

# **Economic Impact of the Greater Vancouver Gateway**

## **FINAL REPORT**

*Prepared for:*

**Greater Vancouver Gateway Council**

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# EXECUTIVE SUMMARY

This report presents an updated analysis of economic activity generated by the Greater Vancouver Gateway (the Gateway) and its role in supporting the economy of British Columbia, as well as the regional economy of Greater Vancouver and individual communities within the region. It examines the economic role of the Gateway facilities, including Port Metro Vancouver, Vancouver International Airport, and various rail lines, truck/rail intermodal facilities, road links and border crossing facilities.

This document updates an earlier study of 2007 conditions (published in 2008) that was also conducted for the Greater Vancouver Gateway Council. Key findings are:

## ***Economic role:***

- The Gateway Transportation System directly supports approximately 82,000 jobs and over \$7.2 Billion in Gross Domestic Product (GDP).
- When we factor in the broader indirect and induced impacts on the economy (associated with supplier purchases and worker spending), the total impact of the Greater Vancouver Gateway on the BC economy rises to over 182,000 jobs and \$15.8 Billion of Gross Domestic Product.
- These activities lead to over \$1.8 Billion of annual federal tax revenues, and \$1.0 Billion of local and provincial income and sales tax revenues.

## ***Changes over time:***

- The Greater Vancouver Gateway has successfully weathered the 2008-2009 recession. Cargo activity (direct and indirect) fell from 2007 to 2009, but has now rebounded to volumes prior to the recession and continues to grow. Greater Vancouver has clearly benefitted from the upsurge in trade between Canada and China, as well as trade between Canada, the US and other Pacific Rim partners.
- With the expansion of cargo activity, and hence industries that support trade, the Greater Vancouver Gateway now generates 21,000 more jobs and \$2 Billion of additional GDP than it did in 2007.
- The Greater Vancouver Gateway is also becoming more important to Greater Vancouver. In 2007, the direct, indirect and induced jobs generated by the gateway accounted for 13.5 percent of the regional employment base. By 2012 that value had increased to 14.6 percent of the region's jobs.

# 1 INTRODUCTION

This report presents an updated analysis of economic activity generated by the Greater Vancouver Gateway (the Gateway) and its role in supporting the economy of British Columbia, as well as the regional economy of Greater Vancouver and individual communities within the region. It examines the economic role of the Gateway facilities, including Port Metro Vancouver, Vancouver International Airport, and various rail lines, truck/rail intermodal facilities, road links and border crossing facilities.

These Gateway facilities serve both passenger and freight movements, so both aspects are discussed. However, it is the freight side that provides a large share of the Gateway's economic value, so much of this report focuses on the freight and international trade aspects of the Gateway.

The report findings presents economic impacts in terms of employment, income, value added and business output (revenues), as well as public tax receipts. These results are compared to an earlier study conducted in 2008, to highlight changing trends. The findings draw from multiple sources of economic data on the affected industries, modes and facilities, together with data on inter-industry linkages developed from economic models.

This study was started in 2013 and completed in 2014. For purposes of consistency and completeness, all data reflects conditions as of the end of 2012 and is compared to findings from the earlier report that portrayed 2007 conditions.

This report is structured around a sequence of topics:

- Chapter 2 defines the Greater Vancouver Gateway facilities and their regional role serving international transportation movements.
- Chapter 3 discusses foreign trade patterns and their importance for the region, the province and the nation.
- Chapter 3 reviews the performance of the Gateway, in terms of the volume and value of cargo and passenger movements.
- Chapter 4 presents findings concerning economic impacts of the Gateway in terms of employment, income, GDP and business output.
- Lastly, Chapter 5 presents high-level conclusions.

## 2 GATEWAY FACILITIES

### 2.1 Geography of Gateway Facilities

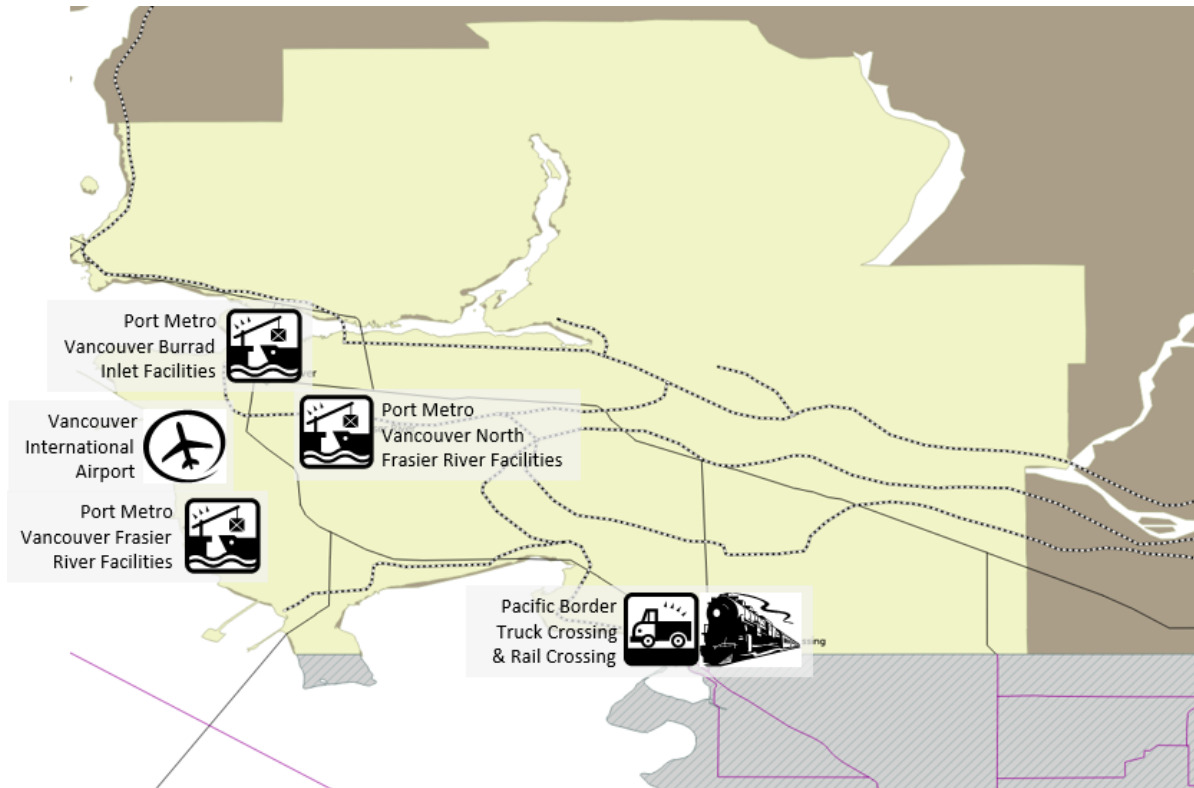
The **Greater Vancouver Gateway** is a system of transportation infrastructure serving international trade in British Columbia's Lower Mainland. It is comprised of Port Metro Vancouver, Vancouver International Airport, various rail and truck intermodal facilities, US border crossings and a set of rail and highway links that connect those facilities with each other and the rest of BC and Western Canada. Canada's **Asia-Pacific Gateway** is comprised of the Greater Vancouver Gateway facilities and the Prince Rupert port located further north, along with its rail connection to the rest of Western Canada and the economic heartland of North America.

Figure 1 shows the relative positions of the air and sea ports, as well as the servicing rail lines (dashed line) and highway corridors (solid line). In addition, the US border crossing (into Washington) is highlighted. These facilities represent vital land, sea, and air connections between Western Canada and growing Asian markets for Canadian products. By the numbers, Port Metro Vancouver is the largest trading port in Canada, handling over 38 percent of the total value of Canada's international exports (\$37.4 Billion in 2012). Vancouver International Airport (YVR) is the second busiest commercial freight airport in Canada, handling 228,000 tonnes of total cargo in 2012. The value of international exports flowing through it (over \$1.9 Billion in 2012) ranks behind only Toronto and Montreal airport facilities. Truck and rail facilities also serve an immense amount of NAFTA trade; the Pacific Highway crossing to Blaine, Washington (US) is Canada's 10th busiest border crossing (handling \$7 Billion of total trade in 2012). Each of these facilities is further described in the text that follows.

#### **Port Metro Vancouver**

Port Metro Vancouver was created in 2007 as an amalgamation of what had been three separate port authorities: the Fraser River Port Authority, the North Fraser Port Authority, and the Vancouver Port Authority. Together these port facilities provide 28 different deep sea and domestic marine terminals. Figure 1 shows their relative locations within the greater metropolitan region. In the diagram, the dashed lines represent rail routes, and the solid lines represent major highways. From this graphic we can gauge the level of connectedness of the port (both domestically, and internationally). In terms of major western Canadian ports, the two largest are the Port Metro Vancouver, and Prince Rupert: both are located in British Columbia, though Prince Rupert falls outside of the metro region.

Figure 1. Vancouver Gateway related Facilities



### **Vancouver International Airport**

Vancouver International Airport is one of the busiest international airports in Canada: second busiest regarding the volume of passengers, and fourth regarding commercial freight hauling activities. In 2012, the Vancouver International Airport processed over \$1.9 Billion of export goods, representing roughly half of the value of all goods being exported from Western Canada. In addition, the airport serves as a major international connector for flights around the world. In 2012 nearly a half of its passengers were from foreign origins, with new connections being added to China<sup>1</sup> and Heathrow.

### **Truck/Rail Facilities**

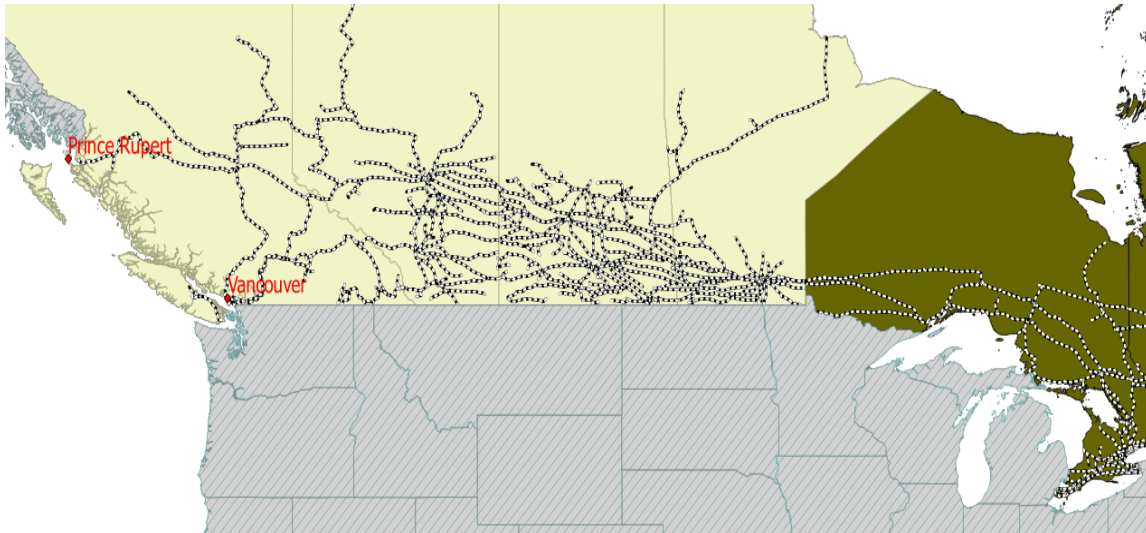
The gateway generates activity for intermodal truck and rail facilities as well as highway and rail lines that connect with the ports and hence facilitate broader trade. Figure 2 shows the level of rail connectivity to both of the major BC ports, and illustrates how the rail system connects them to the wide areas of western (and central) Canada. Because of this connectivity, producers of natural resource, agricultural and manufacturing products are able to gain access to foreign markets.

<sup>1</sup> The only direct flight from North America currently offered.

## ***Economic Impact of the Greater Vancouver Gateway, 2014 Update***

In addition to the western rail corridor, there is a major rail and highway border crossing that enables a high volume of trade with US (and with Mexico, via the US). This border crossing, which is located at the edge of Blaine, Washington links up to Port Metro Vancouver and allows US trade to be trucked up to the port and shipped overseas, or regional trade to go down to US and Mexico. These crossing points are critical to the economy; nearly a half of all NAFTA trade to and from British Columbia is by truck or rail modes through that border crossing area.

**Figure 2. Western Canadian Provinces and their Linkages to West Coast Ports**



## **2.2 Importance of the Gateway**

### ***Ways it supports the economy***

The Greater Vancouver Gateway serves local and provincial economies in two ways. First, it serves as a hub for routing regional goods to and from outside markets. It enables the creation of income (reflected in GDP or Gross Domestic Product) by enabling local businesses to interact with (buy from and sell to) outside customers. This is classically viewed in terms of enabling exports, because business sales (revenue) going to outside customers generates income flowing back into the region. However, the Gateway's role in enabling imports is also critical because it allows local manufacturing industries to have access to vital inputs that are not easily obtained locally, and to access more specialized goods that are not otherwise available to meet their cost and feature requirements. Both perspectives lead to the same outcome – i.e., the Greater Vancouver Gateway enables activity in the region for businesses that would not otherwise occur.

Notably, these functions of Gateway facilities include enabling overseas trade, NAFTA trade and domestic trade (with other provinces of Canada). Yet it is the foreign (overseas and NAFTA) trade that is most strongly concentrated at the Gateway facilities.

## ***Economic Impact of the Greater Vancouver Gateway, 2014 Update***

Second, the Greater Vancouver Gateway serves the regional and provincial economy by supporting a cluster of transportation and trade related industries that serve it and make use of it. This includes operators of facilities and services at the airport, marine ports, intermodal rail yards and border crossings. It also includes transport service providers (carriers) that make use of (and depend on) the Gateway facilities to operate their passenger and freight services, and allied transportation, shipping and warehousing services (including consolidators) that rely on those carriers.

### ***Role in foreign trade***

Tables 1 and 2 show that there is a strong dependence on Gateway facilities across all of Western Canada, but particularly for overseas air and sea shipments. Approximately 73 percent of the value of all Western Canada's foreign trade that moves by sea goes via the Greater Vancouver Gateway; this share rises to 78 percent when Prince Rupert is added (representing the full Asia-Pacific Gateway). For foreign trade moving by air, Vancouver International Airport is a major facility (accounting for 46 percent of Western Canada's foreign trade going by air, and 96 percent of BC's foreign trade going by air).

The Vancouver Gateway's road and rail border crossing (at Blaine, WA) is one of seven US border crossings in BC with 24-hour service, but it accounts for a majority of BC's total trade with the US and Mexico. The other Western Canadian provinces largely utilize other border crossings in Alberta, Saskatchewan and Manitoba.

Altogether, around 76 percent of BC's foreign trade by value is found to go through the Greater Vancouver Gateway facilities. This is equal to the total value of imports plus exports for all four modes. If we focus just on the share of activity attributable to air and sea ports, that statistic jumps to 92 percent of BC's foreign trade.

***Table 1. Gateway Share of Western Canadian Trade (\$ Billions, 2012)***

Mode/Port		W. CAN Exports via Gateway	W. CAN Imports via Gateway	ALL W. CAN Exports & Imports	Gateway Share
Water	Port Metro Vancouver	\$33.084	\$15.100	\$66.039	73.0%
	Prince Rupert*	\$3.436	\$0.127		5.4%
Air	Vancouver International	\$1.945	\$3.925	\$12.817	45.8%
Truck	Pacific Highway	\$4.720	\$14.898	\$78.241	25.1%
Rail	Pacific Highway	\$2.847	\$1.766	\$33.890	13.6%

***Table 2. Gateway Share of BC Trade***

Mode/Port		BC Exports via Gateway	BC Imports via Gateway	All BC Exports & Imports	Gateway Share
Water	Port Metro Vancouver	\$13.621	\$15.026	\$33.157	86.4%
	Prince Rupert*	\$1.400	0.127		4.6%
Air	Vancouver International	\$1.773	\$3.925	\$5.920	96.3%
Truck	Pacific Highway	\$4.247	\$12.692	\$27.009	62.7%
Rail	Pacific Highway	\$1.456	\$1.766	\$6.002	53.7%

\* Prince Rupert is not part of the Greater Vancouver Gateway but is part of the broader Asia-Pacific Gateway



## 2.3 Role in Greater Vancouver's Employment Base

In this section we focus on the employment composition of the Greater Vancouver area, and profile its particularly higher concentration of transportation and trade related activity. Overall, Greater Vancouver hosts over 1.25 million jobs accounting for 55 percent of all employment in British Columbia. Table 3 shows that just six percent of all jobs in BC are in the transportation and warehousing related sectors, yet those jobs also enable a large share of the manufacturing and goods producing jobs that produce export goods and support imports of parts and materials. (Later in the report, it is shown that the Gateway's broader economic impact accounts for a much larger share of the economy.)

Over the prior five years (2007-2012 period), there were significant changes in employment patterns. Manufacturing related industries lost 17 percent of their employment base, while service sector jobs grew by seven percent over the period, weathering the recessionary dip. In terms of transportation services, there was a drop in truck transportation employment, offset by employment gains in air, rail and especially marine transportation services. As will be shown later, some of these change in truck transportation reflects increases in labor productivity rather than just loss of activity.

**Table 3. Greater Vancouver Region Employment Trends, 2007 – 2012 (Thousands)**

Industry	2007	2012	2007 (% of total)	2012 (% of total)	% job Growth
<b>All Industries</b>	<b>1,190</b>	<b>1250.7</b>	<b>100%</b>	<b>100%</b>	<b>5%</b>
<b>Goods-Producing Sector</b>	<b>218.7</b>	<b>216.9</b>	<b>18.5%</b>	<b>17.3%</b>	<b>-1%</b>
Agriculture	8.7	7.6	0.7%	0.6%	-13%
Forestry, Fishing, Mining, Oil, Gas	7.8	8.5	0.7%	0.7%	9%
<b>Utilities</b>	<b>5</b>	<b>6.9</b>	<b>0.4%</b>	<b>0.6%</b>	<b>38%</b>
<b>Construction</b>	<b>90.5</b>	<b>105.0</b>	<b>7.7%</b>	<b>8.4%</b>	<b>16%</b>
<b>Manufacturing</b>	<b>106.6</b>	<b>88.9</b>	<b>9.0%</b>	<b>7.1%</b>	<b>-17%</b>
<b>Service-Producing Sector</b>	<b>970.7</b>	<b>1033.8</b>	<b>81.5%</b>	<b>82.7%</b>	<b>7%</b>
<b>Trade</b>	<b>186.5</b>	<b>195.8</b>	<b>15.7%</b>	<b>15.7%</b>	<b>5%</b>
Wholesale Trade	50.4	61.4	4.2%	4.9%	22%
Retail Trade	136.1	134.4	11.4%	10.7%	-1%
<b>Transportation and Warehousing</b>	<b>74</b>	<b>70.3</b>	<b>6.2%</b>	<b>5.6%</b>	<b>-5%</b>
Transportation	70.1	65.6	5.7%	5.2%	-6%
Air Transportation	10.5	12.1	0.9%	1.0%	15%
Truck Transportation	17.8	14.4	1.5%	1.2%	-19%
Transit and Sightseeing Transport	27.3	12.4	2.2%	1.0%	-55%
Postal and Courier Services	10.4	9.9	0.9%	0.8%	-4%
Marine, Rail, Other Trans., Storage	9.8	17.1	0.8%	1.4%	75%
<b>Finance, Insurance, Real Estate</b>	<b>88.4</b>	<b>92.1</b>	<b>7.4%</b>	<b>7.4%</b>	<b>4%</b>

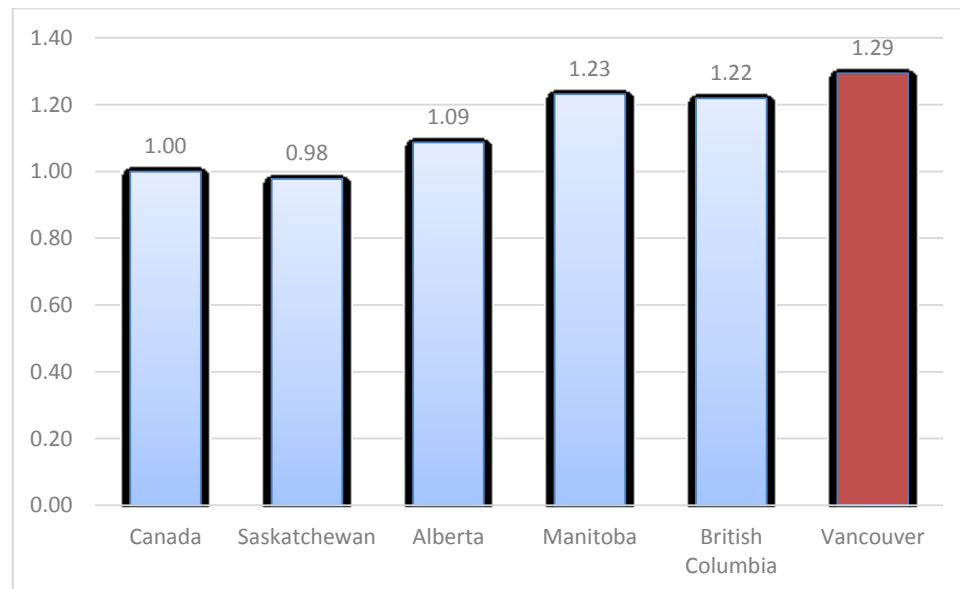
Source: Statistics Canada, 2012 Labour Force Data

Behind the loss of manufacturing jobs, there were actually strong gains in secondary manufacturing industries (such as electrical equipment and printing products), which were offset by decreases in jobs in primary manufacturing industries. This volatility is driven by many factors, including technological change, domestic and foreign demand, and global competition. At both a provincial level and regional (Greater Vancouver) level, there was growth in both the value of exports and number of jobs for mineral and metal products, while there were declines in both exports and jobs for wood and paper products.

### **Employment related to transportation**

While transportation accounts for a small portion of total jobs, it has an outsized role in the economy of British Columbia and particularly the Greater Vancouver Region. Figure 3 shows that the provinces of British Columbia and Manitoba have particularly high concentrations of transportation service jobs, and Greater Vancouver has an even higher concentration of transportation jobs (29 percent higher than the Canada-wide average).

**Figure 3. Relative Concentration of Employment in Transportation & Warehousing**  
(1.0 = Same as Canada National Average in 2012)



Source: Statistics Canada, Labour Force Survey (Table 282-0012)

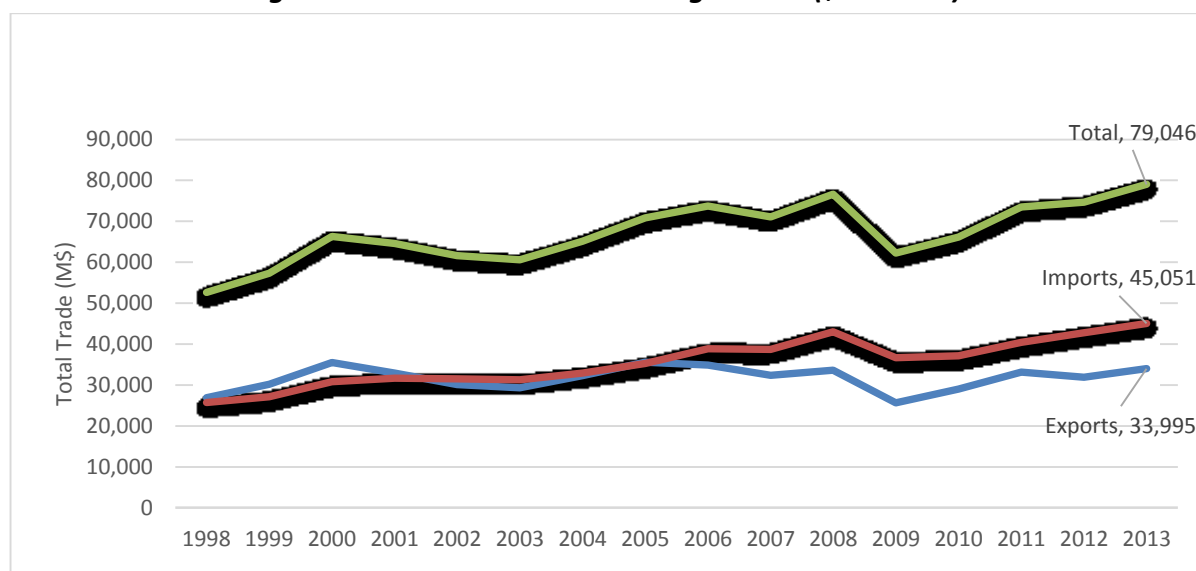
The relative concentration of transportation-related jobs has also increased since 2007 for both Manitoba and British Columbia, while the concentration has remained at the same high level for the Greater Vancouver region. The growth for BC overall is likely a reflection of the growth of Prince Rupert port.

# 3 INTERNATIONAL TRADE

## 3.1 Dependence on international trade

The Greater Vancouver Gateway represents a crucial component of the economy of British Columbia (BC) and Greater Vancouver. This point is demonstrated by the graph in Figure 4, which shows the trend in BC’s foreign trade from 1998 to 2013. (The 2012 values shown in this graph are consistent with Table 2 data.) It shows that in the decade leading up to our prior report (reporting 2007 data), there was a strong growth in international trade. That was followed by a global recession from 2008 to 2010 that amplified downward trends in foreign trade, with recovery back to prior levels by 2013.

**Figure 4. British Columbia’s Foreign Trade (\$ Millions)**



Source: Statistics Canada, as by trade WISERTrade. Calculations by EDR Group.

This graph also portrays divergence in BC’s balance of trade, as the ratio of imports to exports has continued to widen over time.<sup>2</sup> This reflects an expansion of demand for imported goods relative to the more flat growth trend for goods exported from BC.

Money exchange rates play an important role in international trade. Over the period of 2007 – 2012, Canada had seen a general appreciation in its currency against US currency, while simultaneously experiencing a depreciation against China’s currency.

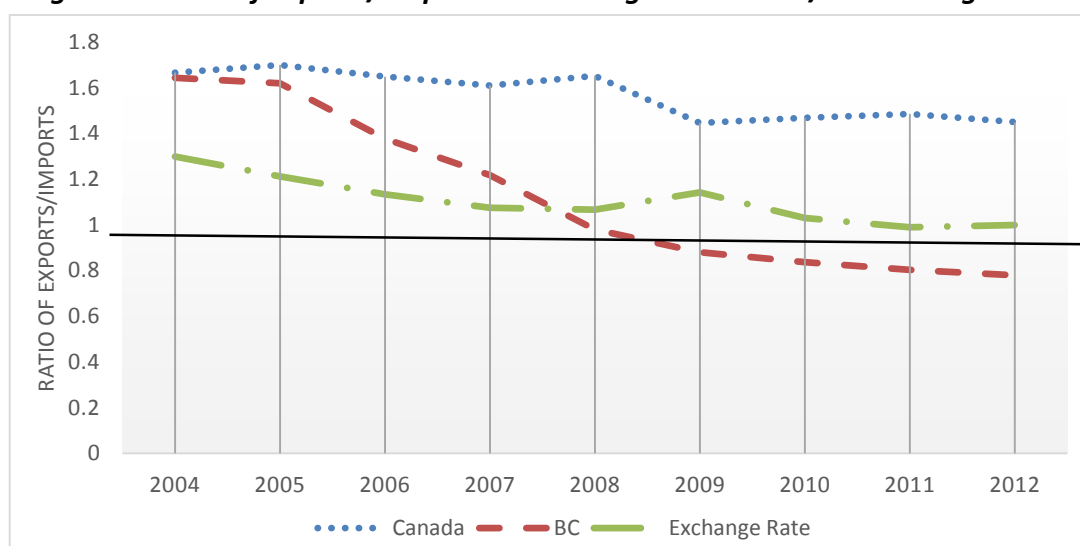
<sup>2</sup> This represents a change in the ratio of exports to imports from .84:1 in 2007, to a .75:1 ratio in favor of imports in 2012. While this might seem negligible as a fraction, putting it into context of the local economy, we are highlighting an approximate doubling of the trade imbalance from \$6 Billion in 2007, to \$11.1 Billion in 2012.

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Figure 5 shows that BC's export/import ratio (by \$ value) for trade with the US has fallen as the Canadian dollar has appreciated against the US dollar. This can be explained by a decline in exports during the 2008 -2009 recession (particularly to the US market) that far outstripped the falloff in imports. The shift towards imports has now stabilized.

In recent years, however, British Columbia remained less affected than other Canadian regions – likely due to trade with Asia, more specifically China and Hong Kong. China had a faster path to recovery than many other nations even though it suffered a large drop in exports which triggered large-scale unemployment in that country. One hypothesis is that due to China's strong banks and the pursuance of aggressive fiscal and monetary policy they were able to recover faster than other nations – both marked by the general strength of China's currency and that nation's continued demand for raw and luxury goods<sup>3</sup>. Also, the price of petroleum/oil has been experiencing a continuous upward trend since the middle of 2008, which also explains the increased value of petroleum/oil based exports from BC.

**Figure 5. Ratio of Exports/Imports and Changes in Canada/US Exchange Rates**



Source: Bank of Canada, Statistics Canada International Trade Division, calculations by EDR Group

Table 4 shows industries with the highest share of Canadian exports coming out of British Columbia. The majority of the industries shown here are based on extraction of natural resources. In 2012, British Columbia arrived at an agreement with China involving Okanagan cherries as part of their development of agricultural exports. This is expected to signal a growth in future market share of fruits and nuts, and an increasing concentration of activity in British Columbia as increased air cargo shipments of goods begin to build up out of Vancouver International Airport (YVR).

<sup>3</sup> Source: National Bureau of Asian Research (2009-2010)

[http://www.nbr.org/publications/strategic\\_asia/pdf/Preview/SA09/SA09\\_China\\_preview.pdf](http://www.nbr.org/publications/strategic_asia/pdf/Preview/SA09/SA09_China_preview.pdf)

**Table 4. Highest Share of Canadian Exports from British Columbia, 2012 (by value)**

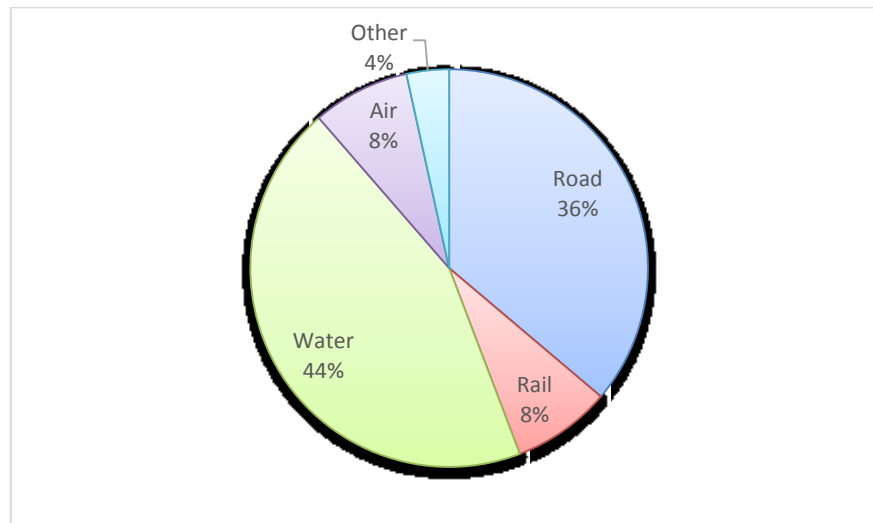
Commodity	BC share of All Canadian Exports
Wood	62%
Zinc	51%
Fruit & Nuts	45%
Pulp	43%
Lead	32%
Seafood	25%
Ores	24%
Plants	20%
Wicker Products	20%
Boats	14%
<b>All Exports</b>	<b>7%</b>

Source: Statistics Canada International Trade Division

## 3.2 Transport modes

Businesses rely heavily on the Greater Vancouver Gateway for efficient movement of outgoing products destined to far flung markets, and for efficient movement of incoming parts and materials for product assembly. These sales generate streams of business revenues that flow back to BC and the national economy. They involve all motorized modes of transportation. Figure 6 shows the modal shares of BC’s foreign trade. The water and air transport accounts for 52 percent of all foreign trade. They serve trade with Asia and elsewhere overseas, though there is also some use of aviation for trade with more distant parts of Canada and the US. The road and rail modes are used for shipments within Canada and for NAFTA trade (though the US is the dominant trade partner, and accounts for a large share of this trade).

**Figure 6. Modal Shares for British Columbia’s Foreign Trade (by value)**

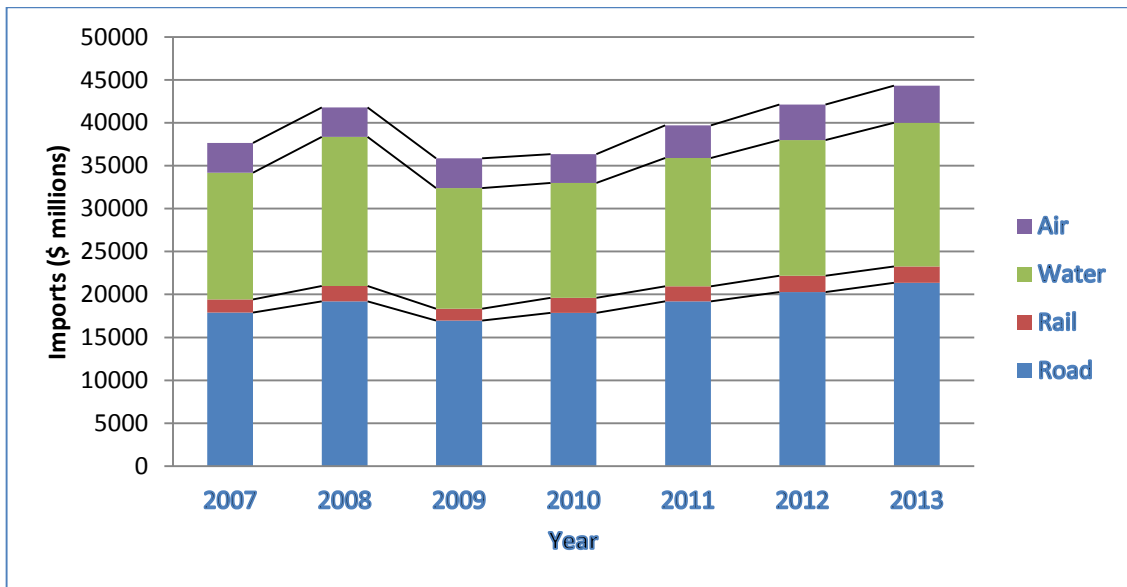


Source: Statistics Canada, via WISERTrade. Calculations by EDR Group.

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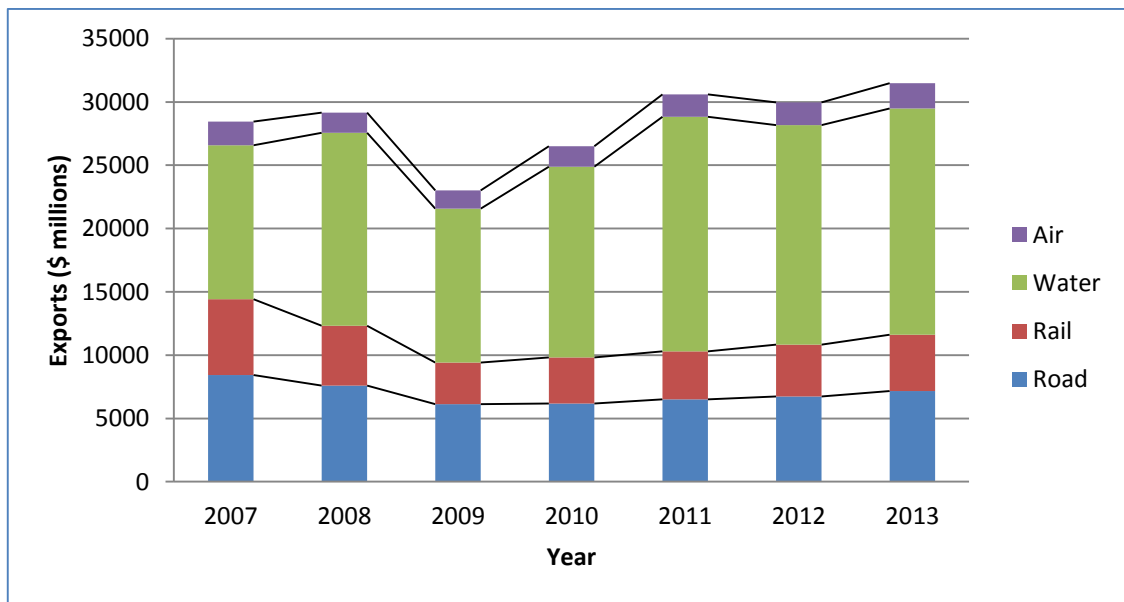
We can break out this modal split into imports and exports. The import trends (in Figure 7) show a visible growth in shipments by truck and a small gain by rail – both surface modes associated with US trade. Use of other modes for imports have remained generally constant. The export trends (in Figure 7) show a visible growth in shipments by water, with a small gain in air shipments – both indicating overseas trade.

**Figure 7. BC Imports by Mode (\$ Millions)**



Source: Statistics Canada, via WISERTrade. Calculations by EDR Group.

**Figure 8. BC Exports by Mode (\$ Millions)**

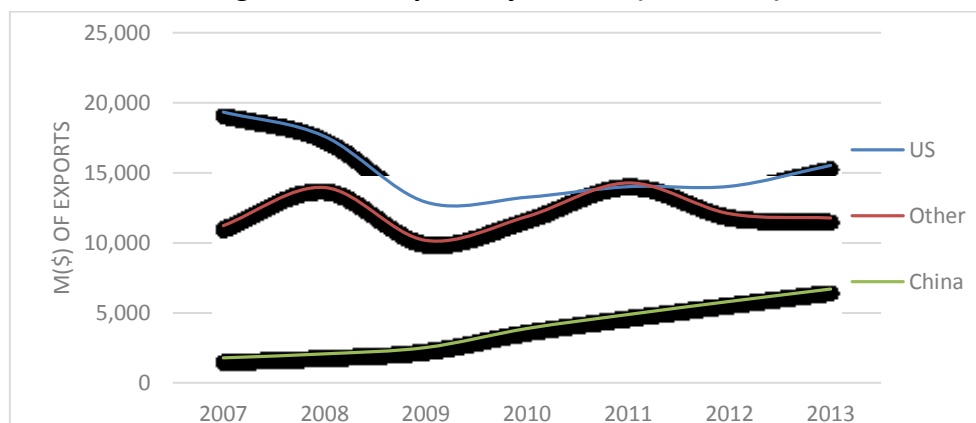


Source: Statistics Canada, via WISERTrade. Calculations by EDR Group.

### 3.3 Trading partners & products

Asian nations are the dominant source of foreign imports. For example, in 2012 the western provinces were involved in almost \$272 Billion of trade. Of that \$272 Billion, approximately \$56 Billion (20%) was involving Asia Pacific nations, and of that, almost 75 percent of the trade (by value) went through the Greater Vancouver Gateway. Focusing on customers for BC exports, Figure 9 shows that the US is still the #1 destination for BC products, though China is the fastest growing outside market for BC products.

**Figure 9. BC Exports by Market (\$ Millions)**



Source: Statistics Canada, via WISERTrade. Calculations by EDR Group.

As seen in Table 5, British Columbia exported almost \$32 Billion in goods in 2012, ranking fourth in export dollars among provinces (behind Ontario, Alberta and Quebec). The primary exports of British Columbia continued to be natural resource-based goods which are in abundance in the province. Since publication of the prior report, wood and paper products have stabilized the value-share of exports (starting around 2009), and are back on an upward trend – though they are still outpaced by the rapidly trending growth pattern of mineral fuels<sup>4</sup>, which has replaced paper products as the number-one ranking export (in 2012 Canadian dollars). Between 2005 and 2009, there was a decline in the export of wood products across all modes, with the exception of marine. The increase in maritime exports reflects a surge of demand from Asia.

<sup>4</sup> “Mineral fuels” Mineral fuels consist of petroleum, natural gas, oil shale, and coal.

**Table 5. Exports from British Columbia, 2007-2012 (\$ Billions)**

Commodity	2007 (\$m)	2012 (\$m)	% change (nominal)	% change (real; adjusted for inflation)
Petroleum and Minerals	6.206	8.086	30%	18%
Wood	6.954	6.062	-13%	-21%
Pulp	3.423	2.914	-15%	-23%
Ores	1.711	2.210	29%	17%
Industrial Machinery	1.742	1.690	-3%	-12%
Paper	1.698	1.072	-37%	-43%
Seafood	0.883	0.841	-5%	-14%
Electric Machinery	0.976	0.736	-25%	-32%
Zinc	0.757	0.584	-23%	-30%
Aluminum	1.012	0.559	-45%	-50%
Instruments	0.416	0.474	14%	3%
Iron & Steel Products	0.344	0.403	17%	6%
Plastics	0.487	0.366	-25%	-32%
Motor Vehicles	0.352	0.337	-4%	-13%
Furniture	0.362	0.246	-32%	-38%
<b>Subtotal Top 15</b>	<b>27.324</b>	<b>26.580</b>	<b>-3%</b>	<b>-12%</b>
<i>Other Exports</i>	<i>5.033</i>	<i>5.343</i>	<i>6%</i>	<i>-4%</i>
<b>Total</b>	<b>32.357</b>	<b>31.923</b>	<b>-1%</b>	<b>-11%</b>

*Source: Statistics Canada International Trade Division, values adjusted by Industrial Price Index*

Altogether, the export value generated by BC industries decreased by one percent between 2007 and 2012, in nominal terms. After adjusting for inflation (using the Industrial Price Index<sup>5</sup>), the value of goods exported actually declined by 11 percent. This change in exports is primarily due to reductions in exports of petroleum and pulp, which experienced a decline in demand from the United States and Japan (the top two trading partners), and which has been partially offset by the increase in demand from China.

The export base of Alberta, Saskatchewan and Manitoba is largely natural resources – liquid and bulk commodities (such as petroleum, mineral products, cereals and fertilizers). It is important to note that all of these provinces rely primarily on the Greater Vancouver Gateway for export of their export products to overseas markets. Port Metro Vancouver is the dominant port for export shipments of those products overseas. (Prince Rupert port currently plays a minor role in handling bulk shipments from Western Canada, as its largest current market is serving container shipments between Asia and the Great Lakes region of North America.)

<sup>5</sup> Statistics Canada 'Industrial Product Price Indexes', Table 329-0074



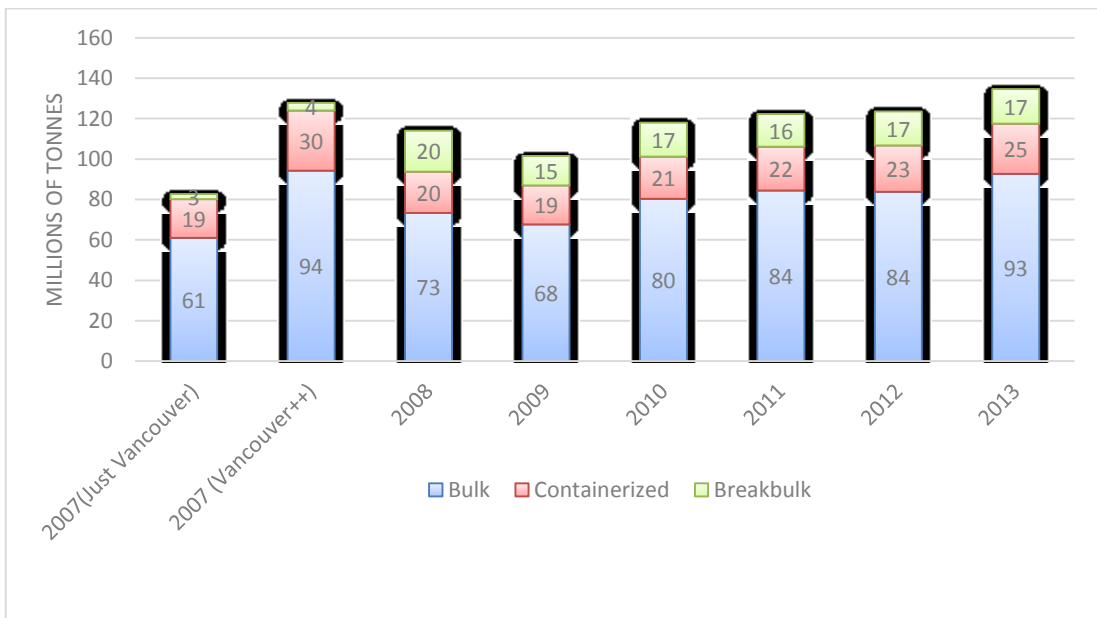
# 4 PERFORMANCE OF THE GREATER VANCOUVER GATEWAY

Facilities of the Greater Vancouver Gateway serve the movements of people and cargo going to and from locations overseas or elsewhere in North America. For cargo, these facilities connect these far flung movements with cargo shippers and consignees (cargo receivers) located in the Lower Mainland, other areas of British Columbia and elsewhere in Western Canada. As noted in Section 3, these movements require the use of all modes of transportation: water, rail, air, and road. This section describes the performance of specific Gateway transportation facilities in terms of activity volumes. This provides a basis for the later analysis of employment and economic impacts that appears in Section 5.

## 4.1 Water Transportation

Since 2007, Fraser and North Fraser Ports became combined with the Vancouver Port Authority as *Port Metro Vancouver*. Port Metro Vancouver has experienced a growing level of international trade, despite the 2007-2009 recession. Figure 10 shows the breakdown of tonnage by type of cargos, in terms of both the original tonnages in 2007 for just Vancouver Port (~80 million tonnes) and an adjusted aggregation (adding in the other two ports) to allow for a more direct comparison with more recent trends (~127 million tonnes).

**Figure 10. Cargo Composition at Port Metro Vancouver, 2007- 2013 (millions of tonnes)**

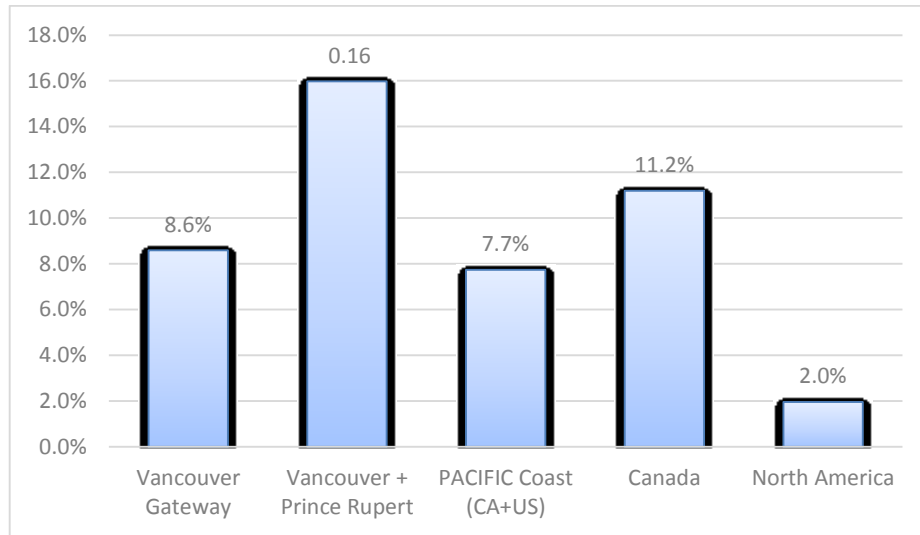


Source: Port Metro Vancouver (archived data)

**Economic Impact of the Greater Vancouver Gateway, 2014 Update**

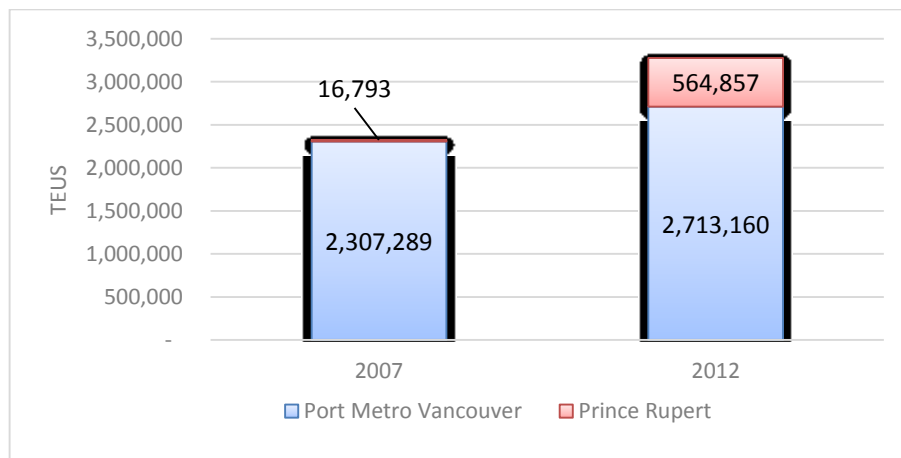
Figure 11 shows the rates of growth in container shipments over the 2007 - 2012 period, for Port Metro Vancouver, all BC Ports (Vancouver + Prince Rupert), all North American Pacific Coast ports, Canadian ports, and all North American Ports. It shows that Port Metro Vancouver has continued to grow at a rate slightly above the average for all North American Pacific Coast ports, while Prince Rupert has had an even faster rate of growth in container shipments. Prince Rupert provides a complement to Port Metro Vancouver by providing a shorter sea path from Asia to North America, and direct rail access via the Canadian National (CN) rail line to the Great Lakes heartland of the US and Canada. Port Metro Vancouver, on the other hand, remains the larger and dominant gateway for markets in BC and other western provinces. The relative size of container activity at these ports is shown in Figure 12.

**Figure 11. Comparison of Ports: Growth in Container Activity (TEUs), 2007- 2013**



Source: American Association of Port Authorities, EDR Group Calculations

**Figure 12. Volume of Container Activity at BC Ports (TEUs), 2012**



Source: AAPA Statistics, NAFTA Region Port Container Traffic Profile 2012

The upsurge in trade with Asia (especially China) has been to British Columbia's advantage. Even though the percentage of BC *imports* by value coming from China grew only slightly to 23.6 percent from 22 percent in 2007. This is a higher rate of growth than occurred for overall imports destined for Canadian marine ports (which grew 16 percent between 2007 and 2012). This growth in Chinese imports is driven by demand for low-priced manufactured goods and machinery, particularly for apparel, industrial machinery, and iron and steel goods (that have more than doubled in value since 2002).

*Exports* to China of products originating in British Columbia have also more than doubled in value (adjusting for inflation) from 2007 to 2012—a majority was pulp, wood products, and ores. In the same time period, exports to the top two destinations from British Columbia (US and Japan) actually decreased in value.<sup>6</sup> As previously mentioned, the drop in export value to these two countries is partially due to the appreciation of the Canadian dollar against the Yen and US Dollar.

Port Metro Vancouver also serves cruise ships, with many passengers coming from the US. However, issues such as (a) changes in the US/Canada exchange rate, (b) the repositioning of ships to Seattle from Vancouver, and (c) the hit to disposable income after the recession have together negatively affected the cruise industry in BC. The number of passengers served decreased by 22 percent from 2008 to 2012.

## 4.2 Air Transportation

Vancouver International Airport (YVR) is the second largest airport in Canada, in terms of both cargo tonnage and passengers.<sup>7</sup> The size of operations and geographic location make the airport a critical link for trade abroad and also within North America. In 2012, the airport handled almost 228,000 tonnes of cargo—a slight increase from 226,000 tonnes in 2007.<sup>8</sup> Most of the cargo tonnage is international trade, though there is a portion representing shipments internal to Canada.

Another set of statistics comes from international trade sources, and represent the value of imports and exports traveling via air to and from BC. Since there is little international cargo service at other airports in BC, these statistics approximately represent the value of international cargo traveling via YVR. Expressed in terms of value, international trade by air has slightly increased (by one percent in real terms, adjusted for inflation) to a level of nearly \$5.9 Billion in 2012. This includes over \$1.9 Billion of exports and over \$3.9 Billion of imports.<sup>9</sup> Almost all of the top exports sent by air had robust

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<sup>6</sup> Statistics Canada, International Trade Division.

<sup>7</sup> Statistics Canada – Catalogue no. 51-203-X – Air Carrier Traffic at Canada Airports (NOW 401-0045)

<sup>8</sup> Vancouver International Airport, [www.yvr.ca/Libraries/Aviation\\_Marketing/1992-2014\\_Cargo\\_July\\_2014.sflb.ashx](http://www.yvr.ca/Libraries/Aviation_Marketing/1992-2014_Cargo_July_2014.sflb.ashx), Statistics Canada reports slightly lower numbers

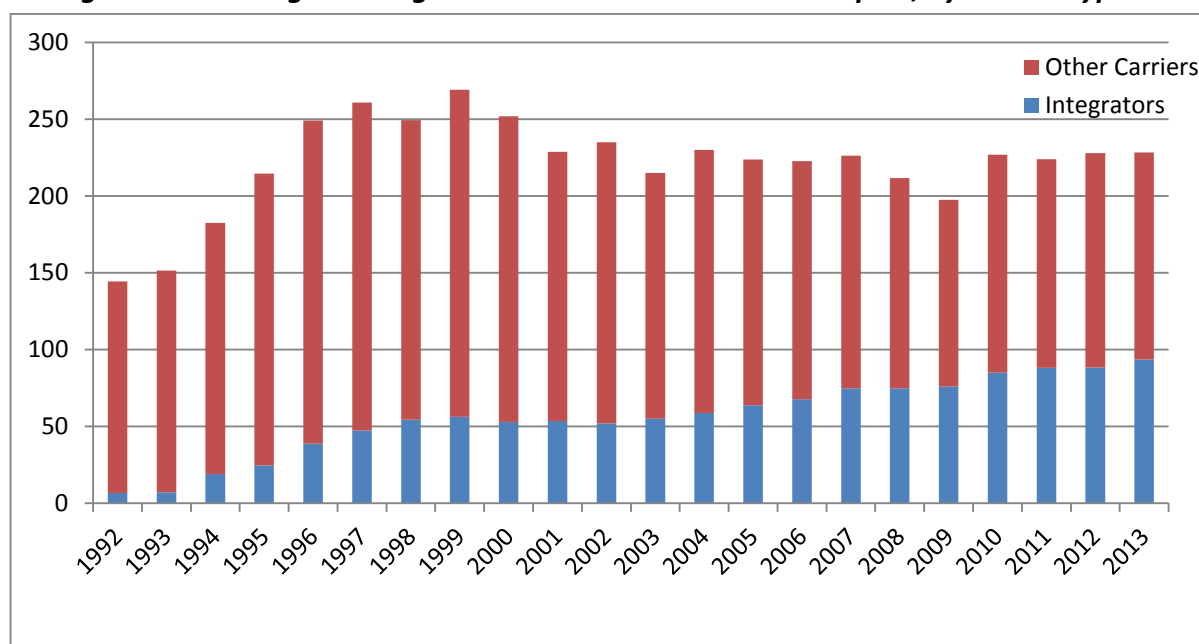
<sup>9</sup> See Table 1 (page 5).

## Economic Impact of the Greater Vancouver Gateway, 2014 Update

growth in value from 2007 to 2012, including electrical machinery, industrial machinery, medical instruments, and seafood. These goods all have high value per tonne.

Figure 13 shows how air cargo tonnage moving through YVR has changed over time. There had been a significant drop after the year 2000 when Air Canada decided to reduce air freight at YVR, and consolidate it at Toronto Pearson Airport. However, volumes at YVR have continued to rebound since that time (except for the recession around 2008-2009). The gains have been driven primarily by integrators—services such as United Parcel Service, Federal Express and DHL, which specialize in the logistics of goods movement to provide cargo transportation services for small shippers as well as lower cost options compared to traditional air freight carriers. Over the last decade (2002-2012), the share of annual total cargo tonnage being moved by integrators has nearly doubled to over 88,000, or 38.7 percent of the total tonnage being transported at YVR (of which, slightly more than half is outbound).<sup>10</sup>

**Figure 13. Air Cargo Tonnage at Vancouver International Airport, by Carrier Type<sup>11</sup>**



Source: Vancouver International Airport

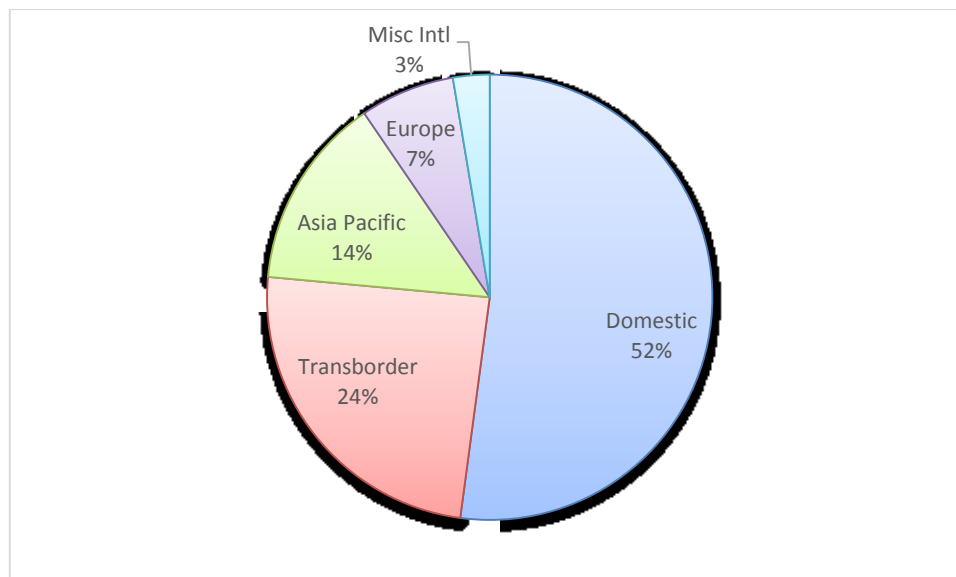
Greater Vancouver continues to be a major destination for business passengers and tourism. Demand for passenger air travel to and from the region continues to climb back to pre-recession levels. YVR handled nearly 17.6 million passengers in 2012, or approximately one percent more passengers than pre-recession (2007) levels. Figure 14 shows the composition of enplaned and deplaned passengers going through YVR by their

<sup>10</sup> YVR statistics

<sup>11</sup> Vancouver International Airport: <http://www.yvr.ca/en/about/facts-stats.aspx>

place of origin. It shows that nearly half of all passenger movements are to/from foreign locations.

**Figure 14. Composition of Vancouver International Airport (YVR) Passengers, 2012.**



Source: Vancouver International Airport, <http://www.yvr.ca/en/about/facts-stats.aspx>

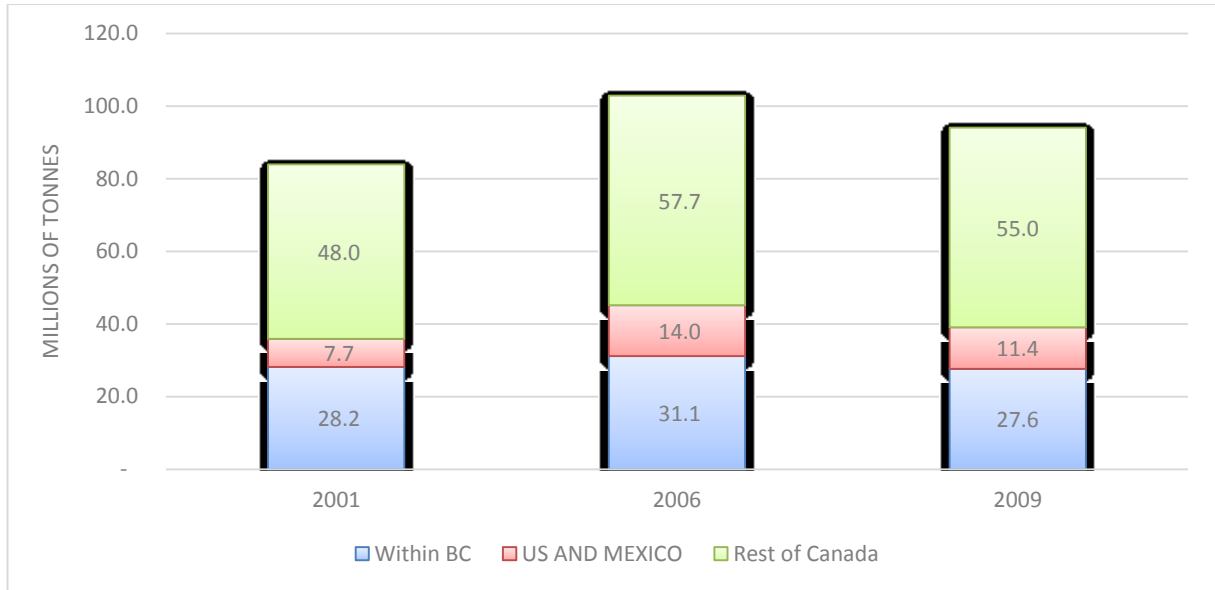
### 4.3 Rail and Truck Transportation

The airport and seaports that serve the Gateway are intermodal centers that also depend on surface transport for distribution and gathering of goods. Railroads and trucks facilitate cargo movements to and from the marine port facilities, while trucks are the primary surface mode for air shipments. Truck and rail services are also the primary modes for trade within Western Canada and trade with the United States.

Changes in cross-border and overseas shipments have resulted in more rail and truck movements throughout the region. As seen in Figure 15, rail tonnage originating or destined for British Columbia increased by 23 percent from 2001 to 2006. During that period, there were increases in all categories of rail freight, but the proportional increase was greatest for the share of rail freight moving across the United States border. Between 2006 and 2009, in the years immediately before and during the recent recession, rail tonnage fell by 8.8 million tonnes. In the long-term, from 2001 through 2009, the overall change was still positive, representing an increase of 10.2 million tonnes (12 percent growth). Note that 2009 is the most recent year available for rail data; more recent data has not yet been released.<sup>12</sup>

<sup>12</sup> A discussion of the 2012 rail conditions was not included because the data source has a staggered publishing schedule, thus 2009 is the most up to date sourcing (Rail in Canada 2009).

Figure 15. Rail Freight Movement by Origin/Destination, 2006-2009 (millions of tonnes)



Source: Statistics Canada, Rail in Canada 2009

The value of international trade moving by rail between BC and the United States totaled over \$5.7 Billion in 2012, representing an 11 percent decrease over the 2007 - 2012 period (adjusting for inflation). Since 2007, there has been a large growth in bulk, low value commodities (e.g., zinc and wood products) which are heavy bulk goods that tend to be carried via rail. The changes in composition of goods moved by rail (most importantly the growth in heavy metal products) explains why there was a decrease in value of cross-border goods moved by rail, even as there was an increase in tonnage moved by rail.

Countering the drop in rail activity over the 2007-2012 period, there have been significant increases in cross border freight movements by truck over that period. Due in part to changing exchange rates, there was an overall 27 percent increase in the value of goods *imported* from the US coupled with an 11 percent decrease in the value of goods *exported* to the US. In 2012, an estimated 67 percent of BC's total imports and exports via truck passed through the Blaine, Washington border crossing.<sup>13</sup> Using the US Transborder dataset, we find that approximately 84 percent of goods moving through the Blaine border crossing via ground transportation (truck/rail) are going to or from British Columbia.

<sup>13</sup> US Bureau of Transportation Statistics, TransBorder Freight Data

# 5 ECONOMIC IMPACTS OF THE GREATER VANCOUVER GATEWAY

## 5.1 Direct Economic Impacts

The term *direct economic impacts* refers to economic activity taking place at the gateway facilities, including facility operators and transportation carriers. Direct impacts can be expressed as “jobs” or put in terms of dollar concepts— i.e., the wages, GDP and business revenues. They are typically concentrated in transportation services but also include related support industries such as warehousing, logistics, maintenance/repair and other services that are an integral part of Gateway facility operations. However, they do not include transportation jobs associated with local deliveries that are unrelated to the Gateway functions. For these reasons, the direct employment numbers that are shown here are different from the numbers of total transportation industry jobs occurring in BC, as reported by Statistics Canada (previously shown in Table 3).

The numbers reported in this report also draw on other recent studies sponsored by Vancouver International Airport and Port Metro Vancouver that count total jobs on their premises.<sup>14</sup> Of course, it must be recognized that there is some overlap, since the trucking and railroad industries can also be located at airport or marine port facilities. This numbers reported here are estimates that draw on other recent air/marine port studies but also attempt to correct for overlap and represent total job impacts in a multi-modal context.

The direct economic impacts associated with Greater Vancouver Gateway facilities and services are shown in Table 6. Overall, the Greater Vancouver Gateway directly accounts for nearly 82,000 jobs — representing nearly 7.5 percent of all jobs in the region. These include jobs in both transportation industries and direct support industries. They lead to over \$4.8 Billion in wages, \$7.2 Billion in GDP and \$21.0 Billion in output annually.<sup>15</sup> The jobs associated with gateway activities are generally high paying with an average wage per worker of \$58,612 compared to the BC average of \$48,000.

The change in direct impacts over the 2007-2012 period is shown in Table 7. It shows growth of wages, GDP and output metrics over that period for all modes. However, it also indicates slight reductions in air, truck and rail employment (on the order of 3% -- 6%), offset by a six percent growth in maritime (port-related) employment. These trends reflect a combination of changes in cargo activity levels (shown earlier in Chapter 4) and increases in labor productivity (GDP per worker). Summing across all modes, the total impact is small but positive for all economic impact metrics.

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<sup>14</sup> Ference Weicker & Co. (2011). Economic Impact Assessment of the Vancouver International Airport; Intervistas. (2012). Port Metro Vancouver Economic Impact Study.

<sup>15</sup> Output is a gross measure that represents total business sales (receipts). GDP is a net measure that represents value added (receipts net of the cost of inputs).

**Table 6. Direct Annual Impacts of the Greater Vancouver Gateway, 2012 (\$ Billions)**

Transportation System	Jobs	Wages	GDP	Output
Maritime	38,200	\$2.175	\$3.086	\$9.710
Air	23,760	\$1.675	\$2.500	\$7.835
Truck	13,911	\$0.716	\$1.148	\$2.727
Rail	3,113	\$0.238	\$0.474	\$0.749
<b>All Modes</b>	<b>81,984</b>	<b>\$4.805</b>	<b>\$7.203</b>	<b>\$21.020</b>

Source: BC Stats, Stats Canada, Port Metro Vancouver, Vancouver Intl. Airport, calculations by EDR Group.

**Table 7. Change in Direct Annual Impacts of the Greater Vancouver Gateway, 2007 to 2012 (\$ Billions, adjusted for inflation)**

Transportation System	Jobs	GDP (\$m)	Output (\$m)
Maritime	+ 2,158	+ 0.220	+ 1.759
Air	- 1,262	+ 0.325	+ 4.326
Truck	- 517	+ 0.033	+ 0.234
Rail	+ 210	+ 0.105	+ - 0.050
<b>All modes</b>	<b>+ 160</b>	<b>+ 0.684</b>	<b>+ 6.286</b>

Source: Year 2012 values from Table 6; Year 2007 values from "The Economic Role of the Gateway Transportation System in the Greater Vancouver Region" (EDR Group 2008)

## 5.2 Total Economic Impacts in British Columbia

The *total economic impacts* represent the full economic influence of the Greater Vancouver Gateway, in terms of supporting jobs and generating income in the broader economy. For this study, total economic impacts are calculate for all of British Columbia. These impacts have three components:

- **Direct impacts** – economic activities occurring at each mode’s facility in the Gateway network; they include facility operators and carriers.
- **Indirect impacts** – economic activities generated by purchases of goods and services by the operators and carriers; they include the construction industry, producers and sellers of materials and equipment, and supporting services (ranging from utilities to cleaning services).
- **Induced impacts** – economic activities generated by the re-spending of wages by workers employed as a result of direct and indirect impacts; they include recipients of consumer spending on retail, personal services, recreation and real estate.

Total impacts are the summation of these three components. They were estimated using the most up to date (2010) version of the BC Stats input-output model to yield estimates of the Greater Vancouver Gateway’s total impacts on jobs, wages, GDP, and output in British Columbia. While the Gateway facilities are all located in BC, there are some suppliers of parts, materials and services (as well as users) located elsewhere in Canada. As a consequence, the calculation of total economic impact would yield an even



## *Economic Impact of the Greater Vancouver Gateway, 2014 Update*

greater number if it was calculated for all Western Provinces or all of Canada. However, it would represent a smaller portion of the broader economy of those areas.

Table 8 shows a breakdown of the total economic impact on British Columbia. It shows 182,442 total jobs in BC that are being supported by the Greater Vancouver Gateway, with over \$15.8 Billion of GDP being generated as a consequence of the gateway activities.

**Table 8. Total Annual Impacts of the Greater Vancouver Pacific Gateway on the Economy of British Columbia, 2012**

Transportation System	Jobs	Wages (\$b)	GDP (\$b)	Output (\$b)
<b><u>MARITIME</u></b>				
Direct Effect	38,200	2,175.0	3,080.0	9,710.0
Indirect Effect	35,087	1,749.0	2,413.0	8,119.0
Induced Effect	19,787	754.3	1,647.0	6,360.0
<b>Total</b>	<b>93,075</b>	<b>4,679.0</b>	<b>7,140.0</b>	<b>24,189.0</b>
<b><u>AVIATION</u></b>				
Direct Effect	23,760	1,675.0	2,500.0	7,835.0
Indirect Effect	19,741	1,120.0	1,848.0	5,063.0
Induced Effect	10,827	526.5	1,305.0	4,587.0
<b>Total</b>	<b>54,328</b>	<b>3,321.0</b>	<b>5,653.0</b>	<b>17,485.0</b>
<b><u>TRUCK</u></b>				
Direct Effect	16,911	716.2	1,148.3	2,727.0
Indirect Effect	7,342	319.4	671.1	1,811.0
Induced Effect	4,250	154.7	519.2	1,970.0
<b>Total</b>	<b>28,502</b>	<b>1,190</b>	<b>2,339.0</b>	<b>6,508.0</b>
<b><u>RAIL</u></b>				
Direct Effect	3,113	238.3	474.1	748.7
Indirect Effect	2,137	132.5	145.1	290.6
Induced Effect	1,287	63.4	112.3	479.6
<b>Total</b>	<b>6,537</b>	<b>434.2</b>	<b>731.5</b>	<b>1,519.0</b>
<b><u>ALL MODES</u></b>				
Direct Effect	81,984	4,805.0	7,203.0	21,020.0
Indirect Effect	64,307	3,321.0	5,077.0	15,284.0
Induced Effect	36,151	1,499.0	3,583.0	13,397.0
<b>Total</b>	<b>182,442</b>	<b>9,625</b>	<b>15,863</b>	<b>49,701</b>

*Source: BC Stats, Port Metro Vancouver, Vancouver International Airport, calculations by EDR Group.*

The total impacts represent increases of over 21,000 jobs and roughly \$2 Billion of GDP since 2007 (after adjustment for inflation), as shown in Table 9.

**Table 9. Change in Total Annual Impacts on British Columbia, 2007 to 2012  
(adjusted for inflation)**

Transportation System	Jobs	GDP (\$m)	Output (\$m)
Maritime	14,442	0.132	7,374
Air	6,679	1,.33	10,452
Truck	1,447	0.357	2,044
Rail	-1,336	-0.044	33
<b>All Modes</b>	<b>21,232</b>	<b>1.977</b>	<b>19,903</b>

Source: Year 2012 values from Table 6; Year 2007 values from “The Economic Role of the Gateway Transportation System in the Greater Vancouver Region” (EDR Group 2008)

## 5.3 Economic Impacts by Municipality

Economic impacts of the Greater Vancouver Gateway extend to all of the municipalities in the Greater Vancouver region due to the locations of employment and residences of workers whose jobs are supported by the Gateway. This study examined the employment locations of marine port, airport, and associated rail and truck facilities. It also used Census data on the location of employment in other affected industries, and commuting flow data to identify the pattern of residential locations for those workers. The residential locations are relevant insofar as workers tend to spend some of their wages on retail and services in their home communities.

Table 10 shows estimated results in terms of the locations (municipalities) where direct, indirect and induced job impacts occur. As expected, the annual direct jobs are clustered in municipalities where transportation facilities operate (e.g., Richmond for Vancouver International Airport, and the City of Vancouver for the marine ports). Also taken into account are the location of supporting jobs in rail, trucking and generalized freight. Indirect jobs represent those supported by supplying the transportation facilities and operations. As a result, they tend to be more concentrated in major business centers. Induced jobs are more evenly distributed than the direct and indirect jobs since they are estimated based on where workers live—under the assumption that most of their spending occurs in relatively close proximity to home. Table 11 shows the corresponding impacts on total wage income, GDP, and output (as well as employment) by municipality.

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**Table 10. Job Impacts, by Municipality in Greater Vancouver, 2012**

Municipality	Direct	Indirect	Induced	TOTAL
Anmore	0	14	13	27
Belcarra	0	12	4	16
Bowen Island	0	56	0	56
Burnaby	2,005	7,315	3,017	12,337
Coquitlam	907	2,353	1,248	4,508
Delta	13,776	2,541	2,218	18,534
Langley City	401	936	340	1,677
Langley DM	2,000	2,685	1,345	6,029
Lions Bay	0	13	4	17
Maple Ridge	185	1,162	571	1,918
New Westminister	1,900	1,477	768	4,145
N. Vancouver City	1,005	1,616	613	3,235
N. Vancouver DM	2,993	1,411	905	5,309
Pitt Meadows	237	290	212	739
Port Coquitlam	3,657	1,192	1,153	6,002
Port Moody	124	445	287	855
Richmond	27,744	6,65	7,237	41,633
Surrey	6,317	8,42	6,176	20,913
Vancouver	9,153	21,32	7,706	38,182
West Vancouver	5,416	82	401	6,641
White Rock	62	358	1267	547
<i>Greater Vancouver Total</i>	<i>77,884</i>	<i>61,092</i>	<i>34,344</i>	<i>173,320</i>
<i>Elsewhere in BC</i>	<i>4,100</i>	<i>3,215</i>	<i>1,807</i>	<i>9,122</i>
<b>BC Total</b>	<b>81,984</b>	<b>64,307</b>	<b>36,151</b>	<b>182,442</b>

Source: calculations by EDR Group based on data from: BC Stats; Port Metro Vancouver; Vancouver International Airport; Stats Canada: 2011 National Household Survey: Commuting Flow Data, Census Subdivisions, 2011.

**Table 11. Total Annual Economic Impacts by Municipality, 2012**

Municipality	Jobs	Wages (\$m)	GDP (\$m)	Output (\$m)
Anmore	27	1.3	2.4	8.7
Belcarra	15	0.8	1.3	4.7
Bowen Island	56	2.9	4.4	15.6
Burnaby	12,337	596.0	1,019.0	3,303.0
Coquitlam	4,508	212.0	370.0	1,119.0
Delta	18,534	996.0	1,537.0	4,665.0
Langley City	1,677	80.5	137.3	395.0
Langley DM	6,029	283.0	486.0	1,294.0
Lions Bay	17	0.8	1.4	5.2
Maple Ridge	1,918	92.0	160.3	535.0
New Westminister	4,145	217.0	364.6	1,076.0
N. Vancouver City	3,235	166.0	270.5	916.0
N. Vancouver DM	5,309	280.0	445.5	1,457.0

Continued on next page

**Table 11 Continued**

<b>Municipality</b>	<b>Jobs</b>	<b>Wages (\$m)</b>	<b>GDP (\$m)</b>	<b>Output (\$m)</b>
Pitt Meadows	739	37.6	64.9	203.6
Port Coquitlam	6,002	334	581.0	1,568.0
Port Moody	855	40.1	71.7	229.9
Richmond	41,633	2,458.0	3,941.0	12,567.0
Surrey	20,913	995.0	1,788.0	4,936.0
Vancouver	38,182	1,957.0	3,237.0	11,016.0
West Vancouver	6,641	367.6	541.5	1,756.0
White Rock	547	26.4	44.9	146.8
<i>Greater Vancouver Total</i>	<i>173,320</i>	<i>9,144</i>	<i>15,070</i>	<i>47,216</i>
<i>Elsewhere in BC</i>	<i>9,122</i>	<i>481</i>	<i>793</i>	<i>2,485</i>
<b>BC Total</b>	<b>182,442</b>	<b>9,625</b>	<b>15,863</b>	<b>49,701</b>

Source: calculations by EDR Group based on data from: BC Stats; Port Metro Vancouver; Vancouver International Airport; Stats Canada: 2011 National Household Survey: Commuting Flow Data, Census Subdivisions, 2011.

## 5.4 Fiscal Impacts

As a consequence of its direct and wider economic impacts, the Greater Vancouver Gateway also supports tax revenues for local, provincial, and federal levels of government. This analysis focuses on three types of taxes: property, income, and sales (PST, GST). Tax revenue impacts were calculated for all levels of government, but only tax revenues generated by households and businesses within BC were counted.

### ***Municipal Property Taxes***

Businesses and homeowners are responsible for paying property taxes to local municipal governments. Estimates of the municipal property tax impact are based on the locations of Gateway-related businesses, their suppliers and recipients of their worker spending, as well as the residential location of workers at those businesses. Altogether, it is estimated that the Greater Vancouver Gateway supports the generation of nearly \$650 Million of annual property taxes paid in the Greater Vancouver region. (See Table 12.)

**Table 12. Annual Property Tax Impacts by Municipality, 2012**

<b>Municipality</b>	<b>Property Tax Revenues Generated Annually (\$ Millions)</b>
Anmore	0.3
Belcarra	0.1
Bowen Island	0.0
Burnaby	49.6
Coquitlam	25.4
Delta	70.1
Langley City	5.5

*Continued on next page*

**Table 12 Continued**

<b>Municipality</b>	<b>Property Tax Revenues Generated Annually (\$ Millions)</b>
Langley DM	25.0
Lions Bay	0.1
Maple Ridge	10.3
New Westminster	15.6
N. Vancouver City	11.4
N. Vancouver DM	25.7
Pitt Meadows	4.1
Port Coquitlam	24.0
Port Moody	6.1
Richmond*	115.1
Surrey	86.9
Vancouver	153.4
West Vancouver	18.1
White Rock	3.0
<b>Greater Vancouver Total</b>	<b>649.8</b>

*Source: Statistics Canada and Table 11 data. Calculations by EDR Group. Note: Property tax revenues were estimated based on the location of jobs and worker residences, and actual taxes paid by private operators. The value of taxes collected from residents was allocated to municipalities based on the home locations of workers. The value of taxes collected from businesses was allocated to municipalities based on workplace locations.*

### **Income and Sales Taxes**

The Greater Vancouver Gateway also generates income and sales tax revenues for both federal and provincial governments. Corporate and personal income taxes are levied on businesses and individuals, who also pay the “GST” (federal goods and services tax) and “PST” (provincial sales tax) as a result of their purchases of goods and services. Both income tax and sales tax revenues are generated as a consequence of the added household income, business income and spending that is generated by the Greater Vancouver Gateway activities. As shown in Table 13, annual revenue impacts are estimated to be on the order of \$1.8 Billion for federal revenues and \$1.0 Billion for provincial tax revenues.

**Table 13. Annual Income Tax Impacts, 2012**

<b>Impact</b>	<b>Federal (\$ Millions)</b>	<b>Provincial (\$ Millions)</b>
Corporate Income Tax	334.2	161.5
Personal Income Tax	1,187.2	525.0
Total: All Income Taxes	1,521.4	686.5
Sales Taxes (GST, PST)	284.8	329.9
<b>Total All Income + Sales Taxes</b>	<b>1,806.2</b>	<b>1,016.4</b>

*Source: Statistics Canada and Table 8 data. Calculations by EDR Group. Note: income tax revenues estimated based on available budget data and a statistical analysis of effective provincial and federal tax rates per worker and per worker wages. Sales tax revenues estimated based on analysis of the ratio of spending and sales tax revenues per total GDP and worker wages.*

## 5.5 Capital Investments

There has been a continued pattern of private investment in facilities and equipment needed for the growth of marine port, airport, railroad and trucking/warehousing services. This includes construction of facilities and expansion of equipment by private companies, in addition to public infrastructure investments.

Private investment associated with the Greater Vancouver Gateway is difficult to isolate for two reasons. First, there is some capital investment in publicly-owned terminal facilities that is in fact supported by private investors. For instance, Port Metro Vancouver’s recent \$717 Million program of capital investment included a \$167 Million industry contribution. A portion of Vancouver International Airport’s continuing capital project program (which was \$186 Million in 2013) is also funded by private sector tenants and users. Secondly, some of the private investment in business facilities (such as warehouses and distribution centers) is partially in support of Gateway activities and partially in support of other business activities.

A more comprehensive source of information on capital investment is the Statistics Canada report on “evaluation of foreign and domestic capital expenditures, by province.” The most recent report, for 2011, indicates that the transportation industry in British Columbia had capital investments of over \$2.6 Billion in that year. (See Table 14.) Transportation and warehousing was one of the top three industry sectors in terms of total capital investment in BC in 2011, and it was second only to mining in terms of total foreign investment. The international nature of Gateway transportation facilities is also highlighted by the fact that foreign investment accounted for only 13 percent of all capital investment in BC, but over 28 percent of transportation capital investment in BC.

**Table 14. Capital Investment in British Columbia, 2011 (\$ Millions)**

Type of Investment	Domestic (\$ Millions)	Foreign (\$ Millions)	Total (\$ Millions)
Machinery & Equipment	1,087	138	1,225
Construction of Facilities	786	616	1,402
<b>Total Capital Investment</b>	<b>1,873</b>	<b>754</b>	<b>2,627</b>

Source: Statistics Canada.

## 6 CONCLUSIONS

The Greater Vancouver Gateway is a major generator of jobs and income for the Vancouver region and province of BC. Total direct, indirect and induced impacts on the economy amount to over 182,000 jobs and \$15.8 Billion of Gross Domestic Product. These economic activities also generate over \$1.8 Billion of annual federal tax revenues, and \$1.0 Billion of local and provincial income and sales tax revenues.

The Gateway has successfully weathered the 2008-2009 recession. Cargo activity (direct and indirect) fell from 2007 to 2009, but has now rebounded to exceed volumes prior to the recession. Greater Vancouver clearly benefits from the upsurge in trade between Canada and China, as well as trade between Canada, the US and other Pacific Rim partners.

With the overall expansion of trade, and the industries that support trade and transportation between Vancouver, the rest of Canada and the United States, the Gateway now generates 21,000 more jobs and \$2 Billion more in “real” GDP than it did in 2007.

The Gateway is also becoming more important to Greater Vancouver. In 2007, the direct, indirect and induced jobs generated by the Gateway accounted for 13.5 percent of the regional employment base, and by 2012 the Gateway accounted for 14.6 percent of the region’s jobs.