Federal	Provincial	Municipal	Total
Gateway Businesses	\$ 28.1	\$ 21.2	\$ 6.2	\$ 55.5
Gateway Employees	\$123.1	\$ 44.5	-	\$ 167.6
Air Passengers	\$ 18.2	\$ 13.0	-	\$ 31.2
Total	\$ 169.4	\$ 78.7	\$ 6.2	\$ 254.3

²³ Includes other payroll related payments such as Employment Insurance, Canadian Pension Plan and Workers' Compensation Board premiums.

6.2 Taxes by Level of Government

The following tables provide additional details on the taxes and payroll related payments paid to each level of government – federal, provincial and municipal.

6.2.1 Federal Government Tax Revenues

As previously mentioned, the federal government collects \$169 million in tax revenues and other payroll related payments from Halifax Gateway related activities. As can be seen in **Figure 6-2**, income and payroll taxes are the largest sources of federal tax revenue

Figure 6-2: Halifax Gateway Annual Tax Contribution – Federal Government

Taxpayer	Item	Amount (\$ millions)
Gateway Businesses	Corporate Income Tax ²⁴	\$ 24.6
	Marine Navigation Service Fee	\$ 3.5
Gateway Employees	Personal Income Tax	\$ 62.5
	EI	\$ 20.2
	CPP	\$ 40.4
Air Passengers ²⁵	HST – Airfares	\$ 16.5
	HST – Airport Improvement Fee (AIF)	\$ 0.7
	HST – Air Transport Security Charge (ATSC)	\$ 0.5
	HST – Airport Concessions ²⁶	\$ 0.5
Total Federal Tax Revenues		\$ 169.4

6.2.2 Provincial Government Tax Revenues

The provincial government of Nova Scotia collects nearly \$79 million in taxes and Workers' Compensation Board (WCB) premiums from Gateway related activities. This is equivalent to 31% of the total tax revenues. Personal income tax and WCB premiums represent the largest components of provincial tax revenues, as shown in **Figure 6-3**.

²⁴ Corporate income taxes based on 2004 figures.

²⁵ Federal government HST tax revenue was assumed to be 7% of the total 15% collected.

²⁶ Based on 2004 airport concession revenues.

Figure 6-3: Halifax Gateway Annual Tax Contribution Tax Contribution – Provincial Nova Scotia Government

Taxpayer	Item	Amount (\$ millions)
Gateway Businesses	Corporate Income Tax ²⁷	\$ 9.6
	WCB ²⁸	\$ 11.6
Gateway Employees	Personal Income Tax	\$ 44.5
Air Passengers ²⁹	HST – Airfares	\$ 11.4
	HST – Airport Improvement Fee (AIF)	\$ 0.8
	HST – Air Transport Security Fee (ATSC)	\$ 0.2
	HST - Concessions ³⁰	\$ 0.6
Total Provincial Tax Revenues		\$ 78.7

6.2.3 Municipal Government Tax Revenues

Municipal governments of Greater Halifax receive \$6.2 million (2% of the total) from Gateway related economic activity in the form of property taxes. As can be seen in **Figure 6-4**, the largest single category is property taxes paid by other Gateway related businesses, which includes tenants of the port and airport authorities. The municipal tax figures are based on reported property taxes paid in 2004.

Figure 6-4: Halifax Gateway Annual Tax Contribution – Property Taxes Paid within the Greater Halifax Municipality

Taxpayer	Item	Amount (\$ millions)
Halifax Port Authority	Property tax	\$ 0.8
Halifax International Airport Authority	Property tax	\$ 1.0
Other Gateway businesses	Property tax	\$ 4.4
Total Municipal Tax Revenues		\$ 6.2

²⁷ Corporate income taxes based on 2004 figures.

²⁸ WCB payments based on 2004 data.

²⁹ Provincial government HST tax revenue was assumed to be 8% of the total 15% collected.

³⁰ Based on 2004 airport concession revenues.

7.0 Micro Impacts of the Halifax Gateway

The previous chapters have provided an assessment of the overall macro economic impact of the Halifax Gateway. Further insight into the importance of the Halifax Gateway can be gained by examining the economic impact of specific activities within the Gateway. A number of micro studies were conducted to measure the economic impact of four different services utilising the Halifax Gateway, two air related and two marine related:

- Air passenger service at Halifax International Airport operated by a full service carrier;
- Air passenger service at Halifax International Airport operated by a low cost carrier;
- A container ship docking at the Port of Halifax;
- A cruise ship docking at the Port of Halifax.

Each of the services investigated in this chapter are intended to provide useful examples of the day-to-day operations of the Halifax Gateway. The findings from the micro studies should not be interpreted as indicating that one service is more important or more efficient than another.

7.1 Passenger Air Services at Halifax International Airport

Every departure of a passenger flight from Halifax International Airport generates labour hours for individuals with jobs involved in handling passengers, their baggage, cargo and the aircraft. These microeconomic impact studies describe and compare the hours of direct local labour generated by two firms involved in providing similar air services at Halifax International Airport.³¹ Specifically, this study approximates the labour hours required to support aircraft departures to Toronto operated by a full service carrier and a low cost carrier. Among other things, this includes unloading inbound passengers and their baggage and then re-loading the aircraft with outbound passengers and their baggage. Also, the direct labour hours of other services offered at the airport, such as car rental agencies, food concessions, etc. are estimated. Direct employment impacts at ground transport providers and at hotels for the overnighing flight crews are also considered.³² The figures in this chapter represent the average labour impacts of the air services. It includes the sum of all of the labour hours from all jobs associated with each flight - both "hands-on" jobs as well as "overhead" jobs.

³¹ There may be a significant number of labour hours generated outside of Halifax and Nova Scotia that contribute to Halifax International Airport passenger flights. For example, flight scheduling is generally centralised at airline head offices, which may be outside of Nova Scotia. As well, passenger reservations made over the telephone may be handled by remote call centres. These extra-regional employment impacts are not included in the direct microeconomic impact of passenger flights at Halifax International Airport. Rather, this study focuses on the local employment impacts of the passenger flights.

³² Hotel employment associated with a single flight is restricted to overnight stays of air crews. Consistent with the macro analysis, the hotel employment resulting from passengers who are visiting Halifax is not included in the *direct* economic impact, as this is considered part of the tourism related impact.

Information for these two micro studies was gathered through observation and interviews with managers of relevant service providers at Halifax International Airport, as well as available data on the air services at Halifax International Airport. The information presented is current as of May 2005. The two air services selected, in consultation with the Halifax Gateway Council steering committee, were:

- Full service carrier service: 11 times daily Toronto service, typically operated with a 140 seat A320 aircraft.
- Low cost carrier service: four times daily Toronto service, typically operated with a 120 seat B737-200 Aircraft.

The flying time between Halifax and Toronto is approximately 2 hours and 25 minutes.

7.1.1 Description of the Employment Impacts

This section describes the labour involved with each aircraft departure.³³

Airline Employment In-Flight Services

In-flight airline employees on the domestic routes selected include the flight crew in the cockpit and the cabin crew of flight attendants. The number of flight attendants required in the cabin depends on the number of passengers. Transport Canada regulations specify that there must be one flight attendant for every 40 passengers.

- The full service carrier A320 service requires two crew in the cockpit and typically requires four attendants in the cabin. Approximately one half of the crew of on the Toronto service are residents of Halifax.
- The low cost carrier B737 service also requires two crew in the cockpit and typically requires three attendants in the cabin. Normally all of the in-flight crew are Halifax residents.

Airline Employment in the Terminal

Outbound passengers are serviced by airline staff at check-in and at the gate when they board the aircraft. Airline staff may occasionally process ticket purchases, although most tickets are purchased beforehand. Few inbound passengers demand services from airline staff at the airport. Exceptions are disabled or elderly passengers who may require assistance to disembark the aircraft. As well, passengers who arrive without their baggage require assistance at the baggage services counter. In addition, a number of staff work "behind the scenes" as managers, accountants, crew trainers and load planners.

- The full service carrier has around five check-in agents at peak periods handling Toronto passengers. However, a significant proportion of passengers check-in using automated express kiosks. In addition, two members of staff are present at the gate 30-40 minutes before

³³ The analysis includes all the labour hours associated with the aircraft landing, disembarking, re-boarding and take-off at Halifax International Airport.

departure. There are also labour hours related to the staffing of the lounge, baggage services and shift supervising.

- The low cost carrier has three check-in agents at peak periods handling Toronto passengers. Typically, two check-in agents will be assigned to the gate about 45 minutes before departure. There are no automated check-in kiosks for this service.

Other Employment in the Terminal

After checking in, but before boarding their flight, passengers must pass through security screening, conducted by the Canadian Air Transport Security Authority (CATSA). Typically, there are two domestic security lines at Halifax International Airport equipped with metal detectors and x-rays for carry-on baggage requiring as many as 16 staff (8 for each security line).

In addition, Nav Canada typically has five to eight employees in the control tower during the day. They are air traffic controllers who monitor and direct take-off from, as well as approach and landing into, Halifax International Airport

Halifax International Airport Authority has a staff of around 130 employees. These employees are dedicated to the efficient and safe operation of Halifax International Airport and contribute significantly to each aircraft arrival and departure.

Other terminal employment includes retail and food & beverage workers at the various outlets in the airport located both pre and post security.

Ground Support Services and Cargo

Ground support services include "ground handling" (primarily baggage and cargo handling), aircraft provisioning and aircraft fuelling. These services must be completed within the scheduled ground time, which may range from a minimum of 35 minutes to overnight.

A ground crew stands by for the aircraft arrival to perform a number of duties before it can depart again. These support services include:

- Baggage make-up at the terminal where passenger baggage is consolidated for loading onto the aircraft;
- Driving and operating the conveyor belt to the belly hold;
- Unloading and loading the belly hold with baggage;
- Unloading and loading the belly hold with cargo;
- Driving the tugs pulling baggage and cargo;
- Cabin grooming;
- Catering supplies for the next flight;
- Topping up the drinking water supply on the aircraft;
- De-icing of the aircraft during winter months (generally, November to April);
- Fuelling of the aircraft.

In many cases, these duties are contracted out to third party operators by the airlines. For example, Cara provides the catering for some of the flights.

Both carriers frequently load cargo onto their passenger flights to Toronto. As well as the labour required for loading this cargo, there are additional hours involved in the marketing and administration of the cargo delivery. This includes hours at the airlines themselves, as well as third party vendors such as ELS Marketing and Canada Post.

Employment Related to Maintenance

The engineering and maintenance operation at an airline can employ as much as 25% of the company's entire workforce. To provide some idea of how significant the contribution of aircraft maintenance can be to the overall employment impact of a single flight, examples of labour hours associated with maintenance of jet aircraft are summarised below:

Inspection	Typical Interval (Flight hours)	Labour Hours	Work Performed
Walk Around	Each stop	0.5 hours	Pilot or Engineer and mechanic look for leaks, missing rivets, cracks, etc.
Overnight Check	8	Varies	Varies
A Check	125	60 hours	Primary examination. Fuselage exterior, powerplant, and accessible subsystems inspected.
B Check	750	200 hours	Intermediate inspection. Panels, cowlings, oil filters and airframe examined.
C Check	3,000	2,000 to 12,000 hours	Detailed inspection. Engines and components repaired, flight controls calibrated and major internal mechanisms tested.
D Check	20,000 flight hours	15,000 to 35,000 hours	Major reconditioning. Cabin interiors removed, flight controls examined, fuel system probed and more.

Source: The Handbook of Airline Economics (1995).

This table is just an illustrative example. In reality, the air carrier and Transport Canada establish the actual frequency and content of the checks and overhauls. The content of the maintenance services will vary by carrier and aircraft type. The labour hours associated with each service will also depend on the level of automation in the carrier's maintenance operation and the type of aircraft.

Off-Site Employment

There is some off-site (i.e., not located on airport) employment that supports the airport's passenger operations. This includes taxis and hotels utilised by non-resident airline staff who layover in Halifax.³⁴

- The full service carrier overnights about 16 crew per night in Halifax at a downtown hotel.
- The low cost carrier crew are Halifax residents, so the airline is not generally required to accommodate staff at hotels in Halifax.

7.1.2 Direct Employment Impact of Passenger Air Services

The total direct employment, in terms of hours of labour involved, for the full service carrier and low cost carrier services to Toronto is provided in **Figure 7-1**.

Each Toronto departure by the full service carrier generates 106 hours of labour, while each Toronto departure by the low cost carrier generates 104 hours. The major differences between the employment impacts of the services are:

- Full service carrier in-flight crew impacts are smaller than the low cost carrier, as some of full service carrier's crew are not resident in Halifax.
- The full service carrier generates employment in ground transportation and hotels related to the overnighting of crews in Halifax.
- The low cost carrier has over double the hours related to maintenance as it conduct all of its maintenance in Halifax.

The two carriers operate their Toronto service year round. Factoring up by the number of Toronto flights operated each year, the two air services generate the following direct annual employment impacts:

- **Full service carrier Toronto service: 220 person years;**
- **Low cost carrier Toronto service: 80 person years.**

As the full service carrier operates at a higher frequency (roughly 11 times a day compared with four times a day)³⁵, its service generates a larger economic impact on an annual basis.

³⁴ Consistent with the macro study, air passenger spending on taxis and hotels is not included in the micro impacts. Information provided to us by the airlines indicated that there were negligible numbers of passengers using the Toronto services overnighting in Halifax in order to connect with other flights.

³⁵ Both airlines operate lower frequencies around the weekend.

Figure 7-1: Direct Employment in Greater Halifax for Each Passenger Aircraft Departure - Toronto Service

Function	Full Service Carrier Labour Hours	Low Cost Carrier Labour Hours
Airline Employment In-Flight Services		
Pilots	6.00	12.00
Flight Attendants	12.00	18.00
Sub-total	18.00	30.00
Airline Employment in the Terminal		
Customer Service	8.39	6.67
Gate Agents	1.33	1.33
Other/Administrative	3.27	3.13
Sub-total	12.99	11.13
Other Employment in the Terminal		
Security	28.35	24.62
Nav Canada	1.30	1.30
Halifax International Airport Authority	8.45	7.58
Retail / Food & Beverage	5.34	3.51
Other	9.15	7.46
Sub-total	52.59	44.47
Ground Support Services and Cargo		
Baggage and Cargo Handling	10.18	8.21
De-icing	1.09	1.09
Fuelling	0.33	0.33
Grooming	0.45	0.45
Catering	0.67	0.33
Sub-total	12.38	10.41
Employment Related to Maintenance		
Sub-total	2.55	6.52
Off-Site Employment		
Ground Transportation	2.18	0.00
Hotel	5.09	0.00
Sub-total	7.27	0.00
Total Labour Hours	105.78	103.55
Total Person Years	0.062	0.061

7.2 Container Ship Micro Impacts

In 2004, around 525,500 TEUs of container cargo passed through the Port of Halifax.³⁶ Container cargo is primarily handled by two terminals at the Port of Halifax - South End terminal (operated by Halterm Ltd.) and the Fairview Cove terminal (operated by CeresGlobal). Both terminals have direct rail access provided by CN and are served by trucking as well. Some container volumes also pass through Piers A and A1, as well as Pier 9 Richmond Terminal.

In terms of TEUs, the container traffic at the Port of Halifax is fairly evenly balanced between imports and exports. Of the inbound containers, around half are destined for markets in the rest of Canada, a third is destined for markets in the U.S. and the rest is distributed locally within Atlantic Canada. The main export markets for outbound containers are Europe, Asia (primarily India and China) and other parts of North America.

On average, each of the over 700 container ships docking at the Port of Halifax loads and unloads around 750 TEUs (fairly evenly split between import and export containers). As with most ports, the vessels rarely load and unload a complete set of containers at the Port of Halifax. Most container ships make three or more stops to load and unload their cargo.

7.2.1 Container Ship Processes

Typically, a container ship will spend 8-12 hours in port, during which time there will be almost continuous activity as the ship is loaded and unloaded, re-supplied and re-fuelled. There is also considerable activity before the ship arrives and after it leaves related to movement of goods to and from the port. This section provides an overview of the processes and labour involved with a typical container ship docking at the Port of Halifax.

Prior to Arrival

The container logistics process is highly complex. A single container can involve a number of different shippers. Some shippers will handle the logistical processes themselves, others will hire a freight forwarder. In either case, a considerable amount of time will be spent ensuring that every piece of the logistics chain is in place and all paperwork is complete. For example, CN requires detailed waybilling information on each inbound container that it is expected to transport from the port. Likewise, information on outbound cargo must be provided to the shipping line. The freight forwarder will also handle the necessary customs requirements. In many cases, these tasks involve additional agents such as import/export clerks and customs brokers.

Shipping agents act as an agent for the ship owner and will be responsible for tasks such as arranging tug boats and pilot, berth allocation, loading and unloading requirements, re-supply and bunkering (fuel). All of these tasks must be arranged before the ship arrives at port.

³⁶ A TEU, or twenty-foot equivalent unit, is a standard unit for measuring container volumes based on a container 20 feet in length. Some containers are actually longer than 20 feet, so a container 40 feet in length is equal to two TEUs.

Arriving at Port

When the container ship arrives at the mouth of the harbour, a pilot will board the ship to navigate the ship through the harbour to port. The pilot will also navigate the ship out of harbour when it leaves port. The ship will be towed by one or two tugs (depending on the size of the container ship) into berth. Similarly, on departing, the ship will be towed out of berth before continuing under its own power.

Loading and Unloading

Once the ship is in port, the process of loading and unloading the containers begins. The containers are loaded and unloaded using cranes. Between two and four cranes can be involved in processing a single ship. Each crane will have a team of stevedores to enable the loading and unloading process.³⁷ Each team can include as many as 15 people, including:

- A crane operator.
- A foreman.
- Up to four tracker drivers.
- Up to six lashers/unlashers who secure the cargo to the crane and unfasten it once the cargo has been moved.
- Up to three checkers who make sure each container has the correct documentation and direct the cargo to its assigned unloading point.

Some containers are unloaded directly onto rail cars (or conversely, loaded direct from rail), others are stored at the terminal before onward transportation. The loading and unloading can take up to eight hours.

Re-Supplying the Ship

The time in port will also be used to re-supply the ship. This includes refuelling the ship (known as bunkering) as well as the re-stocking of food, drink, linens and other supplies (known generally as chandlery).³⁸ In some cases, repairs to the ship will be conducted which can involve the shipment of parts from other parts of North America (arranged by the shipping agent). Local dive crews may be contracted to conduct inspections and repairs on the underside of the ship and its propulsion system. On occasion, the ship crew will be rotated at Halifax: the new crew members will be flown into Halifax to board the ship, while other crew members fly out of Halifax.

³⁷ Stevedores are also known as longshoremen and refer generally to persons who work at loading or unloading ships.

³⁸ A typical container ship will have an 18-21 person crew.

Ground Logistics

Containers generate employment related to their warehousing, stuffing/destuffing as well their transportation to and from the port.

Both of the two major container terminals have Container Freight Stations (CFS). These are intermodal yards where containers can be stored, stuffed and destuffed and where shipments can be consolidated or de-consolidated. The employment at the CFS is directly related to the container activity to and from the Port of Halifax.

At the beginning and end of each container shipment, a trucking or rail movement will be required. As the majority of container traffic originated from or destined for regions outside of Atlantic Canada, rail carries the most of the container traffic – approximately 65%.

Customs and Other Government Agencies

The Canada Border Services Agency (CBSA) and other inspection agencies are required to process, inspect and release containers arriving in Canada through the Port of Halifax. Some export goods also require inspection and processing. In addition, the ship itself can be subject to inspection by Transport Canada agents.

7.2.2 Direct Employment Impact of Container Ships

Using interviews with operators in the container business, as well as available data on container movements, an estimate of the average direct employment generated by each container ship is provided in **Figure 7-2**. The estimates consider only the employment generated in Greater Halifax. It does not include hours generated in the rest of Nova Scotia or elsewhere in Canada.

On average, each of the 700 container ships docking at the Port of Halifax generates 4,621 hours of employment labour, equivalent to around three (3) person years of employment in Greater Halifax.

Figure 7-2: Direct Employment in Greater Halifax of each Container Ship at the Port of Halifax

Function	Total Hours Per Ship
Freight Forwarders, Customers Brokers, etc.	611
Shipping Agents	42
Habour Pilot	6
Tugs	10
Stevedoring	1,511
Chandlery / Repairs / Waste	24
Bunkering	6
CFS	675
Rail	701
Trucking	598
Canada Border Services Agency, etc	221
Transport Canada	2
Other (administration)	212
Total Labour Hours	4,621
Total Person Years	3.01

7.3 Cruise Ship Micro Impacts

The cruise ship season at Halifax begins in May of each year and ends in October. Most commonly, the Port of Halifax is used by cruise lines as a port of call for cruise ships with itineraries between Boston/New York/Philadelphia and Montreal/Québec City. The cruise ships generally stop at the Port of Halifax for 8-12 hours on their itinerary.

Cruise ships have been a strong growth sector for the Port of Halifax. Visits by cruise ships have increased 130% since 1998, a growth rate of 15% per annum. The number of cruise passengers has seen even stronger growth, increasing 345% since 1998, a growth rate of 28% per annum. In 2004, the Port of Halifax was visited by 123 cruise ships with a total of 212,800 passengers visiting the port.

7.3.1 Cruise Ship Processes

Typically, a cruise ship will arrive in port between 7AM and 9AM and stay in port until around 4PM to 7PM. During this time, passengers and crew will depart the ship and spend time and money in Halifax and the surrounding area. At the same time, the ship is re-supplied and maintenance

conducted. There is also considerable activity before the ship arrives in port. This section provides an overview of the processes and labour involved with a typical cruise ship docking at the Port of Halifax.

Prior to Arrival

Before the cruise ship arrives, a shipping agent will ensure that the all requirements of the ship have been arranged. This includes pilot, berth allocation, re-supply, bunkering and repairs.

On the day of the cruise visit and prior to arrival, up to 27 licensed retail vendors will start to set up stalls at the Cruise Pavilion and at other locations near the port such as the Island Beach store. Taxis and buses will start to arrive at the port to meet passengers departing the ship.

Arriving at Port

When the cruise ship arrives at the mouth of the harbour, a pilot will board the ship to navigate the ship through the harbour to port (the pilot will also navigate the ship out of harbour when it leaves port). With a few exceptions (such as the Queen Mary 2), cruise ships do not require tug boats in order to manoeuvre in and out of berth. When at berth, teams of stevedores will attach the gangways to the ship.

Cruise Passengers

Around 90% of cruise passengers disembark the ship to spend time in Halifax and Nova Scotia. All disembarking passengers must be processed by Canada Border Services Agency officials before leaving the vessel.

In 2004, cruise passengers at the Port of Halifax spent approximately \$20 million in Nova Scotia.³⁹ This averages out to \$164,000 per cruise ship visit. Typical expenditures of cruise passengers include:

- Taxis – a typical cruise ship can generate up to 400 taxi and limo trips into and out of the port in one day.
- Tour buses – many passengers, either independently or through the cruiseline, arrange for tours of Halifax and the surrounding region. As many as 40 tour buses will serve a single cruise ship.
- Car rental – some passengers arrange to pick up a rental car at the port in order conduct their own tour of Halifax and the surrounding region. Up to 25 rental cars are provided to cruise passengers by companies such as Hertz, Avis, Budget, Enterprise, etc. Some passengers will drive as far as two hours away to places such as South Shore or Prince Edward Island. Spending on ground transportation (taxis, tour buses, car rentals) accounts for 28% of total cruise passenger spending.

³⁹ All spending figures in this section are based on the *2003 Port of Halifax Cruise Ship Study*, conducted for the Halifax Port Authority by Corporate Research Associates Inc, November 2003. Figure has been updated to reflect 2004 visitor numbers and inflation.

- Food and beverage – on average, each cruise ship generates nearly \$20,000 of food and beverage spending in Halifax.
- Retail – over half of cruise passenger spending is on retail (including souvenirs and gifts). Each cruise ship generates \$88,200 in retail spending, or around \$50 per passenger.
- Recreational and leisure activities such as visiting the Halifax Citadel, Pier 21, Maritime Museum, Casinos, etc.

Cruise Ship Crew

Around 60% of the ship crew will disembark the ship when docked in Halifax. Like passengers, the crew must be processed by Canada Border Services Agency officials. These crew will spend money in Halifax on groceries and other shopping supplies, as well as conducting banking transactions. Many of the ship crew will also visit restaurants and bars in Halifax and conduct some sightseeing while in port. On average each cruise ship generates \$41,000 in crew spend, which equates to about \$87 for each crew member that leaves the ship.⁴⁰

Re-Supplying the Ship

The time in port will also be used to re-supply the ship. This will include the re-stocking of food and drink, laundry services, offloading of money, and any other supply needs. At the same time, garbage and other waste will be removed from the ship. The re-supplying will involve a number of third-party supplies. However, the actual movement of supplies onto the ship is handled by stevedores.

In some cases, repairs to the ship will be conducted which can involve the shipment of parts from other parts of North America (arranged by the shipping agent). Local dive crews may be contracted to conduct inspections and repairs on the underside of the ship and its propulsion system (about 16% of ships will contract dive crews). Generally, bunkering (fuelling) is not conducted at Halifax.

While in port, there will be up to six security personnel ensuring that access to the ship is restricted to approved personnel.

Customs and Other Government Agencies

In addition to Canada Border Services Agency (CBSA) officials, other government agencies may be involved with the ship. Around 75% of the cruise ships are inspected by Transport Canada officials. The ship may also be inspected by the Canadian Food Inspection Agency as well as other Health Canada officials.

⁴⁰ The figures in this section, as well as the general description of crew spending, is based on the *Port of Halifax Crew Study*, conducted for the Halifax Port Authority by Corporate Research Associates Inc, November 2004. The report estimates crew spent \$4-6 million in Halifax in 2004. Taking the mid-point and dividing by the number of cruise ship visits in 2004 (122) produces an average of around \$41,000 per cruise ship visit.

7.3.2 Direct Employment Impact of Cruise Ships

Using interviews with businesses operators in the cruise business, as well as available data on passenger and crew spend rates, an estimate of the average direct employment generated by each cruise ship is provided in **Figure 7-3**. The employment related to cruise passenger and crew spending was estimated using Statistics Canada multipliers. All other employment is based on interviews and observation. The estimates consider only the employment generated in Greater Halifax. It does not include hours generated in the rest of Nova Scotia or elsewhere in Canada.

On average, each cruise ship docking at the Port of Halifax generates 3,877 hours of employment labour, equivalent to around 2.32 person years of employment in Greater Halifax.

Figure 7-3: Direct Employment in Greater Halifax of each Cruise Ship at the Port of Halifax

Function	Total Hours Per Ship
Shipping Agents	42
Habour Pilot	6
Stevedoring	288
Chandlering / Repairs	423
Cleaning / Garbage	40
Cruise Passenger Spending on Ground Transportation	589
Cruise Passenger Spending on Retail	1,136
Cruise Passenger Spending on Food & Beverage	387
Cruise Passenger Spending on all other Items	112
Ship Crew Spending	547
Security	60
Canada Border Services Agency, etc	48
Transport Canada	2
Canadian Food Inspection Agency	8
Other (administration)	189
Total Labour Hours	3,877
Total Person Years	2.32

8.0 One-Time Economic Impact: Capital Investment by Halifax Gateway Businesses

Up to this point, the report has focused on the employment and other economic impacts of the on-going activities and operations of the Halifax Gateway. That is, the employment and wages, economic output and GDP generated by the recurring annual activities of the Halifax Gateway. However, another aspect to the Gateway is the economic contribution of the capital improvement programs of the Gateway businesses. In particular, the major nodes of the Gateway – the port and airport – have large-scale capital programs.

This section of the report examines the economic impact of the planned capital construction programs of the Halifax Gateway businesses. This economic impact continues for the duration of the construction program, terminating once the construction is finally completed. In this sense, the impact is one-off, unlike the annually recurring economic impact of businesses that process passengers and cargo utilising the Halifax Gateway. These impacts are in addition to the economic impact generated by the on-going Gateway activities.

This chapter provides estimates of the economic impact of the major capital programs of the Gateway businesses over the next five years. These capital programs do not include regular maintenance, which are captured in the on-going economic impacts described in the earlier chapters.

8.1 Major Halifax Gateway Capital Projects

The major Halifax Gateway projects include the following:

- A ten-year capital improvement program by Halifax International Airport Authority totalling \$215 million between 2004 and 2013. The capital improvement program includes terminal and runway expansion and improvement, as well as additional equipment purchase and infrastructure development. Over the next five years (2005 to 2010), the capital improvement program is expected to expend \$152 million.
- The Halifax Port Authority has a five-year capital improvement program totalling \$100 million. The improvements include harbour deepening to accommodate larger vessels, technology to improve security and container terminal efficiencies, infrastructure improvements for cargo and cruise operations, and redevelopment of the Seawall along piers 20 to 23.

- Other Gateway businesses, such as the terminal operators and rail companies, are expected to spend at least \$181 million on capital improvements over the next five years.⁴¹

Overall, Halifax Gateway investments are estimated to total \$433 million over the next five years. This averages to \$87 million per annum flowing into the construction, equipment and manufacturing industries.

8.2 One-time Economic Impact of Capital Investment

The capital investment associated with the Halifax Gateway businesses will be spent on construction, equipment, and raw and finished materials; all of which support employment, GDP and economic output. Using Statistics Canada economic multipliers, the economic impact of the capital investment associated with Gateway businesses were estimated.⁴² These multipliers estimate the direct, indirect and induced employment generated by each dollar of capital spending as well as wages, GDP and economic output.

The estimated person years of employment, wages, GDP and economic output generated within Nova Scotia by capital investment of the Gateway businesses are provided in **Figure 8-1**.

Figure 8-1: Economic Impact of Capital Investment by Halifax Gateway Businesses in Nova Scotia, 2005-2010

	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	3,180	\$ 140	\$ 152	\$ 347
Indirect	1,070	\$ 38	\$ 60	\$ 138
Induced	1,800	\$ 53	\$ 89	\$ 386
Total	6,050	\$ 231	\$ 301	\$ 871

A total of 3,180 direct person years of employment are estimated to be generated by the planned capital improvements programs of the Halifax Gateway businesses over the next five years. This averages to direct employment of 636 person years per annum within Nova Scotia. Including multiplier effects, a potential total of 6,050 person years of employment will be generated over the next five years (averaging 1,210 person years per annum).

⁴¹ This information was collected using the employment survey. Detailed breakdowns cannot be provided in order to maintain the confidentiality of the data. This is likely an underestimate of the total capital expenditures, as many businesses did not have well-developed long-term capital plans.

⁴² Multipliers for non-residential construction, transportation engineering construction and professional services (architects, engineers, etc) industries were employed in this analysis. Allowance has been made for the fact that some of capital expenditure will likely be on equipment and labour from outside the province (or the country), and so will have a lower economic impact in Nova Scotia.

In addition to employment, it is estimated that \$152 million in direct GDP and \$347 million in direct economic output will be generated in Nova Scotia over the next five years. Including multiplier effects, a potential total of \$301 million in GDP and \$871 million in economic output will be generated in the Nova Scotia economy.

9.0 Summary

The following sections provide a summary of the economic impact estimates discussed in this report.

9.1 On-going Economic Impact of the Halifax Gateway

Figure 9-1: Employment and Economic Impacts in Nova Scotia of the Halifax Gateway

	Jobs	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	11,930	11,200	\$ 477	\$ 602	\$ 1,482
Indirect	7,260	6,820	\$ 217	\$ 458	\$ 1,044
Induced	9,300	8,730	\$ 342	\$ 523	\$ 1,189
Total	28,490	26,750	\$ 1,036	\$ 1,583	\$ 3,715

9.2 On-going Economic Impact of Tourism Spending Facilitated by the Halifax Gateway

Figure 9-2: Economic Impact of Tourism Spending Facilitated by the Halifax Gateway in Nova Scotia - Direct Impacts Only

	Jobs	Person Years	Wages (\$ millions)	Output (\$ millions)
Air Passengers	8,775	4,190	\$62.5	\$470.0
Cruise Passengers	400	190	\$6.0	\$20.0
Cruise Ship Crew	85	40	\$1.2	\$5.0
Total Direct Impact	9,260	4,420	\$69.7	\$495.0

9.3 On-going Tax Impacts of the Halifax Gateway

Figure 9-3: Halifax Gateway Tax Contribution (\$ millions)

Taxpayer	Federal	Provincial	Municipal	Total
Gateway Businesses	\$ 28.1	\$ 21.2	\$ 6.2	\$ 55.5
Gateway Employees	\$123.1	\$ 44.5	-	\$ 167.6
Air Passengers	\$ 18.2	\$ 13.0	-	\$ 31.2
Total	\$ 169.4	\$ 78.7	\$ 6.2	\$ 254.3

9.4 On-going Micro Impacts of Select Gateway Services

Figure 9-4: Direct Employment Impact of Select Halifax Gateway Services

Full service carrier Toronto Service	Each time a full service carrier service from Toronto lands at Halifax International Airport, 106 hours of labour are generated. Over a year, this service generates 220 direct person years of employment.
Low cost carrier Toronto Service	Each time a low cost carrier service from Toronto lands at Halifax International Airport, 104 hours of labour are generated. Over a year, this service generates 80 direct person years of employment.
Container Ship	Every time a container ship docks, it generates 4,621 employment hours, equivalent to just over three (3) direct person years of employment. The port handled over 700 container ships in 2004.
Cruise Ship	Each of the 120+ cruise ships arriving at the Port of Halifax generates 3,877 employment, or 2.3 direct person years. Some of this employment is the result of \$164,000 of cruise passenger spending each cruise ship brings to Halifax.

9.5 One-Time Economic Impact of Capital Investment

Figure 9-5: Economic Impact of Capital Investment by Halifax Gateway Businesses in Nova Scotia, 2005-2010

	Person Years	Wages (\$ millions)	GDP (\$ millions)	Output (\$ millions)
Direct	3,180	\$ 140	\$ 152	\$ 347
Indirect	1,070	\$ 38	\$ 60	\$ 138
Induced	1,800	\$ 53	\$ 89	\$ 386
Total	6,050	\$ 231	\$ 301	\$ 871

Appendices

Figures in the appendices may not exactly match those in the main report due to rounding.

Appendix A: Employment Survey

The Survey Population

All of the firms surveyed in this study were involved in port, rail, trucking or other related businesses. Aviation related businesses were not surveyed, as these companies had recently provided employment information for the Halifax International Airport economic impact study.⁴³ Almost the entire relevant Gateway business community (excluding aviation) was surveyed rather than selecting a small sample from which survey results would have to be scaled up. Large employers were targeted to have as high a response rate as possible for result accuracy.

The survey population was identified using a number of sources, including a business directory provided by Halifax Port Authority, additional tenant and contact list information provided by Gateway Council members, and by conducting a search of the local phone directory.

A total of 358 separate businesses were identified as being potentially linked to the Halifax Gateway. Employment surveys were sent to these businesses. The survey population included businesses located on Port of Halifax land as well those located elsewhere.

Questionnaire Design

The questionnaire was designed to collect all the required information without being too onerous on the respondents. Six different variants of the questionnaire were developed to match the different type of businesses surveyed. In general, the information requested by the questionnaire included:

- Number of employees.
- Total payroll in 2004.
- Percentage of business activity that is related to the Port of Halifax or Halifax International Airport.⁴⁴
- Breakdowns of employment into full-time, part-time, seasonal and contract employment.
- Breakdowns of employment by trade or occupation.
- Type and amount of commodities handled by the business.
- Property taxes paid in 2004 by the business in Greater Halifax.
- Planned capital investment by the business.

⁴³ *Halifax International Airport Economic Impacts 2003*, SGE Acres Ltd, October 2004.

⁴⁴ In part, this question enabled us to exclude firms from the analysis that had little or no Gateway related business activity.

Conducting the Survey

The survey was mailed out with a cover letter from Halifax Gateway Council Executive Director, James Frost. The letter explained the purpose of the study, the confidentiality of responses and encouraged members of the Halifax Gateway community to participate. Postage paid envelopes were provided with all mail-out surveys.

Following the initial mail-outs, non-responding firms were contacted by telephone to follow up. Firms were encouraged to return the survey and new copies were sent by fax or mail if the originals had been lost. Follow-up phone calls were made with all non-responding firms. In some cases, multiple phone calls were made to the firms in order to elicit a response. The survey follow-up paid particular attention to the larger employers – CN, terminal operators, etc. – in order to ensure that the survey responses captured the majority of the Gateway related employment.

Appendix B: Inferring Employment

A total of 243 firms responded to the employment survey. A methodology was developed to estimate the employment of the remaining non-responding businesses.

The approach was to utilise information from responding firms for each type of business and use it, along with publicly available information on individual non-responding firms, to make inferences. This approach is generally deemed to be the best approach, and indeed is often used for developing the national income and products account (i.e. partial survey with inference for non-surveyed or non-responding firms based on responses of surveys received). Our approach was conservative in that, unlike the national income and products account inference, we assumed that the non-responding firms were smaller than responding firms.

Inferred employment was based on employment information from firms in each business type that responded to the survey. The mean employment of respondents in each business type was calculated, excluding outliers, and then adjusted downwards. For example, especially large firms were excluded from calculation of the mean value and this value was further reduced by at least 25% to obtain conservative results. This "adjusted mean" employment for each business type was then applied to the non-respondent firms.

Breakdown of respondents and non-respondents by type of business is provided in **Figure B-1**. Note this methodology was not used for the trucking or hotel employment. The approach used for trucking and hotels is described in **Appendix C** and **Appendix D** respectively. The mean employment per business, after adjusting for outliers and scaling down by 25%, is presented in **Figure B-2**.

As the survey follow-up focussed on ensuring that major employers such as terminals and rail carriers responded, the 243 responding firms represent 82% of the total estimated employment (only 18% of employment was inferred).

Figure B-1: Responding and Non-responding Businesses

Business Type	Responded	Non-response	Total
Associations	7	3	10
Containerized Freight Service	3	0	3
Containers	2	0	2
Cruise Ship Services	10	4	14
Emergency Services	1	1	2
Employment, Financial, Legal, etc.	6	3	9
Engineers Marine	2	1	3
Equipment and Related Services	19	11	30
Freight Forwarding	5	4	9
Government Services	3	1	4
Halifax Port Authority	1	0	1
Hotels	9	5	14
Marine Commercial Services	29	16	45
Marine Contractors	6	3	9
Marine Equipment & Supplies	15	12	27
Other	3	4	7
Port Facilities and Services	42	22	64
Rail	3	0	3
Ship Builders & Repairers	1	1	2
Shipping and Freight Services	29	12	41
Surveyors Marine	1	0	1
Terminals	10	0	10
Trucking	36	12	48
Total	243	115	358

Figure B-2: Mean Gateway Related Employment by Business Type Used to Infer Employment

Business Type	Average
Associations	5
Containerized Freight Service	14
Containers	2
Cruise Ship Services	10
Emergency Services	14
Employment, Financial, Legal, Etc	5
Engineers Marine	7
Equipment and Related Services	6
Freight Forwarding	6
Government Services	10
Hotels	10
Marine Commercial Services	12
Marine Contractors	11
Marine Equipment & Supplies	8
Other	5
Port Facilities and Services	18
Ship Builders & Repairers	4
Shipping and Freight Services	5

Appendix C: Calculation of Trucking Impacts

The calculation of Gateway related employment generated at trucking companies is summarised below:

1. As part of the employment survey, a number of trucking companies were surveyed about their Gateway related employment and the average number of trucking trips made to the Port of Halifax each week. This sample included all of the major trucking companies operating in the region, including those serving the container industry, as well as a representative sample of the smaller trucking firms.
2. From this information, a per trip employment could be estimated from the survey responses:

Total Gateway related employment captured by the survey (Person Years)	Average weekly trips to/from the Port of Halifax	Average annual trips (x 50)	Per trip employment (Person Years)
383	3,400	170,000	0.0024

3. On average, approximately 687 truck trips are made to/from the Port of Halifax each day, including 290 container truck trips.
4. The average per trip employment was applied to the daily truck trips to estimate total trucking employment, as follows:

$$0.0024 \times 687 \times 50 \times 7 = 580 \text{ person years of employment}$$

Of the total trucking employment, two thirds (383 / 580) was based on survey responses and one third was inferred.

Appendix D: Hotel Employment

For the purpose of this study, we have included a portion of Greater Halifax hotel employment to the total Halifax Gateway employment base. This hotel employment is directly related to the Halifax Gateway through the accommodation of airline crews and connecting air passengers. Some hotels have contracts with airlines to provide accommodation to crews and connecting passengers. Note, the analysis does not include the general tourism spending on accommodation, i.e., the accommodation related to tourism visits of passengers arriving by air or cruise ship.

To estimate the airport related hotel employment, the major hotels in Halifax were surveyed to determine the proportion of their business that is related to airline crews and connecting passengers. The total person years associated with each hotel in the region was scaled by the percentage of hotel business associated with connecting passengers and airline crews.

Through this methodology, our analysis indicated that an estimated 100 person years of direct hotel employment was associated with airline operations. This represents approximately 4.5% of the 2,200 person years of employment associated with the hotels surveyed.⁴⁵

⁴⁵ A total of 14 hotels were surveyed, of which nine (9) responded. Smaller hotels were not surveyed but these are unlikely to accommodate airline crews and connecting passengers.

Appendix E: Tax Calculations

Personal Income Taxes

Tax base and rates. Under the *Income Tax Act*, federal income tax is paid on taxable income at a rate that increases with taxable income. In Nova Scotia, taxable income is also taxed at a provincial rate. Below in **Table E-1** the various tax brackets and associated rates charged both federally and provincially are shown.

Table E-1: Personal Income Tax Brackets and Rates For 2005

Federal – Basic Tax	Range	Tax Rate
	\$0 to \$35,595	16%
	\$35,595 to \$71,190	22%
	\$71,190 to \$115,739	26%
	Over \$115,739	29%
Provincial – Basic Tax	Range	Tax Rate
	\$0 to \$29,590	8.79%
	\$29,590 to \$59,180	14.95%
	\$59,180 to \$93,000	16.67%
	Over \$93,000	17.5%

Estimation method and results. Because the tax rate is progressive, the tax paid by a group of employees depends on the distribution of income among those employees. Unfortunately, the distribution of income is not known and average incomes must be used. For each of the various Gateway employment groupings (Halifax Port Authority, General Marine, Terminals, Cruise Industry, Airport, Rail, Trucking and Hotels) an average wage is calculated. From this wage, the associated average tax rate was applied. The corresponding tax figures were multiplied by the number of person years associated with each employment grouping to derive totals for each group. **Table E-2** displays the tax revenue associated with each employment grouping and the total tax revenue generated.

Table E-2: Personal Income Tax Revenues

Employment Group	Estimated Income Tax Paid (\$ millions)	
	Federal	Provincial
General Marine	\$ 18.6	\$ 13.4
Halifax Port Authority	\$ 0.7	\$ 0.5
Terminals	\$ 9.3	\$ 6.7
Rail	\$ 3.2	\$ 2.2
Cruise	\$ 0.5	\$ 0.3
Trucking	\$ 1.7	\$ 1.3
Airport	\$ 28.3	\$ 20.1
Hotels	\$ 0.2	\$ 0.1
Total	\$ 62.5	\$ 44.6

Corporate Income Taxes

Tax base and rates. All corporations are liable to pay federal income tax under the Income Tax Act. The tax rate varies by type and size of company and by province. Provincial governments also levy a corporation income tax on any company having a permanent establishment in that province.

Estimation method and results. To calculate tax liability is very difficult. It requires knowledge of the total tax base, and the proportion of the tax base attributable to the provinces. Therefore, an approximate method has been used, based on the average corporate tax paid per employee using Statistics Canada data. In Nova Scotia, the federal corporate income tax collected per employee was \$2,187 and provincial corporate income tax per employee was \$854 (2004 figures). Assuming all companies pay tax at the average rate per employee, the 2004 corporation income tax liability of the Halifax Gateway's employment sector is estimated to be \$24.6 million toward federal revenues and \$9.6 million toward provincial revenues. The estimated total corporate income tax revenue is \$34.9 million as shown in **Table E-3**.

Table E-3: Estimated Corporate Income Tax Paid by the Halifax Gateway Business Community

Government	Corporate Income Tax (\$ millions)
Federal	\$ 24.6
Provincial	\$ 9.6
Total	\$ 34.2

Employment Insurance (EI) Contributions

Tax base and rates. Employees in Canada pay employment insurance premiums equal 1.95% of earnings, up to a maximum of \$760.50 (maximum insurable earnings are \$39,000). Employers pay premiums equal to 1.4 times those paid by the employees.

Estimation method and results. The employee premium rate is applied to all those employment groupings where the average wage was less than \$39,000 per year. The maximum contribution was used for all groupings where the average wage was greater than \$39,000. The estimated employment insurance contributions for 2005 are \$20.2 million.

Canada Pension Plan (CPP) Contributions

Tax base and rates. Employee contributions to the Canada Pension Plan are 4.95% of pensionable earnings. Pensionable earnings are actual earnings less \$3,500, to a maximum of \$41,100. The maximum employee contribution is \$1,861.20. The employer contribution is the same as the employee contribution.

Estimation method and results. The maximum employee contribution rate is applied to the average wage for all employment groups where the average wage is more than the maximum pensionable earnings. For those groups where the average wage is less than the maximum pensionable earnings, the 4.95% rate is applied. The estimated Canada Pension Plan contributions for the Halifax Gateway in 2005 are \$40.4 million.

Workers' Compensation Board (WCB) Contributions

Tax base and rates. Employers in each province are required to make contributions to the Workers' Compensation Board to help offset the cost of on-the-job injuries. Employers are classified into industry groups. The contribution rate for each group is based on the injury costs associated with all companies in that group.⁴⁶ The group contribution rate varies widely among industries and provinces.

Some major companies are not included in the general "rateable" method of contribution but simply pay the actual cost of their claims plus an allowance for WCB administration costs. As it is not generally known which firms contribute in this manner, nor the value of their claims, an estimate based on reported payroll has been made for all firms.

It is possible that some companies are self-insured and their payments could be viewed as a business expense rather than a tax. However, we have chosen to include their contribution because they are required to be part of this government-mandated program.

⁴⁶ Subject to Experience Rating Adjustment for individual companies.

Estimation method and results. The contribution rates for each employment classification at the Halifax Gateway have been applied to the total payroll for that group. Halifax Gateway employees paid an estimated \$11.6 million to Worker's Compensation in 2004.

Property Taxes

Local governments levy property taxes to aid in the financing of local services. We obtained the amount of property taxes paid by the Halifax Port Authority and Halifax International Airport Authority directly from the authorities. However, for the remainder of the Gateway business, the amount was obtained through the employment survey – businesses were asked to state the total property tax paid within Greater Halifax in 2004. In 2004, the total property taxes paid by Gateway related business was \$6.2 million.

HST and GST on Air Fares and the Airport Improvement Fee

Tax base and rates. The 15% Harmonised Sales Tax (GST) applies to all tickets purchased in Canada for domestic flights. Eight percent of the 15% is distributed to the Nova Scotia provincial government, while the other 7% goes to the federal government. For transborder flights, only the Goods and Services Tax (GST, 7%) is applied to air fares.⁴⁷ Air services to overseas destinations are zero-rated for GST purposes. Air carriers can apply for input tax credits on GST paid to provide air services.

The HST of airfares was calculated from an average domestic return fare of \$413 for all domestic flights to/from Halifax and average transborder fare of \$472 for all transborder flights to/from Halifax. These average air fares were on BSP Canada data for bookings made for Halifax flights. Average includes only ticket purchases in Nova Scotia for travel via Halifax International Airport.

In addition, the airport authority charges all passengers originating their journey at Halifax International Airport (YHZ) an Airport Improvement Fee (AIF) of \$10, that is collected for the sole purpose of funding capital improvements at the airport. HST is levied on the fee.

Estimation method and results. Connecting passengers are excluded from the analysis, as it is assumed that GST/HST paid by these travellers is attributable to their originating and terminating airports. Separating originating from connecting passengers, total HST on airfares is estimated to be \$27.8 million (\$16.5 million to the federal government and \$11.3 million to the provincial government).

Total HST on the AIF revenue collected is approximately \$1.5 million.

⁴⁷ The Goods and Services Tax is levied under Part IX of the *Excise Tax Act*.

HST and GST on the Air Traveller Security Charge (ATSC)

The Canadian Government enacted the Air Traveller Security Charge (ATSC) on April 1, 2002 to help fund security improvements at airports across Canada, as a result of the terrorist attacks on September 11, 2001. There is a flat rate fee of \$4.67 (one-way) or \$9.35 (return) for domestic trips, \$7.94 (one-way) or \$15.89 (return) for transborder and \$17 (return or one-way) international travel.

Tax rate and base. The HST applies to the ATSC charged on domestic flights, while the GST applies to the ATSC charged on transborder and international flights.

Estimation method and results. The volume of origin/destination traffic at YHZ was determined. Each origin passenger pays the ATSC. A total of \$445,292 in HST was collected on domestic travel. GST collected on transborder and international travel totalled \$292,887. On a cumulative basis, \$738,178 in HST and GST on the ATSC was collected at YHZ.

HST on Concession Purchases

Tax base and rates. The 15% HST rate applies to most concession purchases by travellers at the airport.

Estimation method and results. The Halifax International Airport's 2004 Annual report indicates the total concession revenues for 2004. Based on this total, \$1.1 million in HST was collected on concession purchases in 2004.