



(Client Ref: Requisition ID 45735)

Province of Nova Scotia

CPCS

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Acronyms / Abbreviations

Acronym	Name
APEC	Atlantic Provinces Economic Council
APTA	Atlantic Provinces Trucking Association
AOPS	Royal Canadian Navy's Arctic Offshore Patrol Ships
CAGR	Compound Annual Rates of Growth
CBCNS	Cape Breton and Central Nova Scotia Railway
CBRM	Cape Breton Regional Municipality
CETA	Canada-EU Comprehensive Economic and Trade Agreement (Free Trade Agreement)
CN	Canadian National Railway
CSC	Canadian Surface Combatant
CUSFTA	Canada-US Free Trade Agreement
EU	European Union
GDP	Gross Domestic Product
GMIA	Greater Moncton International Airport
HIAA	Halifax International Airport Authority
HPA	Halifax Port Authority
HSIA	Halifax Stanfield International Airport
IATA	International Air transport Association
LCV	Long Combination Vehicle
LNG	Liquefied Natural Gas
NAFTA	North American Free Trade Agreement
NHS	National Highway System
NS	Nova Scotia
NSBI	Nova Scotia Business inc.
NSPS	The National Shipbuilding Procurement Strategy
NJ	New Jersey
NY	New York
PPP	Purchasing Power Parity
PSDC	Port of Sydney Development Corporation
SCR	Sydney Coal Railway
TEU	Twenty Foot Equivalent Unit
TPP	Trans-Pacific Partnership Agreement
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
VIA	VIA Rail Canada
WHR	Windsor and Hantsport Railway
WTO	World Trade Organization
YQI	Yarmouth International Airport

Executive Summary

Recommended Gateway Strategy

Nova Scotia's gateway strategy should focus on enabling greater critical mass of traffic through the Province's primary gateway assets: the Port of Halifax and the Halifax Stanfield International Airport (HSIA). To this end, public policies, plans and investments should focus on incremental improvements to bolster the competitiveness of these gateways and associated corridors to inland markets. The Province should also prioritize trade promotion activities to help grow the regional freight market (exports and imports) and support Port of Halifax, HSIA and their partners' marketing efforts in overseas markets.

We recommend that investments in projects facing long term market uncertainties be left to private sector actors that are better able to plan for, manage and adapt to market risks. We recommend against public investments in the development of new or alternative marine gateways in Nova Scotia as this risks diluting critical mass of traffic through existing, underutilized Nova Scotia gateway facilities.

Key Study Question and Context

What should be the Province of Nova Scotia's strategy and associated policies, plans and investments to bolster the competitiveness and ensure the future of its international trade-related freight transportation system - notably its marine ports and airports?

This report seeks to address this question within the broader context of evolving global and North American freight transportation markets, the competitive position of Nova Scotia's marine ports and airports in these markets, and future challenges and opportunities for the Province in handling international cargo.

Key Conclusions

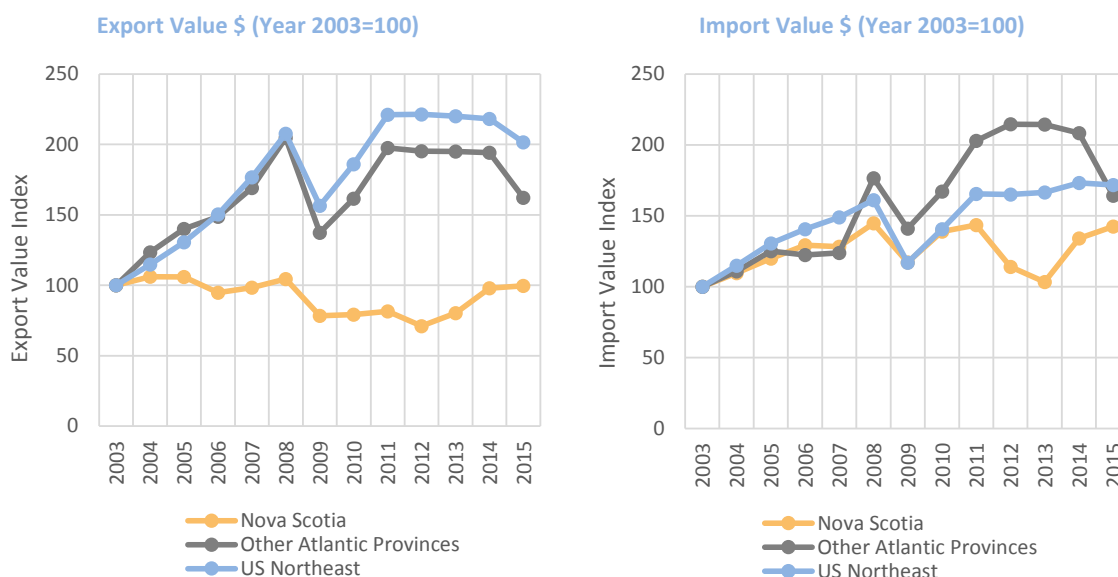
Nova Scotia's Share of International Trade Getting Smaller

World trade, including world merchandise trade specifically, continues to grow faster than global Gross Domestic Product (GDP). A growing share of this trade is with Asia.

Generally, Nova Scotia trade has not kept pace with global or regional growth in trade. Since 2000, the value of imports through Nova Scotia (including imports destined inland) has increased 1.6 times, while Nova Scotia export values (including exports originating inland)

Nova Scotia's gateways are losing market share.

have on the whole shown virtually no increase. By contrast, export values from the rest of Atlantic Canada and the US Northeast– the main competing region for Nova Scotia gateway traffic - have nearly doubled over that same period. Imports through the US Northeast have also outpaced imports through Nova Scotia, signifying that Nova Scotia's gateways are losing market share.



Source: CPCS analysis of Industry Canada Trade Data Online; US Census Bureau Trade Data Online. Data includes oil and gas sector trades.

Potential Gateway Opportunities

Opportunities for Nova Scotia's trade gateways include:

- The expected continued growth in the overall volume of world trade and specifically containerized trade, although the latter will likely slow somewhat as containerization continues to mature;
- The shifting focal point of world trade growth, supported by shifting future world population growth, from China, westward to mid-China, the Indian subcontinent, and South East Asia, representing increased marine trade potential via the Suez Canal;
- The growth in the number of bilateral and regional free trade agreements of which Canada is a partner, in particular the Canada-EU free trade agreement;
- The nearly \$130 billion of Atlantic Canada regional mega projects providing support to the regional and Nova Scotia economies and demand for use of Nova Scotia's gateways; and
- The growth in world demand for niche products sourced from Atlantic Canada such as live lobster, frozen seafood and frozen blueberries.

Global Transportation Trend: Bigger is Better

International trade infrastructure and service provision are highly capital intensive. A general trend across the international transportation industry has been one of increasing capital intensity, as asset owners seek to realize greater economies of scale and productivity to drive down operating costs and be more competitive globally. Specific examples in the maritime sector include the deployment of larger container ships and shipping line alliances, investment in marine port capacity, and the expansion of the Suez and Panama Canals. The air sector has likewise seen investment in larger hub airports and air service on the densest routes.

With increasing capital intensity comes an increasing commercial focus on driving up asset utilization to provide a return on capital. This is as much true for shipping lines, marine terminals, airlines, airports, and railroads. Simply put – transportation service providers will gravitate to where there is critical mass of traffic to maximize the utilization of their assets and drive up profitability. There are two drivers of critical mass – regional market and inland markets. The former is the most certain and generally viewed as the most valuable as it attracts both direct and feeder services.

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The Nova Scotia Challenge: Small Regional Market

Nova Scotia has world class trade infrastructure. The Port of Halifax, for example, can accommodate the largest container ships. The Halifax Stanfield International Airport (HSIA), can effectively accommodate international air cargo, and Nova Scotia also has good physical connections to inland markets by rail and road. These assets for the most part have significant excess capacity. Consultations confirmed that there are few physical constraints to accommodating trade flows through Nova Scotia for the foreseeable future.

Nova Scotia's primary challenge is its small regional market – a point we heard repeatedly in consultations. Nova Scotia is neither a major production center (beyond niche markets such as seafood, blueberries and tires) nor a major consumption center, given its small and declining population base. This is equally true of Atlantic Canada. The implication for the competitiveness of Nova Scotia's gateway assets is that local and regional (Atlantic Canada) markets, on their own, do not generate anywhere near the levels of traffic, and by extension the level of interest from shipping lines and airlines, as competing gateways, such as Montreal and New York that serve a larger immediate market, in addition to similar inland markets.

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Nova Scotia's Marine Gateway: Essential for Nova Scotia, but Discretionary for Shipping Lines

The Port of Halifax is Atlantic Canada's primary marine gateway – notably for container markets. Other Nova Scotia ports largely serve regional or transshipment markets – particularly relating to bulk and liquid bulk commodities, as distinct from a gateway function serving distant inland markets.

Over half of the container exports leaving the Port of Halifax originate in Atlantic Canada, making it an essential export gateway for the region. Conversely, less than 30 percent of containerized imports through the Port of Halifax are destined to Atlantic Canada, in large part due to the relatively small regional consumer market. A greater share of imports are destined to larger population centers in Central Canada and the US Midwest.

The long term growth in the regional container market in Atlantic Canada is expected to be modest, in large part due to modest regional economic and demographic growth prospects. Container traffic destined and originating in inland markets arguably represents a greater traffic opportunity for Nova Scotia, though this traffic is highly contested.

The Port of Halifax has a number of competitive attributes including proximity to major trade lanes, deep water, available capacity, port labour stability and lower port costs relative to many competing ports. The longer geographic distance to inland markets (relative to the Port of Montreal, for example), and associated land transportation costs are notable disadvantages. The competitiveness of the Port of Halifax to serve inland markets is significantly influenced by the competitiveness of CN rail rates and service. It has been suggested that CN has limited incentive to reduce rates or improve service as it faces no competition for inland rail business from Halifax (as distinct from the situation in Prince Rupert, for example, where CN indirectly competes for CP's business in Vancouver). It has also been suggested that increased service to and from Halifax could potentially negatively impact CN's overall operating ratio – a key industry metric of efficiency and financial performance – given lower traffic density to/from Halifax. It is our expectation that a reduction in rail rates to/from the Port of Halifax to more aggressively attract new business would mean an almost certain reduction in CN's short term profitability for an uncertain increase in future revenues and profit if the cargo materializes. CN seems to have taken a more conservative "show me the volume" position. In any case, the success for the Port of Halifax is highly dependant on CN.

Beyond inland rail service, many structural factors¹ are likely to influence Halifax's competitive position in the medium to longer term. These include the deployment of larger container ships, the expansions of the Suez and Panama Canals, the raising of the Bayonne Bridge (New York/New Jersey), and the consolidation of ocean carriers and alliances. The specific long term implications of these factors remain unclear, even to insiders in the container shipping business. Nevertheless, we expect that these factors will likely create headwinds for the Port of Halifax as shipping lines look to consolidate traffic in fewer ports that offer the greatest potential for critical mass of traffic and more profitable asset utilization. While the Port of

¹ As distinct from cyclical factors, such as exchange rates or global economic conditions.

Halifax could play a role in the resilience strategy of shipping lines, we believe the Port of Halifax is likely to remain a largely discretionary port. It is worth noting that larger ships do not generate more cargo but do generate more infrastructure requirement and more competition for the ships among ports.

There are private-sector led proposals to develop new container ports in Nova Scotia, namely the Melford Terminal at the Strait of Canso and the newly renamed Novaport development at the Port of Sydney. Proponents of these projects have argued that lower development and operating

costs as well as higher productivity could attract more gateway business through Nova Scotia. The feasibility of these proposals is, however, contingent on attracting the necessary container traffic volumes to generate these cost savings and remains speculative. It is our view that the current market would be unlikely to support more container ports in Nova Scotia. Certainly, there remains significant excess container capacity at the Port of Halifax to accommodate foreseeable organic growth. Certainly, new facilities risk diluting the volume that the Port of Halifax already has. It has also been suggested that this could potentially send conflicting signals to the shipping line industry about the future of Nova Scotia's marine gateway.

The current market would be unlikely to support more container ports in Nova Scotia. Certainly, there remains significant excess container capacity at the Port of Halifax to accommodate foreseeable organic growth.

Perhaps telling, both proposed new container terminal projects have yet to announce specific information regarding securing shipping line commitments, a terminal operator, or financing.

Nova Scotia's Air Gateway: A Regional Hub

Halifax Stanfield International Airport is the regional hub for passengers and air cargo. Other Nova Scotia airports, including airports in Sydney and Yarmouth, are not set up to be air cargo gateways, nor do we think there is a business case to do so.

As with marine ports, airport competitiveness is underpinned by a critical mass of population and economic activity around the airport.

In Canada, passenger aircraft belly cargo dominates the air cargo market. This puts airports in major population centers, or major international air hubs such as Toronto or Montreal, at a competitive advantage in attracting air cargo activity relative to smaller regional airports. Air freighter (i.e. freight only) service also tends to favour airports in proximity to major population centers. There are examples of freighters serving smaller markets, including Halifax, but sustaining these services is challenging given the imbalance of inbound and outbound cargo. As with the HSIA, for example, there is significant demand for export air lift capacity to move product to overseas markets – particularly live lobster and other seafood, but there is limited corresponding demand for inbound traffic meaning that freighters must look elsewhere for inbound traffic. A case in point is the Korean Air freighter service, recently expanded to two times per week, which first serves Chicago before heading to HSIA to load

seafood for export. Attracting more outbound freighter air lift capacity is largely contingent on air carriers finding additional inbound cargo. Until then, most of Nova Scotia live lobster exports (about 80 percent in 2015) will continue to be trucked to larger airports (e.g. Boston, Montreal, Toronto) for onward export to overseas markets by air.

Recommended Gateway Strategy: Focus on Enabling Critical Mass through Existing Gateways

Province of Nova Scotia policies, plans and investments should favour a concentration of trade flows through as few gateway facilities as possible, to enable greater critical mass, and greater asset utilization of existing facilities.

From the perspective of Nova Scotia's marine gateways, we recommend that public policies, plans and investments prioritize improvements that support the competitiveness of the Port of Halifax as Nova Scotia's and Atlantic Canada's primary marine gateway for containerized trade. Certainly, we recommend against public investments in new or alternative marine gateways in Nova Scotia for container traffic.

From the perspective of Nova Scotia's air gateway, we likewise recommend that public policies, plans and investments prioritize measures that will drive traffic through the existing air gateway at HSIA.

To do this, we recommend:

Trade promotion and marketing support: Any public initiative that could facilitate more trade through Nova Scotia would positively contribute to critical mass of traffic through the Port of Halifax and/or HSIA. Specific initiatives could include: regional trade promotion activities that could drive greater exports from Nova Scotia to international markets, or attract regional investment that could bolster imports bound for the region; and, provincial support for Port of Halifax, HSIA and their partners' marketing efforts in overseas markets.

Incremental improvements falling within provincial jurisdiction: The Port of Halifax and HSIA both for the most part have significant available capacity and have strong competitive attributes, which should continue to be marketed broadly. There are nevertheless opportunities to improve the performance of these gateways and their access to inland corridors through incremental improvements. Measures to improve road access to/from the Halterm Container Terminal on Barrington St. and Lower Water St. in Halifax are notable examples. The development of a truck lane in the rail cut from the Halterm Container Terminal is one option that has been discussed as a means of improving truck flows into and out of the Halterm Container Terminal. Additional temperature controlled air cargo capacity at the HSIA, as and when market demand so justifies, is another incremental improvement opportunity.

Bottom Line: We recommend that provincial *gateway* policies (as distinct from broader transportation policies) focus on and around Nova Scotia's two existing gateways – the Port of Halifax and the HSIA – and on incremental improvements falling within provincial jurisdiction that can positively influence the competitiveness of these existing gateways and their associated corridors. In fairness, this may not be materially different than what the Province is doing today.

1 Introduction

Key Chapter Takeaway

What should be the Province of Nova Scotia's strategy and associated policies, plans and investments to bolster the competitiveness of its international trade-related freight transportation system - notably its marine ports and airports?

This report seeks to address this question within the broader context of evolving global and North American freight transportation markets.

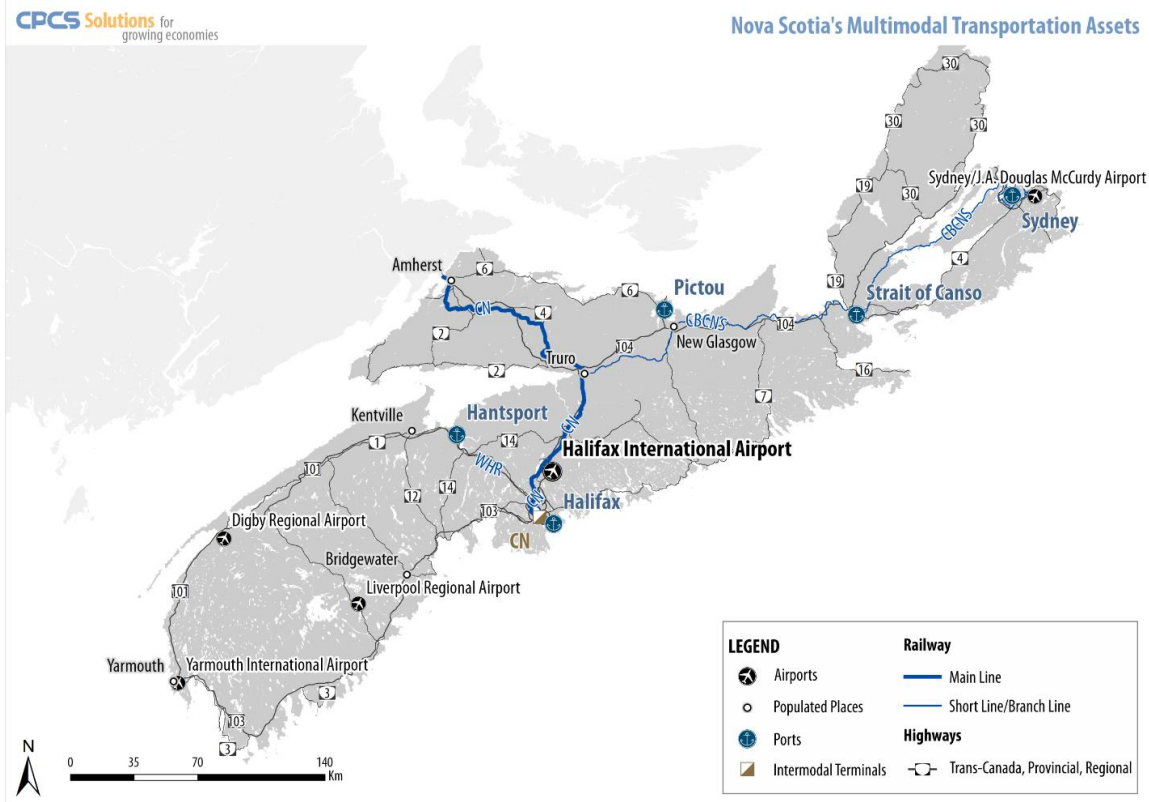
1.1 Project Background

The Nova Scotia transportation system, and in particular its key trade-related “gateway” assets, are essential to the Province’s economy and also supports regional and national trade more broadly. Importantly, the global transportation context has changed markedly since Nova Scotia developed its previous Gateway Strategy in 2006. Container ships, for example, continue to get larger although the industry is plagued with overcapacity. Shipping line strategies and routings are changing, in part due to the Suez Canal and Panama Canal expansions. North American railways continue to focus on improving asset utilization, and the trucking industry continues to struggle with long standing issues including the driver shortage. The Canada-EU Comprehensive Economic and Trade Agreement (CETA) is expected to influence trade to and from Canada with significant potential for Nova Scotia. Energy prices, a key transportation cost input, and driver of oil and gas development activities, have dropped dramatically. At the same time, the world economy is once again plagued by sluggish growth and depressed commodity prices, and currencies including the Canadian dollar have undergone sharp realignments. These are some of the major factors that will create both opportunities and challenges for Nova Scotia’s gateway assets.

The functional question is where and how should Nova Scotia focus its efforts and invest to bolster and sustain the competitiveness of its trade-related freight transportation system? And what should be the Province’s related strategy, policies and plans? The answers to these questions should reflect the relevant global transportation trends and related challenges and opportunities for the Nova Scotia’s trade-related transportation system, and should seek to properly position the Province’s transportation sector within this context.

It is the aim of this project to answer these questions, and to ultimately provide strategic direction for the Province’s policies, plans and investments with respect to its trade-related transportation system.

Figure 1-1: Nova Scotia Transportation System



1.2 Objectives

The overall purpose of this project, as stated in the *Statement of Work*, is to provide:

“an overview of global transportation cargo trends, as well as future directions, and will position the assets and the capacity of the Nova Scotia transportation sector within this larger framework and [to identify] the challenges and opportunities for the sector”

The study is to provide a high level strategy to inform decisions on future investments, policies and plans to bolster the competitiveness of Nova Scotia’s trade related gateway assets.

1.3 Methodology

The information contained in this report was developed through a combination of desk research and stakeholder consultations. Appendix A provides a list of organizations consulted.

1.3.1 Limitations and Opinions

Part of the information used to develop this report was obtained or provided by third parties. While CPCS has endeavoured to verify this information where possible, CPCS cannot warrant the accuracy of third party information or data.

Unless otherwise stated, the opinions herein are those of the authors and do not necessarily reflect the views of the Province of Nova Scotia.

2 Global and Regional Trade Trends

Key Chapter Takeaway

Though world trade continues to outpace global GDP growth, trade to, from and through Nova Scotia has not kept pace with global or regional growth in trade.

Potential opportunities for Nova Scotia's trade gateways include: i) the shifting focal point of world trade growth from China westward to mid-China, India, and South East Asia (by marine, more likely to use the Suez Canal); ii) the pending Canada-EU Free Trade Agreement; iii) regional mega projects; and iv) continuing growth in world demand for niche products from Atlantic Canada.

2.1 Evolving Global Trade Trends and Transportation Patterns

2.1.1 Global Trade Trends Since 2000

Global merchandise trade began to grow rapidly in the 1970s and, as measured by value, continued growing exponentially until the global recession and financial crisis of 2008-2009. This growth in trade has been greater than the growth in global GDP, especially after 1990 when global exports began surging along with the rapid industrialization in developing countries and massive offshoring of manufacturing, particularly after China joined the WTO in 2001.² To a large extent this growth in trade has been enabled by containerized transport.³

Merchandise Trade

Figure 2-1 shows the trend in the value of world merchandise trade and GDP since 2000. As these are indices in current dollars, the lines reflect both quantities and prices, with changes in prices especially impacting merchandise trade and contributing to its greater volatility.

As is evident, growth in world trade has continued to exceed that of GDP since the beginning of the century, both before and after the 2008-2009 recession. Between 2000 and 2008, the

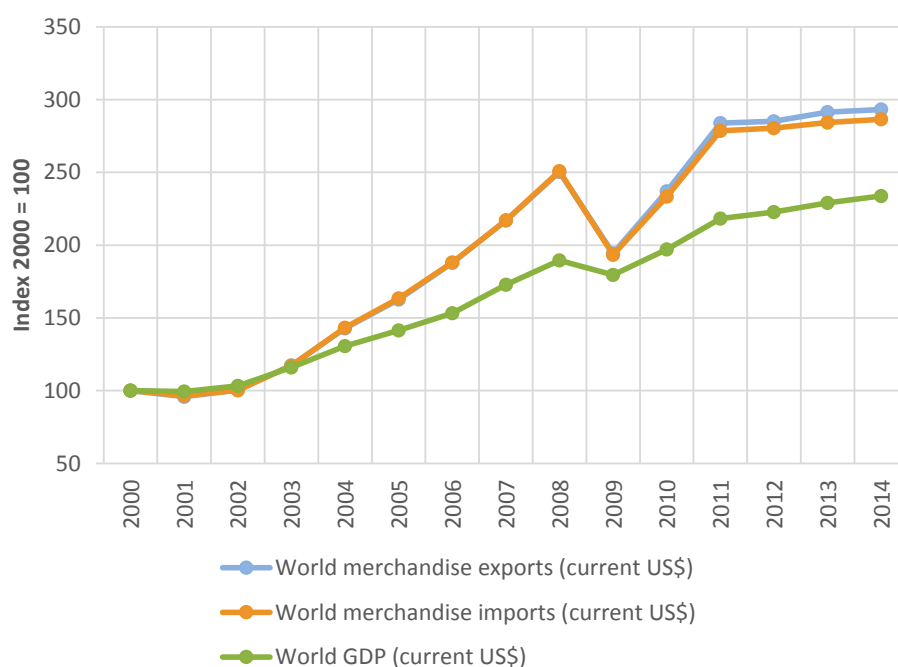
²Jean-Paul Rodrigue, *World Merchandise Trade, 1960-2013*, The Geography of Transport Systems at <https://people.hofstra.edu/geotrans/eng/ch5en/conc5en/worldexports.html>.

³The Economist, *Why have containers boosted trade so much?* (May 21, 2013) at <http://www.economist.com/blogs/economist-explains/2013/05/economist-explains-14>.

value of world exports and imports grew at compound annual rates⁴ of 12.1 and 12.2 percent, respectively, while GDP grew 8.3 percent annually. Growth in trade and GDP have, however, slowed significantly since the recession. Between 2009 and 2014, the values of world exports and imports grew 8.6 percent and 8.2 percent, respectively, while GDP grew 5.4 percent annually.

Also evident is that, since 2010, the growth in the value of trade and the growth in GDP have slowed further and have nearly converged. Between 2010 and 2014 (i.e. excluding the bounce back in GDP in the first year following the recession), the values of world exports and imports grew 5.5 percent and 5.3 percent, respectively, while GDP grew 4.4 percent annually.

Figure 2-1: World Trade and GDP Growth, 2000-2014



Source: CPCS analysis of World Bank World Development Indicators

Merchandise Exports Trends Since 2000

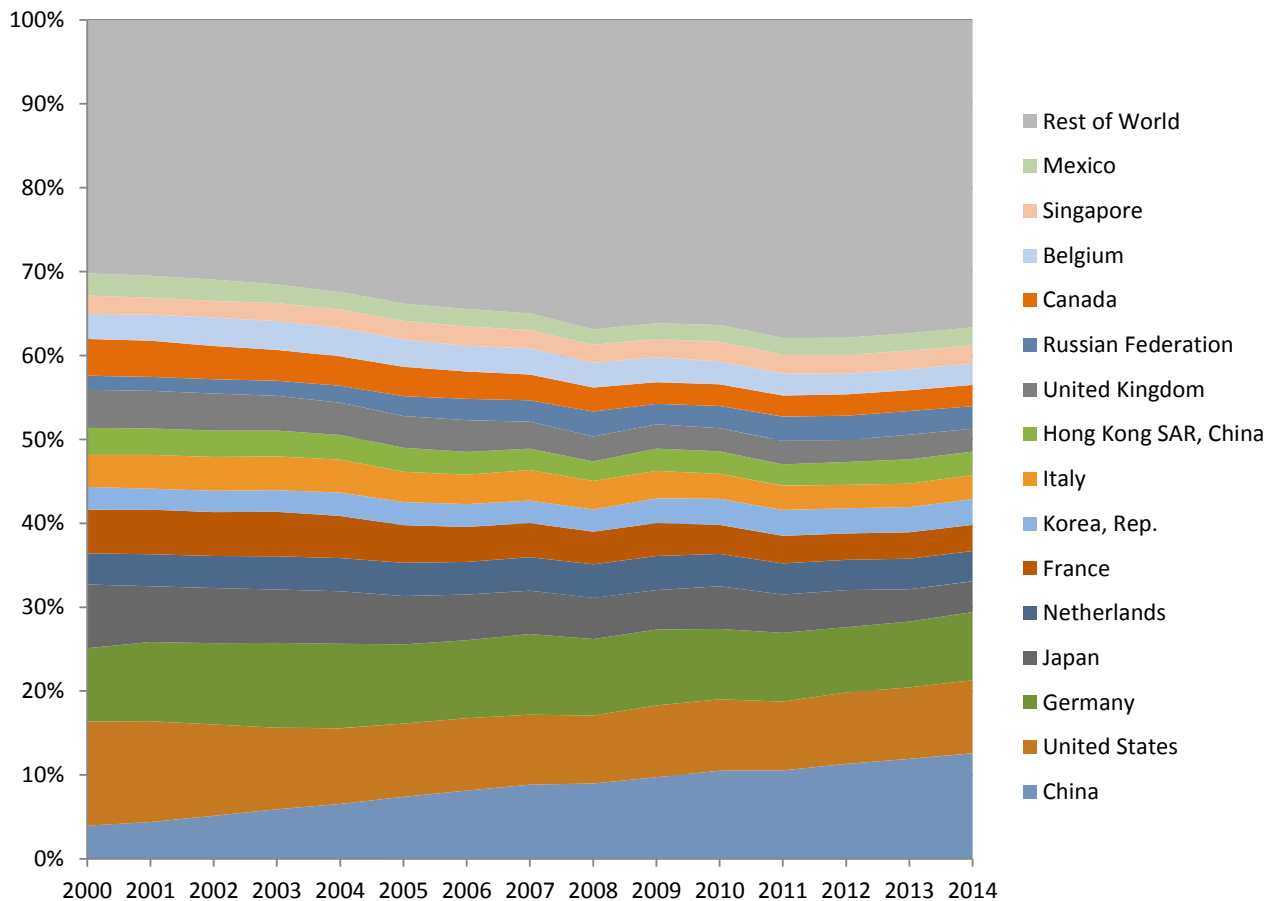
Figure 2-2 shows the evolution in the national shares of world exports, where the countries listed were the top fifteen exporters in 2014. In 2014, these top fifteen exporters accounted for 63.3 percent of world trade.

⁴Unless indicated otherwise, all annual rates of growth in this report are compound annual rates of growth (CAGR).

Not surprisingly, China's share has increased more than threefold from 4.0 percent in 2000 to 12.6 percent in 2014, while the share attributed to the rest of the world increased from 30.2 percent in 2000 to 36.7 percent in 2014. At the same time, the US share has decreased from 12.4 percent in 2000 to 8.7 percent in 2014. Other countries among the top fifteen whose shares have changed significantly include Japan (whose share decreased from 7.6 percent to 3.7 percent), France (whose share decreased from 5.2 percent to 3.1 percent), Italy (whose share decreased 3.8 percent to 2.8 percent), the UK (whose share decreased from 4.5 percent to 2.7 percent), Russia (whose share increased from 1.7 percent to 2.7 percent), and Canada (whose share decreased from 4.4 percent to 2.5 percent).

China's share of global trade has increased strongly. Led by the US decline, the G-7 share of global trade has been decreasing.

Figure 2-2: World Merchandise Exports Shares Top 15 Countries (2014)



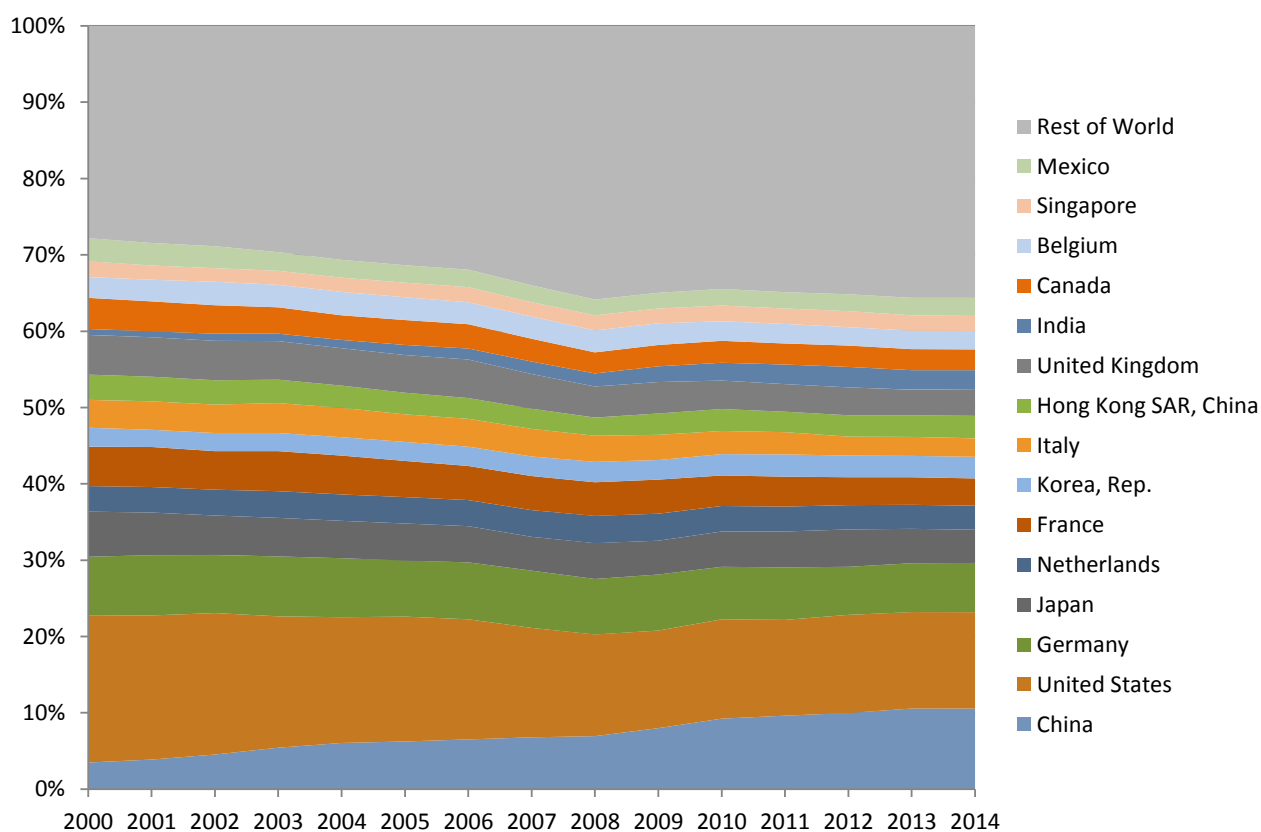
Source: CPCS analysis of World Bank World Development Indicators

Merchandise Imports Trends Since 2000

Figure 2-3 shows the evolution in the national shares of world imports, again where the countries listed were the top fifteen importers in 2014. The two sets of countries (exporters and importers) are identical except for India being among the top importers and Russia being among the top exporters. In 2014, the top fifteen importers accounted for 64.4 percent of world trade.

Similar to exports, China's share has increased threefold from 3.5 percent in 2000 to 10.6 percent in 2014, while the share attributed to the rest of the world increased from 27.8 percent in 2000 to 35.6 percent in 2014. Also significant, India's share more than doubled from 0.8 percent in 2000 to 1.7 percent in 2014. Also as with exports, the US leads the countries whose shares have declined. The US share of imports decreased from 19.2 percent in 2000 to 12.6 percent in 2014. Other countries among the top fifteen whose shares have changed significantly include Germany (whose share decreased from 7.8 percent to 6.5 percent), Japan (whose share decreased from 5.9 percent to 4.4 percent), France (whose share decreased from 5.1 percent to 3.6 percent), the UK (whose share decreased from 5.2 percent to 3.5 percent), Canada (whose share decreased from 4.1 percent to 2.7 percent), and Italy (whose share decreased from 3.7 percent to 2.4 percent).

Figure 2-3: World Merchandise Imports Shares Top 15 Countries (2014)

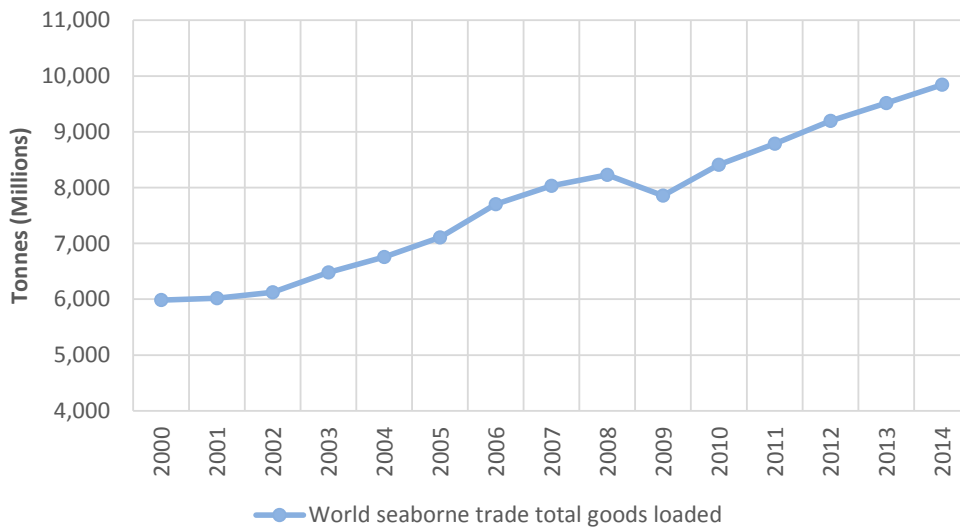


Source: CPCS analysis of World Bank World Development Indicators

Seaborne Trade

A further indication of the trend in global trade is provided by world seaborne trade, shown in Figure 2-4 in millions of tonnes. Seaborne trade accounts for about 90 percent of all the tonnage carried internationally.⁵ From 2000 through 2014, world seaborne trade increased approximately 1.6 times, from 5,984 million tonnes to 9,842 million tonnes. And similar to the value of merchandise trade, world seaborne trade has grown faster than GDP in real terms both before and after the 2008-2009 recession. Between 2000 and 2008, world seaborne trade grew 4.1 percent per year compared to 3.0 percent per year for world real GDP. Between 2009 and 2014, the difference was greater with world seaborne trade growing 4.6 percent per year compared to 2.8 percent per year for world real GDP. Between 2010 and 2014, world seaborne trade grew 4.0 percent per year compared to 2.4 percent per year for world real GDP.⁶

Figure 2-4: World Seaborne Trade Total Goods Loaded (tonnes)



Source: CPCS analysis, United Nations Conference on Trade and Development UNCTADSTAT

⁵Jean-Paul Rodrigue, *Modal Shares of World Trade by Volume and Value, 2008*, The Geography of Transport Systems at <https://people.hofstra.edu/geotrans/eng/ch5en/conc5en/modalsplittradetons.html>.

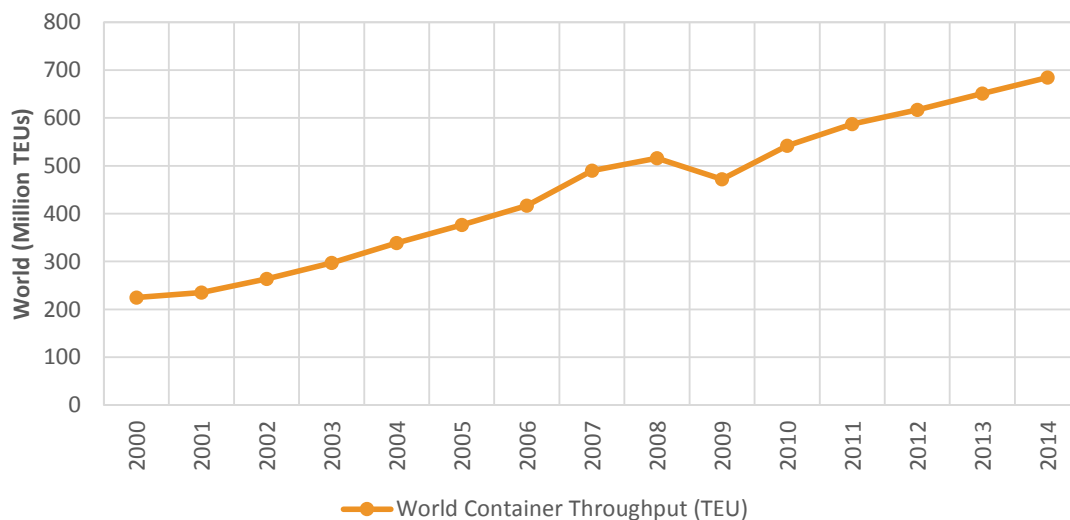
⁶CPCS analysis of United Nations Conference on Trade and Development UNCTADSTAT data. World GDP is in US dollars at constant 2005 prices and constant 2005 exchange rates.

Containerized Trade

Containerized services were first introduced and adopted for international use in the late 1950s and 1960s. Since then containerized services have grown exponentially. Growth has been especially strong since the 1990s with containerization enabling the reshaping of global trade patterns, logistics and manufacturing strategies. Although initially introduced as a way to improve the productivity of shipping, container services grew to become the basis for modally integrated supply chains and intermodal transportation networks on a global scale.⁷

Figure 2-5 shows containers handled at ports worldwide measured in terms of “throughput,” which counts handling at port of origin, destination and any transshipment. Over the period shown, container throughput has tripled, increasing from close to 225 million TEUs⁸ in 2000, to over 680 million TEUs in 2014.

Figure 2-5: World Container Throughput (TEUs)



Source: CPCS analysis of World Bank World Development Indicators (2000-2013); United Nations UNCTADSTAT (2014)

Between 2000 and 2008, when throughput peaked prior to the global recession, the growth in throughput averaged 11.0 percent per year. In comparison, growth in world real GDP over the same period averaged 3.0 percent per year (as already noted). Since 2009, growth in throughput has slowed sharply, averaging 7.7 percent annually. However, it has continued to outpace real GDP which grew on average 2.8 percent annually between 2009 and 2014 (as already noted). Finally, since 2010 (i.e. excluding the bounce back from the recession), growth in throughput has averaged 6.0 percent annually.

⁷Jean-Paul Rodrigue, *World Container Traffic and Throughput, 1980-2013 (millions of TEU)*, The Geography of Transport Systems at <https://people.hofstra.edu/geotrans/eng/ch3en/conc3en/worldcontainertraffic.html>.

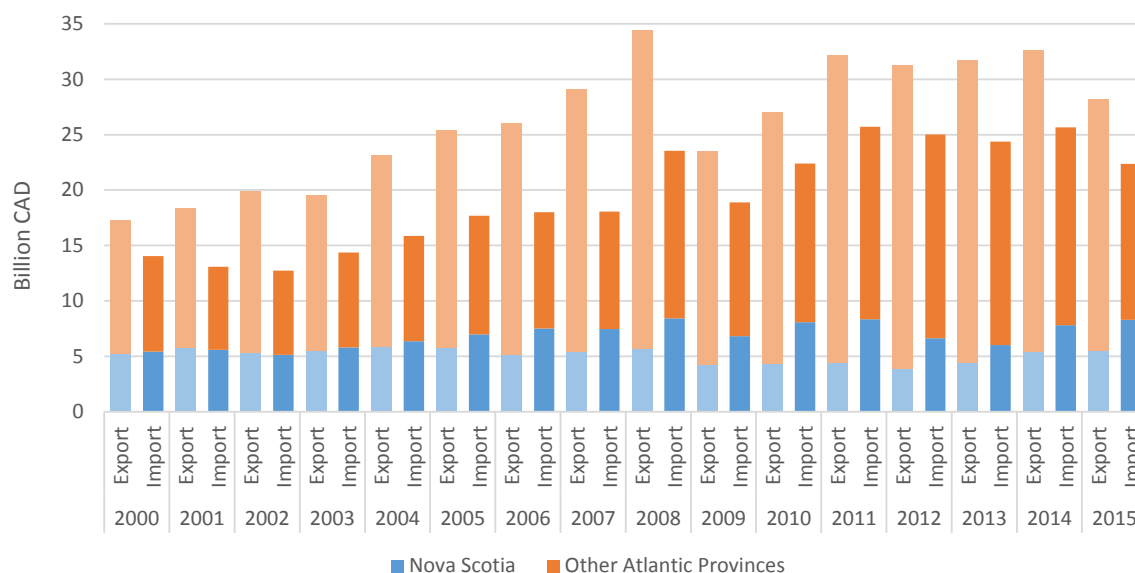
⁸ The TEU or twenty-foot equivalent unit is the standard unit of measurement for international containers.

2.2 Nova Scotia Trade Characteristics

2.2.1 Nova Scotia and Atlantic Canada Trade Trends

Figure 2-6 shows the trend since 2000 in the value of trade moving into and out of Nova Scotia and the rest of Atlantic Canada. These data include both (a) trade originating and terminating in Nova Scotia or the rest of Atlantic Canada as well as (b) trade transiting through Nova Scotia or the rest of Atlantic Canada and originating or terminating in other Canadian provinces. It is also important to note that these data include the oil and gas sector. Figure 2-7 shows these same trade values but excluding the oil and gas sector.

Figure 2-6: Atlantic Canada Trade, 2000-2015 (All Commodities)

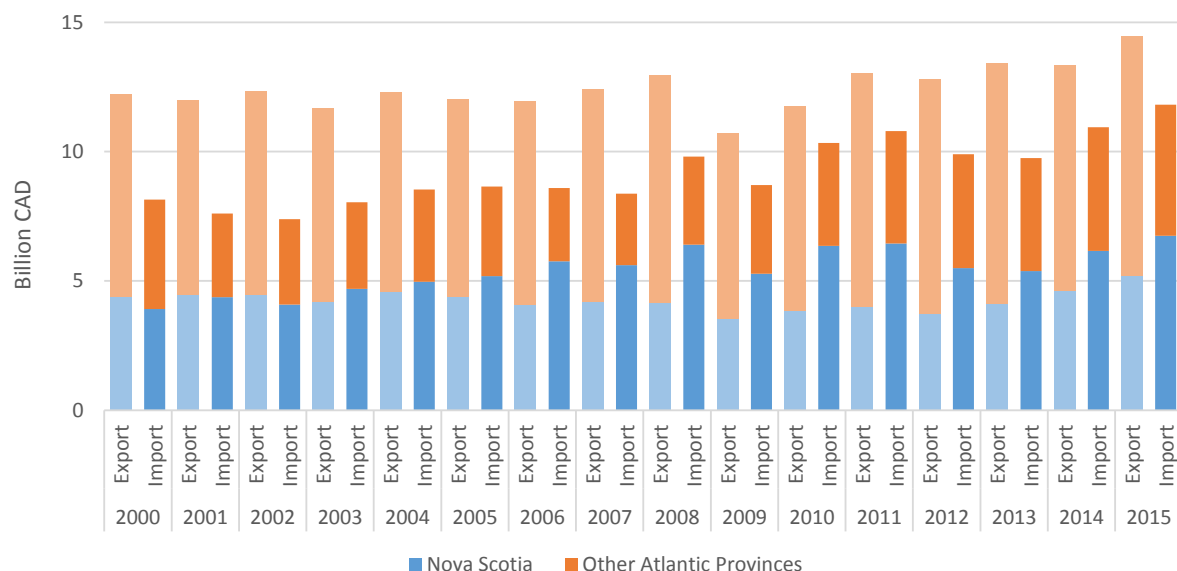


Source: CPCS analysis, Industry Canada Trade Data Online

Over the period 2000-2015, Nova Scotia imports have increased by 1.5 times from \$5.4 billion to \$8.3 billion, although cyclical declines may be observed in 2009 and 2012-2013. Imports peaked in 2008 at \$8.4 billion, and today are practically back to this level. Nova Scotia exports of \$5.5 billion in 2015 showed little change from the 2000 level of \$5.2 billion. Exports, however, declined sharply in 2009 coincidentally with the world recession and have shown signs of recovering only in the past two years. Similar to imports, exports peaked in 2008 at \$5.7 billion and today are almost back to this level.

For the rest of Atlantic Canada the picture is quite different. Although reflecting many of the same cyclical forces, the value of trade today is significantly higher than in 2000. Imports of \$14.1 billion in 2015 are 1.6 times the value of \$8.6 billion in 2000; exports of \$22.7 billion in 2015 are close to double the value of \$12.1 billion in 2000.

Figure 2-7: Atlantic Canada Trade, 2000-2015 (Excluding Oil and Gas)



Source: CPCS analysis, Industry Canada Trade Data Online

Excluding oil and gas, Nova Scotia trade occupies a position of much greater importance in Atlantic Canada trade. On the import side, and excluding oil and gas, Nova Scotia imports have since 2000 accounted for more than half of Atlantic Canada imports (57 percent in 2015). On the export side, and excluding oil and gas, Nova Scotia exports have since 2000 accounted for roughly one-third of Atlantic Canada exports (36 percent in 2015).

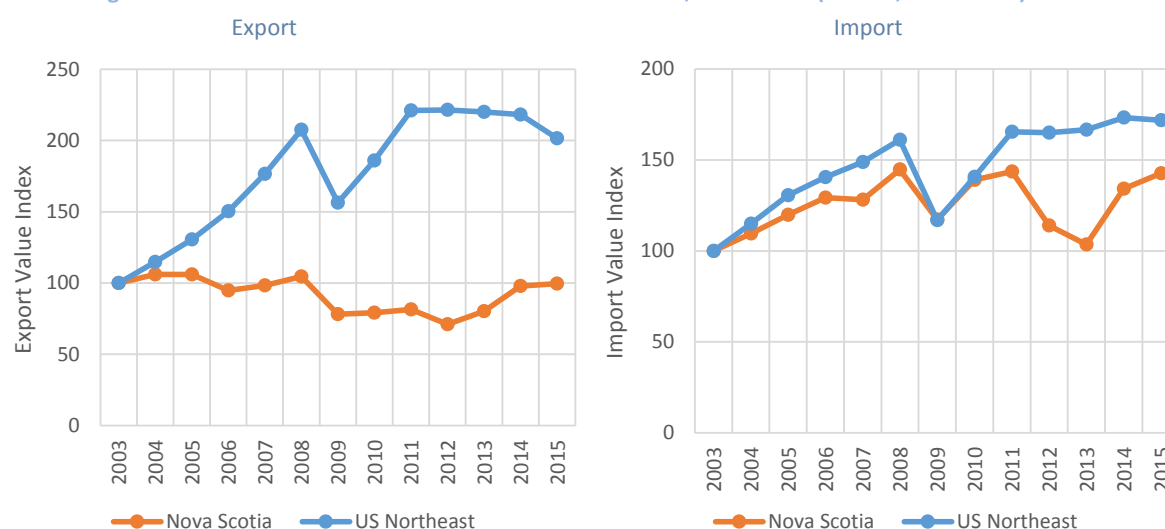
Over the period of 2000-2015, Nova Scotia imports excluding oil and gas have increased by 1.7 times from \$3.9 billion to \$6.8 billion, and are today higher than their pre-recession peak of \$6.4 billion in 2008. Nova Scotia exports excluding oil and gas have increased by 1.2 times from \$4.4 billion to \$5.2 billion. Nova Scotia exports excluding oil and gas were quite stable until 2009 when they declined with the world recession. Subsequently, they remained low through 2013, before increasing 12 percent in 2014 and 13 percent in 2015.

Over the period 2000-2015, Nova Scotia imports excluding oil and gas have increased by 1.7 times. Export volumes, excluding oil and gas, have largely remained flat over this same period.

2.2.2 Nova Scotia and US Northeast Trade Trends

Figure 2-8 compares Nova Scotia and US Northeast trade trends. This shows the growth since 2003 in the value of trade moving into and out of Nova Scotia and the US Northeast.⁹ Similar to the preceding comparison of Nova Scotia with Atlantic Canada, these data include both (a) trade originating and terminating in Nova Scotia or the US Northeast as well as (b) trade transiting through Nova Scotia or the US Northeast and originating or terminating in other Canadian provinces or US states, respectively. The data are presented as indices with 2003 = 100.

Figure 2-8: Growth in Nova Scotia and US Northeast Trade, 2003-2015 (Indices, 2003 = 100)



Source: CPCS analysis of Industry Canada Trade Data Online; US Census Bureau Trade Data Online

Most notable is the difference in the trends in exports in Nova Scotia versus the US Northeast. Overall, growth in Nova Scotia exports have basically been flat since 2003, although exports have in the past two years recovered from the effects of the 2008-2009 recession and its aftermath. As a result, the level of Nova Scotia exports today is virtually the same as in 2003. In contrast, US Northeast exports expanded rapidly along with the world economy up to 2008, before declining sharply in the recession. US northeast exports then recovered rapidly, and have since plateaued leaving them in 2015 at twice their value in 2003.

Nova Scotia exports today are virtually the same as in 2003. In contrast, US Northeast exports have doubled since 2003.

⁹ The US Northeast region includes the customs districts of Baltimore (MD), Boston (MA), New York City (NY), Norfolk (VA), Philadelphia (PA), Portland (ME), and Providence (RI).

Regarding imports, the Nova Scotia and US Northeast trends are similar through 2010 but then diverge, with Nova Scotia imports falling sharply before recovering in 2014-2015 while US Northeast imports increase slowly following a strong gain in 2011. As a result, Nova Scotia imports have not quite recovered to their 2008 pre-recession peak while US Northeast imports now slightly exceed the 2008 level.

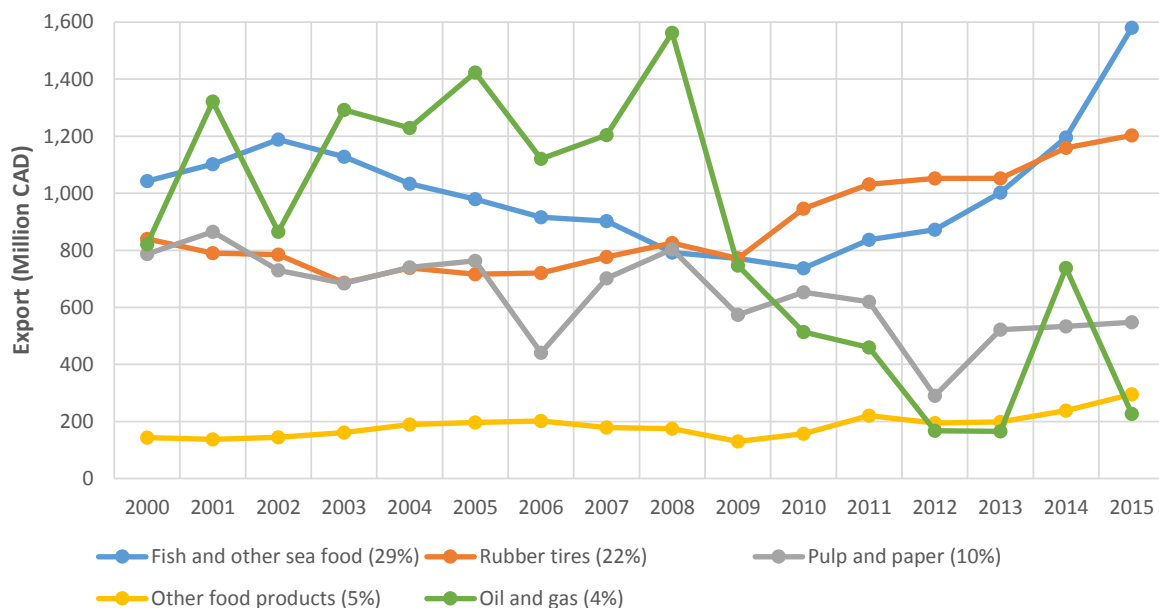
2.2.3 Nova Scotia Exports by Commodity and Country of Destination

Figure 2-9 shows the principal commodities exported from Nova Scotia by value, and their importance relative to total exports as of 2015.

In 2015, Nova Scotia's highest-valued exports were rubber tires, fish and other seafood and pulp and paper, which together accounted for 61 percent of the value of exports from Nova Scotia. This composition has changed significantly since 2008, when oil and gas accounted for 30 percent of total exports and rubber tires, fish and other seafood and pulp and paper together accounted for 46 percent of the value exports.

The value of fish and other seafood exports practically doubled from \$792 million in 2008 to \$1,580 million in 2015. Rubber tire exports increased almost 50 percent from \$825 million in 2008 to \$1,203 million in 2015. In contrast, the value of pulp and paper exports decreased from \$804 million in 2008 to \$548 million in 2015.

Figure 2-9: Top Five Commodities Exported from Nova Scotia (2015 percent of total exports in parentheses)

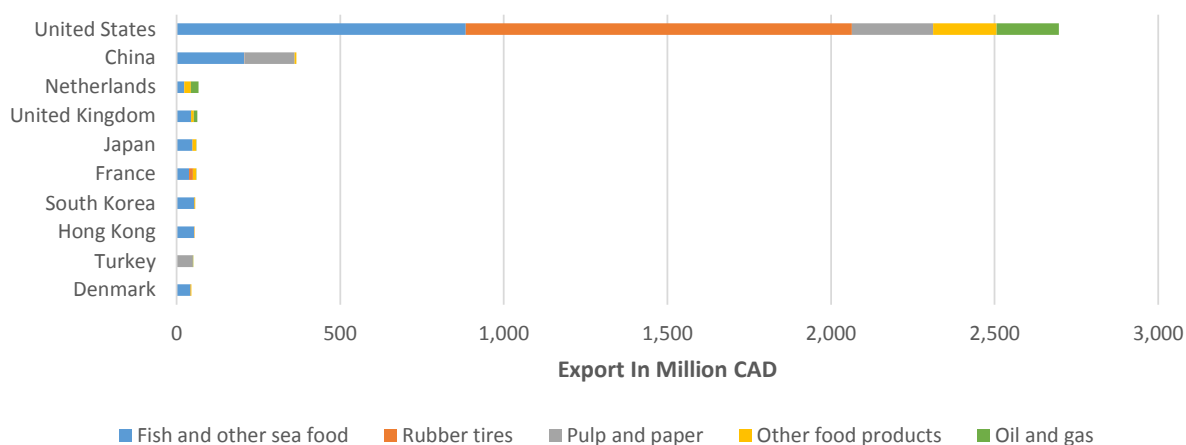


Source: Industry Canada Trade Data Online

Figure 2-10 shows the principal countries of destination for the top five commodities exported from Nova Scotia. In 2015, the US was by far the most important export destination, with exports of the top five commodities valued at \$2.7 billion and accounting for nearly half of the total value of exports from Nova Scotia. After the US, China, the Netherlands, the United

Kingdom, Japan, France, South Korea, Hong Kong, Turkey and Denmark were the top destinations for exports from Nova Scotia. Together, these nine countries accounted for approximately 15 percent of the total value of exports from Nova Scotia in 2015.

Figure 2-10: Top 10 Destination Countries for Commodities Exported from Nova Scotia, 2015



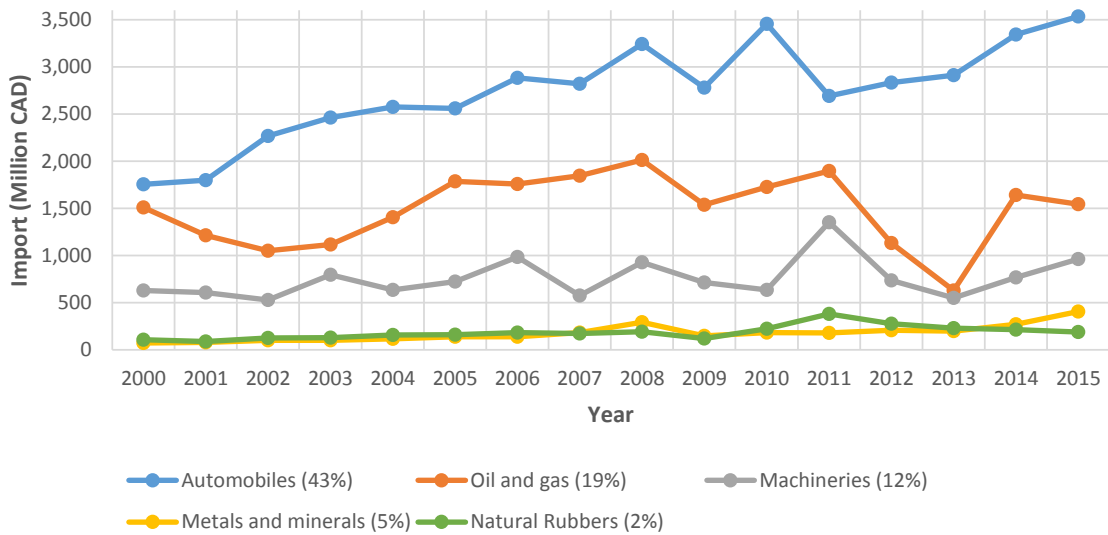
Source: Industry Canada Trade Data Online

2.2.4 Nova Scotia Imports by Commodity and Country of Origin

Figure 2-11 shows the principal commodities imported into Nova Scotia by value, and their importance relative to total imports as of 2015.

In 2015, Nova Scotia's highest-valued imports were automobiles, oil and gas and machinery, which together accounted for 74 percent of the value of imports into Nova Scotia. Over the period shown the value of automobile imports has doubled from \$1,755 million in 2000 to \$3,536 million in 2015. Oil and gas imports, while experiencing significant fluctuation, were about the same in 2015 (\$1,544 million) as in 2000 (\$1,511 million). Machinery imports, while also exhibiting variation, were 53 percent higher in 2015 (\$962 million) as in 2000 (\$629 million).

Figure 2-11: Top Five Commodities Imported into Nova Scotia (2015 percent of total imports in parentheses)

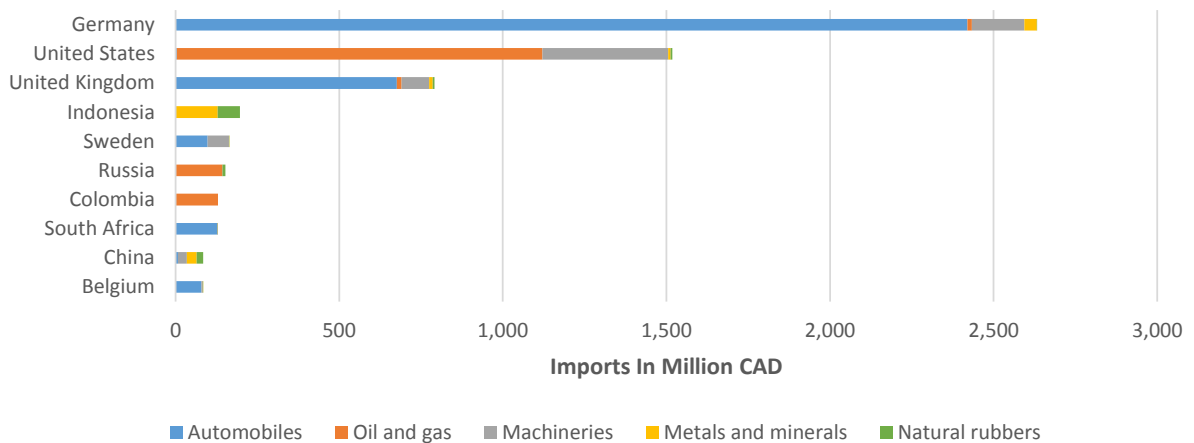


Source: Industry Canada Trade Data Online

Figure 2-12 shows the principal countries of origin for the top five commodities imported into Nova Scotia.

In 2015, Germany was the most important country of origin, with imports of the top five commodities, predominately automobiles, valued at \$2.6 billion and accounting for close to one-third of the total value of imports into Nova Scotia. After Germany, the US, the United Kingdom, Indonesia, Sweden, Russia, Colombia, South Africa, China and Belgium were the top origins for imports. Dominating the imports from these countries are the imports of oil and gas and machinery from the US, and the imports of automobiles from the United Kingdom. Together, these nine countries accounted for 39 percent of the total value of imports into Nova Scotia in 2015.

Figure 2-12: Top 10 Origin Countries by Imported Commodities, 2015



Source: Industry Canada Trade Data Online

2.3 Developments in Trade

2.3.1 Future Trade Trends and Transportation Patterns

The past year has seen forecasters progressively lower their expectations for world growth due to the ongoing slowdown in China as its economic activity shifts towards consumption and services, the prospect of rising interest rates in the United States, and the declines in world commodity prices that are weighing on commodity dependent countries. As a result the outlook for world trade has deteriorated, highlighted by the sharp falloff in emerging market imports in 2015.¹⁰

The question is what the current situation portends for international trade in the future. Falling import demand, lower commodity prices, exchange rate volatility and other risks will undoubtedly depress growth and trade in the short term. However, as indicated by world seaborne trade, the volume of trade has grown consistently at about 4 percent per year since 2000 (ignoring the year of recovery after 2009 when seaborne trade jumped 7.0 percent). Growth in the volume of trade at about 4 percent per year would therefore be a reasonable expectation for the next fifteen years.¹¹ Adding support to this is that world economic growth in the longer term should average around 3 percent per year and perhaps more.¹²

Considering containerization, this has been a driving force in increasing world trade since the 1980s, but containerized traffic has slowed markedly since the 2008-2009 recession. Since 2010, growth in containerized traffic has been at about half the rate experienced during 2000-2008. Many factors will influence how rapidly containerized trade grows in the future and the pace is likely to be slower than in recent decades as containerization continues to mature. Long term, however, growth in containerized trade is certain to continue. Regarding trade patterns, stakeholders consulted for this study including both those involved in marine and air transportation spoke about the focal point of world

The focal point of world trade growth is shifting from the established industrial areas of China to mid-China, India and South East Asia. For marine, this will mean more traffic through the Suez Canal.

¹⁰OECD, *Emerging market slowdown and drop in trade clouding global outlook* at <http://www.oecd.org/economy/emerging-market-slowdown-and-drop-in-trade-clouding-global-outlook.htm>.

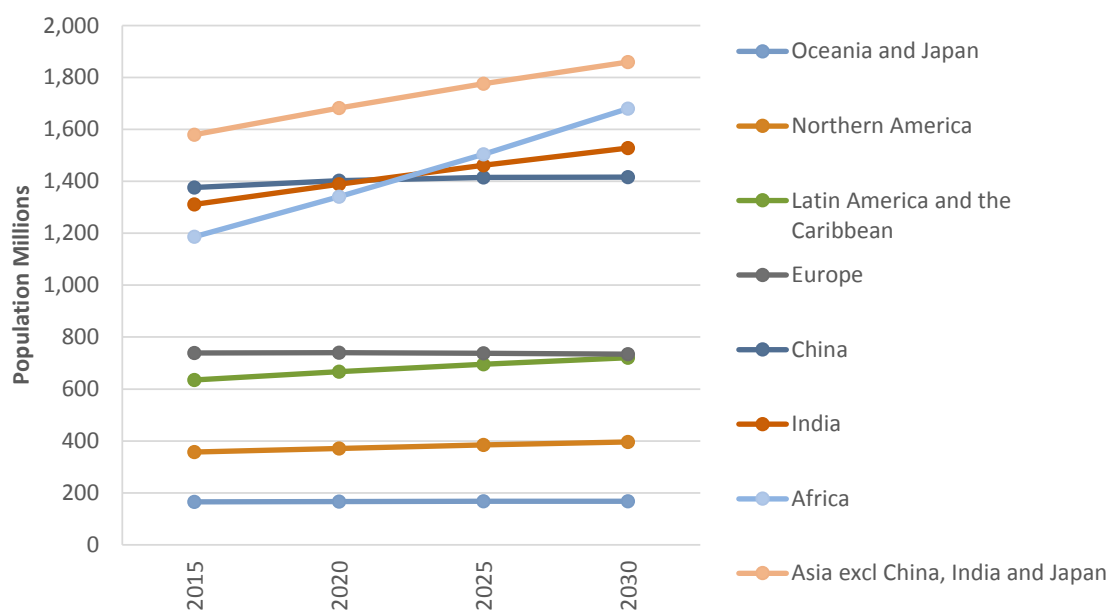
¹¹As well, the International Transport Forum, *ITF Transport Outlook 2015* (January 27, 2015) at <http://www.oecd.org/environment/itf-transport-outlook-2015-9789282107782-en.htm> projects trade related international freight to grow by a factor of 4.3 by 2050, equivalent to a compound annual rate of 3.7 percent per year.

¹²See, e.g., the International Transport Forum, *ITF Transport Outlook 2015*, the OECD, *Economic Outlook: Statistics and Projections, GDP long term forecast* at <https://data.oecd.org/gdp/gdp-long-term-forecast.htm> and The Conference Board, *Global Economic Outlook 2016* at <https://www.conference-board.org/data/globaloutlook/index.cfm?id=27451>. The IMF World Economic Outlook estimates world real GDP growth somewhat higher at between 3 - 4 percent through 2020; see *World Economic Outlook Update January 2016* at <https://www.imf.org/external/pubs/ft/weo/2016/update/01/index.htm> and World Economic Outlook Database October 2015 at <https://www.imf.org/external/pubs/ft/weo/2015/02/weodata/index.aspx>.

trade growth shifting from the established industrial areas of China to mid-China, India, Bangladesh, and the region south of China including Indonesia, Malaysia, Myanmar and Vietnam. For marine, this will mean more traffic through Suez.

As shown in Figure 2-13 future population growth corroborates this.

Figure 2-13: Projected Population by Region (millions)



Source: CPCS analysis of United Nations, *Probabilistic Population Projections based on the World Population Prospects: The 2015 Revision*, Median Prediction Interval

Total world population is projected to increase 1.0 percent annually between now and 2030.¹³ As seen in Figure 2-13, the vast majority of this growth will occur in India (19 percent), Asia excluding China, India and Japan (24 percent), and Africa (43 percent). India by itself will exceed China in population by 2025.

2.3.2 Free Trade Agreements

Starting with the implementation of the Canada-US Free Trade Agreement (CUSFTA) in 1989, trade liberalization agreements have played a key role in promoting Canada's trade and prosperity in recent decades. The Atlantic Provinces, which trade heavily with New England and the mid-Atlantic, benefited significantly from the CUSFTA and the subsequent North American Free Trade Agreement (NAFTA).¹⁴

¹³CPCS analysis of United Nations, *Probabilistic Population Projections based on the World Population Prospects: The 2015 Revision*, Median Prediction Interval at <http://esa.un.org/unpd/wpp/Download/Probabilistic/Population/>.

¹⁴Atlantic Provinces Economic Council, *Atlantic Canada adjusts successfully to free trade but challenges remain* (June 21, 2001) at <https://www.apec-econ.ca/about-us/news/view/?news.id=24>.

As noted by the *Canada Transportation Act Review*, since 2006 Canada has increased the number of trade agreements concluded with countries from 5 to 43. The latest are the entry into force of the Canada-Korea Free Trade Agreement, the conclusion of negotiations on the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and the Trans-Pacific Partnership Agreement (TPP). Canada has also recently enacted a Canada-China Foreign Investment Promotion and Protection Agreement. Canada and India entered the ninth round of negotiations for a Canada-India Comprehensive Economic Partnership Agreement in March 2015.¹⁵

Depending on firms' pursuit of these opportunities, the agreements offer significant potential for growth in traffic, especially exports, through Nova Scotia. For example, Nova Scotia's own fish and seafood exports to South Korea were already worth \$19.8 million annually (2010-2012) despite tariffs of up to 47 percent. The agreement with South Korea will create significant market opportunities for Nova Scotia's fish and seafood, as well as its exports of agricultural, beef, pork, and prepared foods.¹⁶ The agreement also creates significant opportunities for other Atlantic Provinces exports that transit through Nova Scotia.

Of the trade agreements that are at various stages of development, likely none will have as significant an impact on trade through Nova Scotia as CETA, which will improve access to the largest integrated market in the world.

Atlantic Canada Opportunities Under CETA

Of the trade agreements that are at various stages of development, it is likely that none will have as significant an impact on trade through Nova Scotia in the short-medium term as CETA, which will improve access to the largest integrated market in the world (population 500 million). However, the Atlantic Provinces Economic Council (APEC) points out how the EU is diverse and complex, and Atlantic exporters will need to be focused to succeed there. APEC identifies the main opportunities as follows:¹⁷

- In seafood, the EU is the world's largest market by value. Elimination of EU tariffs under CETA provides potential revenue gains of \$30-\$40 million for Atlantic seafood exporters.
- Refined petroleum is Atlantic Canada's largest EU destined manufactured export, but competition from low cost producers (US, India, Middle East) will limit Atlantic prospects.
- Already, the EU accounts for 40 percent of Atlantic Canada frozen blueberry exports. Key to demand growth will be increasing incomes in Eastern Europe and awareness of health benefits.

¹⁵Canada Transportation Act Review, *Pathways: Connecting Canada's Transportation System to the World*, Volume 2 — Appendices, p. 16.

¹⁶How the Canada-Korea Free Trade Agreement Will Benefit Nova Scotia at <http://www.international.gc.ca/trade-agreements-accords-commerciaux/assets/pdfs/ckftans-ne-eng.pdf>.

¹⁷Atlantic Provinces Economic Council, *EU Deal Opens Doors for Atlantic Canadian Manufacturers* (September 16, 2015) at <https://www.apec-econ.ca/about-us/news/view/?news.id=132>

- Pharmaceutical and diagnostic equipment firms will benefit from growing healthcare demands, but will need to navigate a fragmented market.
- Aerospace firms can benefit from increasing demand, but may need an EU partner or an on-the-ground presence.
- The EU market for wood products is sizable but largely self-sufficient, and demand is not expected to grow much in the near term. Niche markets for specialty products are possible.

Autoport Under CETA

CN Autoport could be a significant beneficiary of CETA. The agreement calls for a phased reduction in duties on a reciprocal basis which should help the growth of traffic. On the import side, Autoport could be the first stop for European manufacturers shipping products into North America, at least those destined for Canada and up to the limitations of Autoport's capacity or ability to expand. On the export side, Autoport currently has very little such traffic but this could change. It would depend, in part, on the extent to which Canadian plants produce models meant for the global market. In addition, Halifax currently has a shipping advantage to Europe for Canadian made vehicles as Montreal lacks space for vehicle exports. Any use of Montreal's land reserve is several years away, and may or may not include a vehicle terminal.

Maritime Services Under CETA

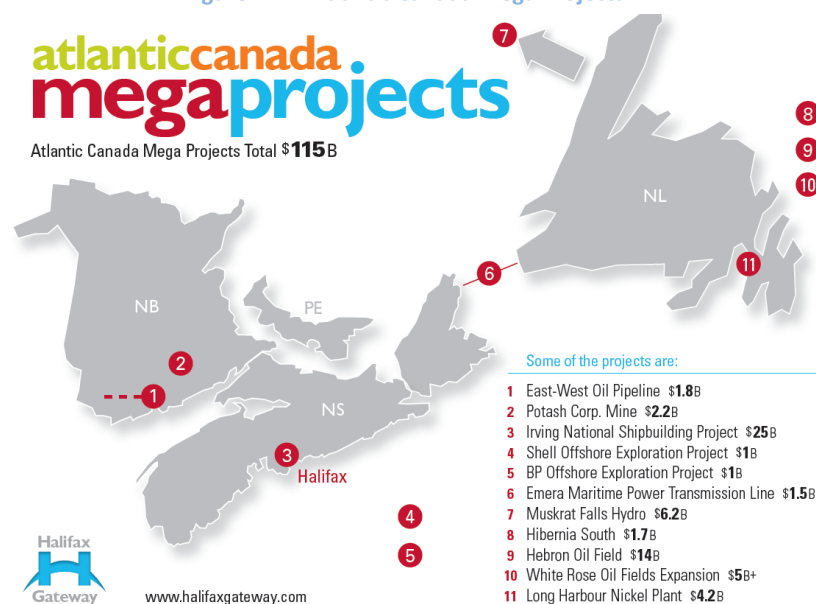
In addition to the additional trade and consequent demand for maritime services that could be expected from CETA, the agreement opens domestic trade to foreign carriers. As drafted, CETA will allow any interested EU carrier to potentially offer feeder services, and to re-position owned/leased empty containers, between Canadian domestic ports, including between Montreal and Halifax.¹⁸ Nova Scotia Gateway stakeholders consulted generally see these provisions as positive given the need for empty containers in Halifax. (Also, contrary to comments by some stakeholders, CN has not publicly opposed these provisions.)

¹⁸ Global Affairs Canada, Consolidated CETA Text, 16. International Maritime Transport Services at <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/ceta-aecg/text-texte/16.aspx?lang=eng>

2.3.3 Major Projects

Over the medium to long term, the Nova Scotia economy is poised to benefit from a number of regional mega projects (Figure 2-14). Both the Halifax Port Authority and Halifax International Airport Authority recognize the major role of mega projects going forward.¹⁹ Mega projects should drive an important increase in demand for use of the Nova Scotia Gateway, including containerized as well as non-containerized cargo movements. Two key mega project sectors are shipbuilding and energy development. According to APEC, its 2015 inventory identified 408 major investment projects in various stages of development across Atlantic Canada, valued at \$129 billion.²⁰ The huge federal shipbuilding contract, valued at close to \$30 billion, the Maritime Link transmission line, and offshore exploration activity by British Petroleum and Shell are among the major project investments that will create demand to handle project cargo.²¹ As well activity in the North is expected to generate demand for handling project cargo in Nova Scotia.²² Figure 2-14 shows selected major projects in the planning and development stage in Atlantic Canada as identified by the Halifax Gateway Council.

Figure 2-14: Atlantic Canada Mega Projects



Source: Halifax Gateway Council

¹⁹Port of Halifax, *Diversified by Design Stakeholder Report 2014* at http://portofhalifax.ca/wp-content/uploads/2013/10/HPA_Stakeholder2014_WEB.pdf; Halifax International Airport Authority, *2016 Business Plan* at <http://hiala.ca/wp-content/uploads/2016/02/2016-Business-Plan-Public-Final.pdf>;

²⁰Atlantic Provinces Economic Council, *About the Inventory* at <https://www.apec-econ.ca/events/view/?event.id=103&site.page.id=6000>.

²¹Halifax International Airport Authority, *2016 Business Plan*, p.6 at <http://hiala.ca/wp-content/uploads/2016/02/2016-Business-Plan-Public-Final.pdf>.

²² FEDNAV, *Sailing Forward in Tough Times* (September 20, 2015) at <http://www.fednav.com/en/media/sailing-forward-tough-times>.

Notable Regional Mega Projects

Shipbuilding

The National Shipbuilding Procurement Strategy (NSPS), announced in 2010, is a long term multi-billion dollar commitment to renewing Canada's federal fleet, and the largest procurement sourcing arrangement in Canadian history.²³ The NSPS has established strategic relationships with Irving's Halifax Shipyard and Seaspan's Vancouver Shipyards, designating them as the suppliers to build the Navy and Coast Guard's combat and non-combat vessels.

On October 19, 2011, the results of the NSPS were announced that Irving Shipbuilding Inc. was selected to build the combat vessel work package worth almost \$30 billion. The combat package includes the Royal Canadian Navy's Arctic Offshore Patrol Ships (AOPS) at an estimated cost of approximately \$3.5 billion, and the Canadian Surface Combatant (CSC) vessels at an estimated cost of \$26.2 billion to replace the Navy's current fleet of destroyers and frigates. In January 2015, a build contract was signed for construction of the AOPS vessels and construction began in September 2015. The first delivery is anticipated in 2018. The CSC vessel project is anticipated to commence construction in the early 2020s, after the completion of the AOPS vessels and is expected to span 20 years.²⁴

Offshore Energy

The oil and gas sector occupies a major position in accounting for Atlantic Canada's trade flows. While low commodity prices have recently slowed the pace of activity,²⁵ Atlantic Canada continues to have an active offshore oil and gas industry currently including five producing projects, one development project, and significant ongoing exploration activity. This activity generates significant project cargo as well as requiring ongoing servicing and resupply of the offshore activity. As noted in some of our consultations oil and gas is one of the main opportunities for cargo handling.

The government of Nova Scotia estimates Nova Scotia's offshore resource potential at more than eight billion barrels of oil and 120 trillion cubic feet of natural gas. Nova Scotia currently has two producing projects, the Sable Offshore Energy Project and Deep Panuke natural gas projects. Together, these produce about 350 million cubic feet of natural gas per day, representing 2.0 per cent of Canada's natural gas production. The Sable Offshore Energy Project was the first offshore natural gas development in Canada and the first commercial development of significant gas reserves in Atlantic Canada. Deep Panuke commenced

²³Public Works and Government Services Canada, National Shipbuilding Procurement Strategy at <http://www.tpsgc-pwgsc.gc.ca/app-acq/amd-dp/mer-sea/snac-nsps/index-eng.html>.

²⁴Public Works and Government Services Canada, *Construction of large vessels* at <http://www.tpsgc-pwgsc.gc.ca/app-acq/amd-dp/mer-sea/snac-nsps/gnavires-lvessels-eng.html>

²⁵ BOE Report, Low oil hits Atlantic Canada (September 1, 2015) at <http://boereport.com/2015/09/01/low-oil-hits-atlantic-canada/>.

production in 2013. In addition, significant offshore exploration programs are underway in Nova Scotia by Shell Canada and BP.²⁶

The Government of Newfoundland and Labrador estimates Newfoundland and Labrador's offshore resource potential at more than six billion barrels of oil and 60 trillion cubic feet of natural gas. With significant deposits of crude oil, Newfoundland and Labrador is currently producing more than 200,000 barrels of oil per day from its current offshore oil projects – Hibernia, Terra Nova, and White Rose. Newfoundland and Labrador's fourth offshore oil development, Hebron, is under development and expected to begin production in 2017. The province has also seen significant exploration activity in recent years, and this interest continues. In 2013, exploratory work in Newfoundland and Labrador's Flemish Pass basin resulted in one of the largest discoveries in the world at that time.²⁷

²⁶ Canadian Association of Petroleum Producers, *Nova Scotia* at <http://www.capp.ca/canadian-oil-and-natural-gas/industry-across-canada/nova-scotia>.

²⁷ Canadian Association of Petroleum Producers, *Newfoundland and Labrador* at <http://www.capp.ca/canadian-oil-and-natural-gas/industry-across-canada/newfoundland-and-labrador>.

3 Global and Regional Transportation Trends

Key Chapter Takeaway

A general trend across the international transportation industry has been one of increasing capital intensity, as asset owners seek to realize greater economies of scale and productivity to drive down operating costs and be more competitive globally. As a result, transportation asset owners and service providers, including shipping lines, airlines and railways will gravitate to where there is critical mass of traffic to maximize the utilization of their assets and drive up profitability. This is likely to mean headwinds for Nova Scotia's marine and air gateways, owing to its small regional market and traffic base.

3.1 Global Developments in the Transportation Modes

3.1.1 Pertinent Developments — Marine

Since the mid-1990s world seaborne tonnage has more than doubled with much of this fuelled by developing economies in Asia. Over the period 2006-2014, tonnage unloaded in North America decreased by 10 percent while tonnage shipped to Asia increased 68 percent and accounted for half of all tonnage unloaded worldwide (2014). In this context, the growth of marine transportation demand will be defined by Asian seaborne trade patterns. This remains true even though China will be growing at a slower pace. It reflects the sheer size of China and also the fact that the center of growth is shifting away from eastern China and towards countries such as India and others in South East Asia (Vietnam, Indonesia, Malaysia, etc.) For North America, this impacts notably the demand for export commodities but also imports of manufactured goods. For Nova Scotia, the main trade with Asia in terms of tonnage is coal shipped to Singapore and Japan from Port Hawkesbury. Otherwise, nearly 80 percent of global marine tonnage is comprised of petroleum products. Both these flows will evolve according to global market conditions.

Globally, the world fleet of ships continued to grow in 2015 although at a slower pace than in previous years. There is also a continued trend towards increasingly large container ships, as shipping lines look to reduce individual

It is worth noting that larger ships do not generate more cargo but do generate more infrastructure requirements and more competition for the ships among ports.

container slot costs. To a large extent, shipping lines going to larger ships has driven the overbuilding that has led to today's overcapacity. Large shipping lines have managed to get ports to invest massively to accommodate much larger ships by playing one against the other. It is worth noting that larger ships do not generate more cargo but do generate more infrastructure requirements and more competition for the ships among ports.

There is currently an oversupply of ship capacity in many (but not all) trades, generally tending to keep ocean freight rates low – for example, for container shipping. In this context of depressed freight rates and changing trade environment, shipping lines need to secure market shares by providing extensive networks that offer a global reach to their clients. In an effort to develop such networks, shipping lines continue to form alliances on certain trade routes or simply takeover competitors. CMA-CGM, for example, recently formed an alliance with OOCL, COSCO and Evergreen. Notably, this should integrate CMA-CGM's most recent takeover, Neptune Orient Lines.

The impact of these alliances and takeovers on individual ports has been discussed extensively but is unknown and often subject to regulatory authority approval. It can, however, be expected that this will lead to optimised fleet deployment strategies across shipping lines. This optimisation may not necessarily lead to reduced services, but fleet optimisation rarely translates into increased capacity or frequency on most routes.

It has also been argued that ports unable to accommodate the largest ships are naturally less competitive. Halifax, with a minimal water depth of 16 metres and more, can accommodate over 98 percent of the world's containership fleet. While the air draft below the MacDonald and Mackay bridges limit access to the Ceres Terminal, larger ships can use the South-End Halterm Terminal. That said, deep water and on-dock rail are not enough to render Halifax more than a discretionary port for the largest vessels.

Deep water and on-dock rail are not enough to render Halifax more than a discretionary port for the largest vessels.

It has also been suggested that the larger containerships will no longer have to call at Halifax to reduce their draft before going to New York, as improved access to New York – notably channel deepening and the raising of the Bayonne Bridge - is expected to eliminate draft limitations for most ships. However, the impact of this is difficult to determine. Some ships may now be lighter in Halifax but most call because it is cost-effective for eastern Canadian cargo to be loaded/unloaded at Halifax. Such cargo will continue to transit through Halifax provided it is cost-effective.

Two major infrastructure projects will significantly impact world trade routes and ports. The doubling of the Suez Canal should practically double the amount of ship transits and reduce

transit times.²⁸ The Panama Canal expansion will not only expand capacity but will also allow larger ships to transit. Some ships maximising use of the Panama Canal's new capacity have already been designed and delivered, including containerships, LNG carriers and pure automobile carriers. This will allow easier access to Asia from North American Atlantic ports but for many this could also require large investment to enable larger vessel calls. In North America, the chronic West Coast congestion problems which were off the agenda during the recession appear to be back and have resulted in ships rerouting to the East Coast. This situation was recently exacerbated by container hauling workforce issues on the West Coast. Together with the Panama Canal expansion, and the aim of shippers to diversify routing options, it is anticipated that flows between Asia and the North American East Coast (including Nova Scotia) will gain competitiveness and thus expand.

It has been suggested that the Panama Canal expansion, together with the growing size of container ships, may lead to important shifts in container shipping patterns. For example, as larger container ships get deployed on the densest routes (notably Asia-Europe) to realize their economies of scale, large ships that were already serving these routes could cascade down to other routes including those servicing cross-Atlantic trades. These trends could also translate into fewer "pendulum" services and associated strings (e.g. services that move back and forth across the Atlantic, serving multiple ports on the East Coast) in favour of more "round the world" uni-directional services. Some have also suggested that these developments could result in "hub and spoke" transshipment operations at certain North American East Coast and Caribbean ports.

There remains a great deal of uncertainty about the long term impact of larger ships, shipping line alliances, and the Panama Canal expansion on Nova Scotia's marine gateway.

Our consultations suggest that most experts remain uncertain about the likelihood of these various shifts and their implications for Nova Scotia.

²⁸ Suez Canal Authority, *New Suez Canal* at <http://www.suezcanal.gov.eg/sc.aspx?show=69>.

3.1.2 Pertinent Developments — Rail

In 2014, rail cargo shipped through Canadian marine ports totaled 125.6 million tonnes and were approximately 25 percent higher than the 100.9 million tonnes moved in 2005.²⁹

Operationally, the most pertinent development in the North American rail sector in recent years has been the move to longer trains as railways look to improve their operating ratio – a key industry metric of efficiency and financial performance.

The most pertinent development in the North American rail sector in recent years has been the move to longer trains as railways look to improve their operating ratio – a key industry metric of performance.

As an example, CN has reduced its intermodal trains from 3 (or even 4) daily departing and arriving in Halifax 10 years ago to one train daily in recent years. This has been done with essentially the same amount of traffic. Similar reductions in freight train frequency have occurred elsewhere in Canada over the same period. The benefits of longer trains stem from improved utilization of locomotives and lower labour costs for the same level of traffic.

In addition to improving rail efficiency and profits, longer trains also means significantly more line capacity on rail lines in Nova Scotia. There are no notable rail capacity limitations on the CN mainline in Nova Scotia.

The reduction in frequency had been contested by shippers and the Port of Halifax, though at least one container terminal operator suggested that they are supportive of the move in noting that lower cost rail operations can help the corridor from Halifax to inland Canadian markets to be more competitive. For its part, CN's general policy is that trains and any necessary investment will be added to a port or rail hub when there is traffic to justify it.

It has been suggested that CN has limited incentive to reduce rates or improve service as it faces no competition for inland rail business from Halifax (as distinct from the situation in Prince Rupert, for example, where CN indirectly competes for CP's business in Vancouver). It has also been suggested that increased service to and from Halifax could potentially negatively impact CN's overall operating ratio given lower traffic density to/from Halifax.

²⁹ Transport Canada, *Transportation in Canada 2014 Statistical Addendum*, Table RA13.

3.1.3 Pertinent Developments — Air

Air cargo is a relatively small contributor to global trade in terms of volume. However, in terms of value its significance is much greater as many high value products (e.g. pharmaceuticals, electronics and perishables) are transported by air. According to the International Air Transport Association (IATA), air cargo transports roughly 35 percent of world trade by value.³⁰

Trends in air cargo depend on:

- the health of the global economy,
- availability of air cargo capacity, and
- technological change

A more robust global economy naturally spurs demand for transportation of goods by all modes, including air. While overall there are signs that recent declines in volumes have bottomed out, the short term outlook for air freight remains fragile. Over the next 20 years, Boeing forecasts that world air cargo traffic will grow 4.7 percent per year, with Asian markets expected to lead the way.³¹ Most of this growth is expected to be concentrated in air freight (as opposed to mail). Of market-pairs that include North America, Asia-North America is expected to grow 5.4 percent per year, Latin America-North America at 5.2 percent per year, and Europe-North America at 3.1 percent per year. Meanwhile, the relatively mature Intra-North America market is expected to grow 2.1 percent per year.³²

Availability of air cargo capacity is determined in part by air passenger capacity. Close to half of air cargo capacity is belly space of passenger aircraft.³³ In terms of markets, Asia-North America is especially dominated by air freighters (80 percent), whereas the air freight share of Europe-North America is approximately 43 percent. In Canada, belly cargo space dominates to a much larger degree, as there is relatively little air freighter capacity serving the Canadian market.³⁴

In Canada, the availability of air cargo capacity is largely determined by air passenger capacity, as the market is predominantly belly cargo service.

³⁰ International Air Transport Association, *The Value of Air Cargo*, at <https://www.iata.org/whatwedo/cargo/sustainability/Pages/benefits.aspx>.

³¹ Boeing, *World Air Cargo Forecast 2014-2015*, p. 13 at <http://www.boeing.com/resources/boeingdotcom/commercial/about-our-market/cargo-market-detail-wacf/download-report/assets/pdfs/wacf.pdf>.

³² Ibid, p. 3.

³³ CAPA Centre for Aviation, *Air cargo: few other industries would tolerate its structural overcapacity* at <http://centreforaviation.com/analysis/air-cargo-few-other-industries-would-tolerate-its-structural-overcapacity-192139>.

³⁴ Intervistas, *Canadian Air Cargo Industry Review* (September 9, 2012), p. 3 at http://www.intervistas.com/downloads/presentations/Canadian_Air_Cargo_Industry_Review_09Sep12_RAN.pdf

In the longer term, demand is expected to be met by a mix of belly cargo and air freighter services. While new widebody aircraft such as Boeing 777s and 787s have significant belly cargo capacity, the world air freight fleet is still expected to grow from approximately 1,690 aircrafts to 2,730 aircrafts over the next 20 years.

Halifax Stanfield International Airport (HSIA) is the primary hub for air cargo in Atlantic Canada facilitating regional exports, primarily fresh lobster and seafood. According to the data most of the Halifax traffic (close to 90 percent) is domestic.³⁵ However, care must be taken in interpreting these data as a large part of the shipments recorded as domestic are in fact transhipped through another domestic hub to international destinations.

By volume, the Greater Moncton International Airport (GMIA) is second in Atlantic Canada, with nearly 25,000 tonnes handled in 2014.³⁶ These volumes are small compared to total air cargo volumes at Canadian airports, which are well in excess of 1,000,000 tonnes per year. Unsurprisingly, air cargo activity (especially international air cargo activity) in Canada is heavily-concentrated in Vancouver and Toronto.

Because the Canadian air cargo market is dominated by belly cargo, Canadian exporters and importers situated near the major international hub airports have a significant advantage. That said, there are examples of freighters serving some of the smaller Canadian markets. For example, CAL Cargo Airlines recently established an all-cargo service connecting Halifax and Liege, Belgium, which is CAL's live lobster shipment hub in Europe.³⁷ However, recent experience has also shown that sustaining all-cargo services connecting Atlantic Canada to international markets is not always a given, as both CAL and KF Aerospace have started and halted such services from GMIA in the past two years.³⁸ On the other hand, regions served by international passenger hub airports are more likely to have consistent air cargo service. For one thing, the cargo capacity is largely a by-product of the passenger capacity. In addition, the many wide body aircraft serving major markets seek back haul cargo to fill the bellies and, by offering excellent back haul rates, have such opportunities as compared to aircraft serving smaller centers such as Halifax.

³⁵ Statistics Canada, *Air Carrier Traffic at Canadian Airports*, Table 2-2 at <http://www.statcan.gc.ca/pub/51-203-x/51-203-x2014000-eng.pdf>

³⁶ Greater Moncton International Airport, *2014 Annual Report*, p. 9 at http://www.cyqm.ca/site/media/gmia/GIMA_AR2014_ENG_WEB.pdf.

³⁷ CBC News, *Halifax Stanfield airport adds lobster carrier cargo* at <http://www.cbc.ca/news/canada/nova-scotia/nova-scotia-lobster-halifax-stanfield-cal-cargo-airlines-1.3373815>.

³⁸ CBC News, *Moncton airport struggling to get cargo business off the ground*, <http://www.cbc.ca/news/canada/new-brunswick/moncton-airport-cargo-1.3439327>.

3.1.4 Pertinent Developments — Truck

A major issue for trucking is the “infrastructure deficit” and road funding. While in Canada there has long been a consensus that infrastructure investment in roads (and other areas such as water, waste management, and transit) is needed, the range of estimates is wide depending on the definition, methodology and time frame considered. Examples of estimated deficits include \$21.7 billion for transportation (not including transit), and \$66 billion alone for maintenance of roads and bridges.³⁹ The situation is similar in the US.⁴⁰

The driver shortage has also for considerable time been recognized as an issue for trucking, and noted as such in the consultations. According to the Conference Board of Canada, not enough younger drivers are entering the industry compared to other jobs in Canada and by 2020 the driver shortage could be between 25,000 and 33,000.⁴¹

Truck weight and dimension regulation is a further issue. The federal government delegated interprovincial trucking regulation to the provinces in the 1950s. Since 1988 national minimum standards have been developed through the Council of Ministers Responsible for Transportation and Highway Safety and great progress has been made in harmonizing weight and dimension regulations across Canada. However, as noted by APTA, when changes are needed the process is lengthy. Truckers have been desirous of adopting the single wide tires manufactured in Nova Scotia but getting new regulations promoted and agreed upon among the provinces has been challenging.⁴²

Trucking will likely see dramatic changes. Autonomous vehicles are currently being tested with the technology progressing faster than regulations are being formulated. Within half a decade, truck platooning⁴³ could be in practice in many long haul lanes.⁴⁴ In the next decade or so, semi-autonomous trucks could be in operation, which could make driving a more desirable occupation to younger workers. In the longer term, fully automated, driverless vehicles will be operational, although the timing will largely depend on necessary regulatory changes.

³⁹ Fraser Forum, Infrastructure spending in Canada: pick a multibillion dollar number at <https://www.fraserinstitute.org/blogs/infrastructure-spending-in-canada-pick-a-multibillion-dollar-number>.

⁴⁰ See, e.g., American Society of Civil Engineers, *2013 Report Card for America's Infrastructure* at <http://www.infrastructurereportcard.org/grades/>.

⁴¹ Conference Board of Canada, *Understanding the Truck Driver Supply and Demand Gap and Its Implications for the Canadian Economy* (2013).

⁴² Consultation, February 8, 2016.

⁴³ Trucks moving in a convoy with little distance between them, aided by vehicle-to-vehicle technology, often requiring no active driver in trucks behind the lead truck.

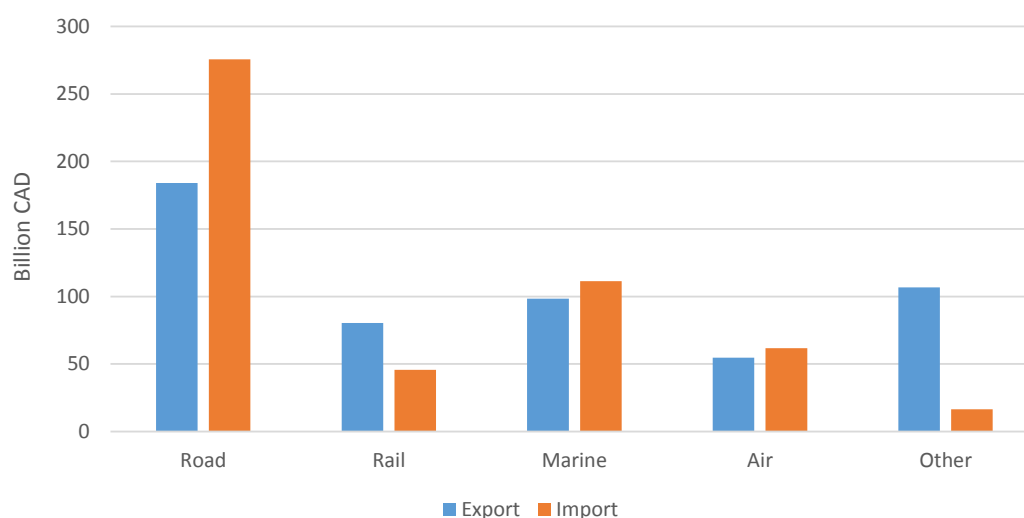
⁴⁴ HDT Truckinginfo, *Can Autonomous Trucks Solve the Driver Shortage?* (July 2015) at <http://www.truckinginfo.com/article/story/2015/07/can-autonomous-trucks-solve-the-driver-shortage.aspx>.

3.2 Transportation Characteristics of North American Trade

3.2.1 Modes Used in Transporting Commodities Traded

Readily accessible data on trade by mode of transportation is available at the national level (unfortunately, not the sub-national level). Figure 3-1 shows, for 2014, the value of Canada's trade in goods as carried by the different modes.⁴⁵ Not surprisingly, this is dominated by road transport reflecting the US' position as Canada's top trading partner. In 2014, the value of Canada's trade in goods carried by road was \$459.5 billion, comprising \$184.0 billion of exports and \$276.0 billion of imports. At the same time, the importance of road transport in Canada's trade has been declining, reflecting the growing importance of Canada's trade with countries other than the US. In 2014, roads' share of Canada's total trade in goods was 44.4 percent, compared to 49.7 percent in 2005.⁴⁶

Figure 3-1: Value of Canadian Trade by Mode, 2014



Source: Transport Canada, Transportation in Canada 2014 Statistical Addendum

Figure 3-2 shows, for 2014, the value of Canada's trade in goods with its top three trading partner regions and the principal modes used in this trade.⁴⁷ Trade with the US is principally by road whereas with Asia the principal mode is water. Trade with Western Europe is more or less equally divided between the water and air modes.

⁴⁵ These data indicate the mode by which the international boundary is crossed in the case of exports, and the last mode used in bringing the cargo to the port of clearance in the case of imports.

⁴⁶ Transport Canada, *Transportation in Canada 2014 Statistical Addendum*, Table EC5.

⁴⁷ See footnote 40 for explanation of the modes.

Figure 3-2: Canadian Trade by Top Three Trading Partner Regions and Principal Modes Used, 2014

Top Three Trading Partner Regions	Eastern Provinces	Western Provinces	Total	Main Modes Used (Percent of Total)
Canadian Exports in Billion CAD				
United States	244	159	403	Road (44), Pipeline (26)
Asia	20	31	51	Marine (77), Air (20)
Western Europe	35	7	41	Air (52), Marine (47)
Canadian Imports in Billion CAD				
United States	207	71	278	Road (69), Rail (13)
Asia	76	26	102	Marine (43), Road (39)
Western Europe	52	8	60	Marine (45), Air (30)

Source: Transport Canada, Transportation in Canada 2014 Statistical Addendum

Finally, Figure 3-3 shows, for 2014, Atlantic Canada's main trade flows with the US and the principal modes used in this trade.⁴⁸ As may be seen, this trade accounts for approximately 3 percent of total Canada/US trade, and different from the US as a whole the main mode used in this case is water.

Figure 3-3: Atlantic Canada's Main Trade Flows with the US and Principal Modes Used, 2014

Canadian Region	US Region	Exports	Imports	Total Trade	Share of Total Canada/US Trade (%)	Main Modes Used (Percent of Atlantic Provinces/US Northeast Total Trade)
Atlantic Provinces	US Northeast	17,703	1,861	19,563	2.9	Marine (68), Road (21)

Source: Transport Canada, Transportation in Canada 2014 Statistical Addendum

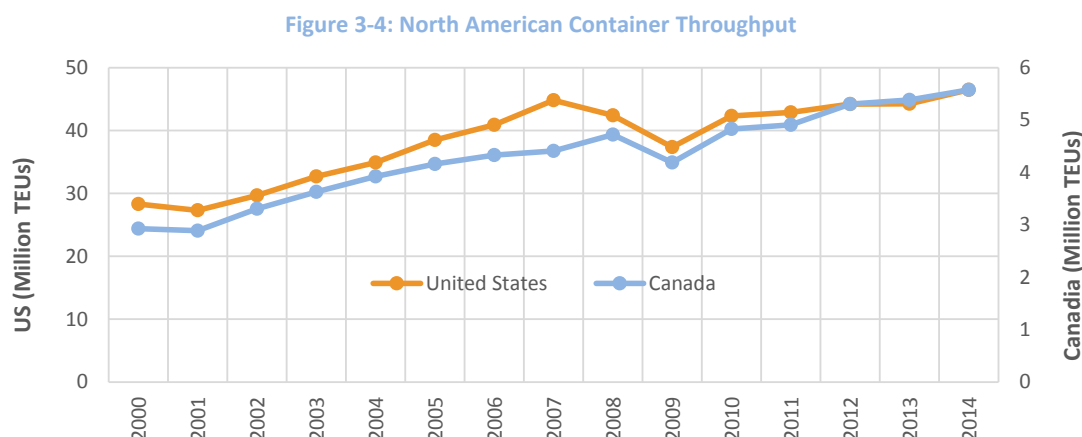
Concerning Nova Scotia it is evident that all modes — marine, rail, road and air — are playing a vital role in moving Nova Scotia trade and will continue to do so. Our consultations have indicated that approximately half the containers coming into the Port of Halifax are leaving by rail⁴⁹, with the remainder going by truck and some delivering into New Brunswick and Quebec, i.e. beyond the immediate area in Nova Scotia. In the other direction, it has been noted that there are not enough empty containers available for exports at Halifax and empty containers are currently being brought in by water. The marine provisions of CETA are expected to help alleviate this problem by allowing European maritime service providers to reposition empty containers between Canadian domestic ports. In addition, producers originating exports in Nova Scotia also use combinations of road, rail, water and air to varying degrees depending on the product and destination.

⁴⁸ See footnote 40 for explanation of the modes.

⁴⁹ The Halifax Port Authority noted that the share of port container traffic going inland by rail was 68%, however, both container terminals indicated that their respective share of rail traffic destined inland was closer to 50%.

3.2.2 Container Handling in North America

Containerized trade and containerization have been growing worldwide as shown in Section 2.1.1. The figure below shows the trend in containers handled nationwide in the United States and Canada.



Source: CPCS analysis of World Bank World Development Indicators (2000-2013); United Nations UNCTADSTAT (2014)

From 2000 through 2014, container throughput in the US grew 1.6 times, increasing from over 28 million TEUs in 2000 to over 46 million TEUs in 2014. In Canada, intermodal container throughput nearly doubled, increasing from over 2.9 million TEUs in 2000 to close to 5.6 million TEUs in 2014.

Similar to the world trend, throughput growth was strong up until 2007 in the US and 2008 in Canada. In the US, the growth averaged 6.8 percent per year between 2000 and 2007. Throughput in the US then declined in 2008 and 2009 coincidentally with the recession. In Canada, throughput growth averaged 6.2 percent per year between 2000 and 2008 before declining in 2009. Since 2009, throughput growth in the US has slowed, averaging 4.5 percent annually, while in Canada it has remained about the same as before the recession, averaging 5.9 percent annually over 2009-2014.

In the US and Canada the growth in container throughput has been consistent in growing much faster than real GDP both before and after the recession.

In the US and Canada the growth in container throughput has been consistent in growing much faster than real GDP both before and after the recession. Prior to the recession, US real GDP grew 2.4 percent per year (2000-2007) while in Canada real GDP grew 2.6 percent per year (2000-2008). Following the recession US real GDP grew 2.1 percent per year (2009-2014) while in Canada real GDP grew 2.5 percent per year (2009-2014).⁵⁰

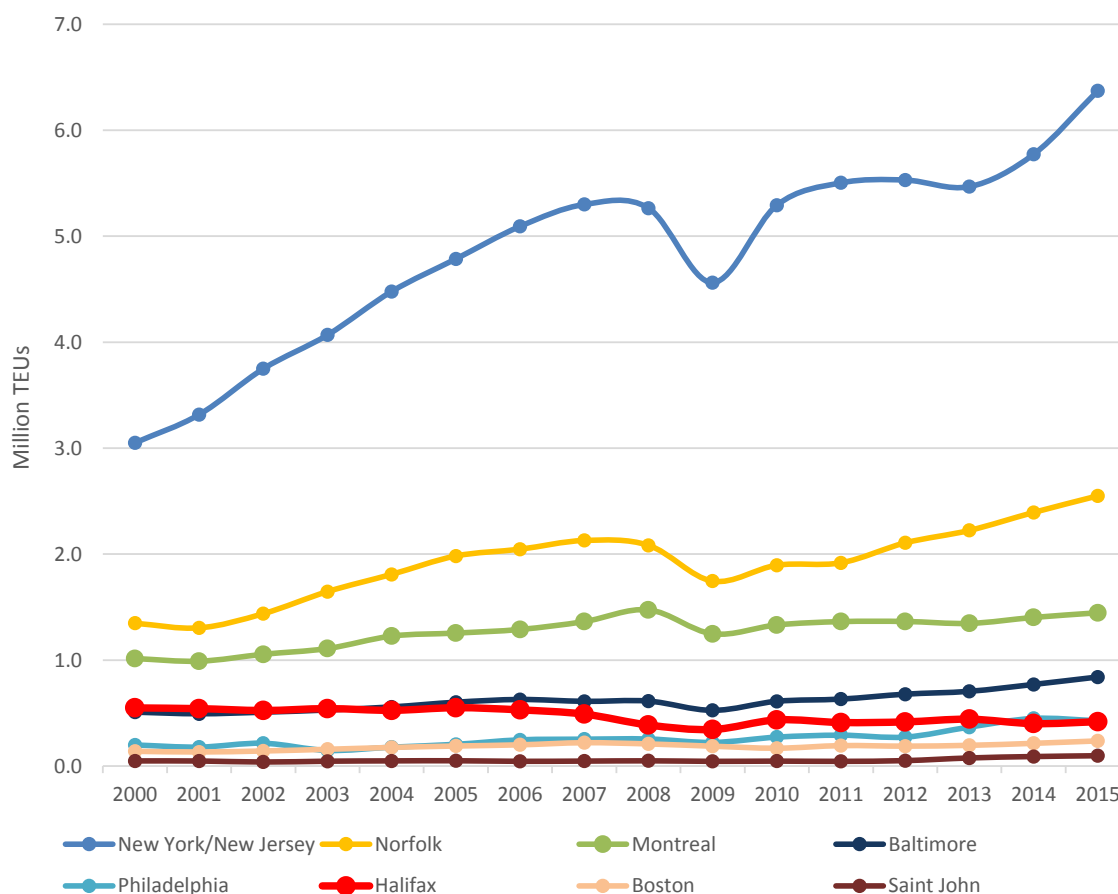
⁵⁰ US and Canada real GDP growth rates computed from IMF World Economic Outlook Database, October 2015.

3.2.3 Container Throughput at Atlantic Canada and US Northeast Ports

Finally, Figure 3-5 shows the trend since 2000 in container throughput at the major Atlantic Canada and US Northeast ports. Not unlike the value of trade as seen in Figure 2-8, the most notable difference in container throughput is that between the lack of growth in Halifax versus the growth in the other ports. Whereas throughput in Halifax is actually more than 20 percent lower in 2015 than in 2000, throughput growth at the other ports has ranged between 1.4 times (Montreal) and 2.2 times (Philadelphia). More specifically, throughput at New York, Norfolk and Saint John has virtually doubled over the period, while at Baltimore and Boston it has increased by 1.7 times.

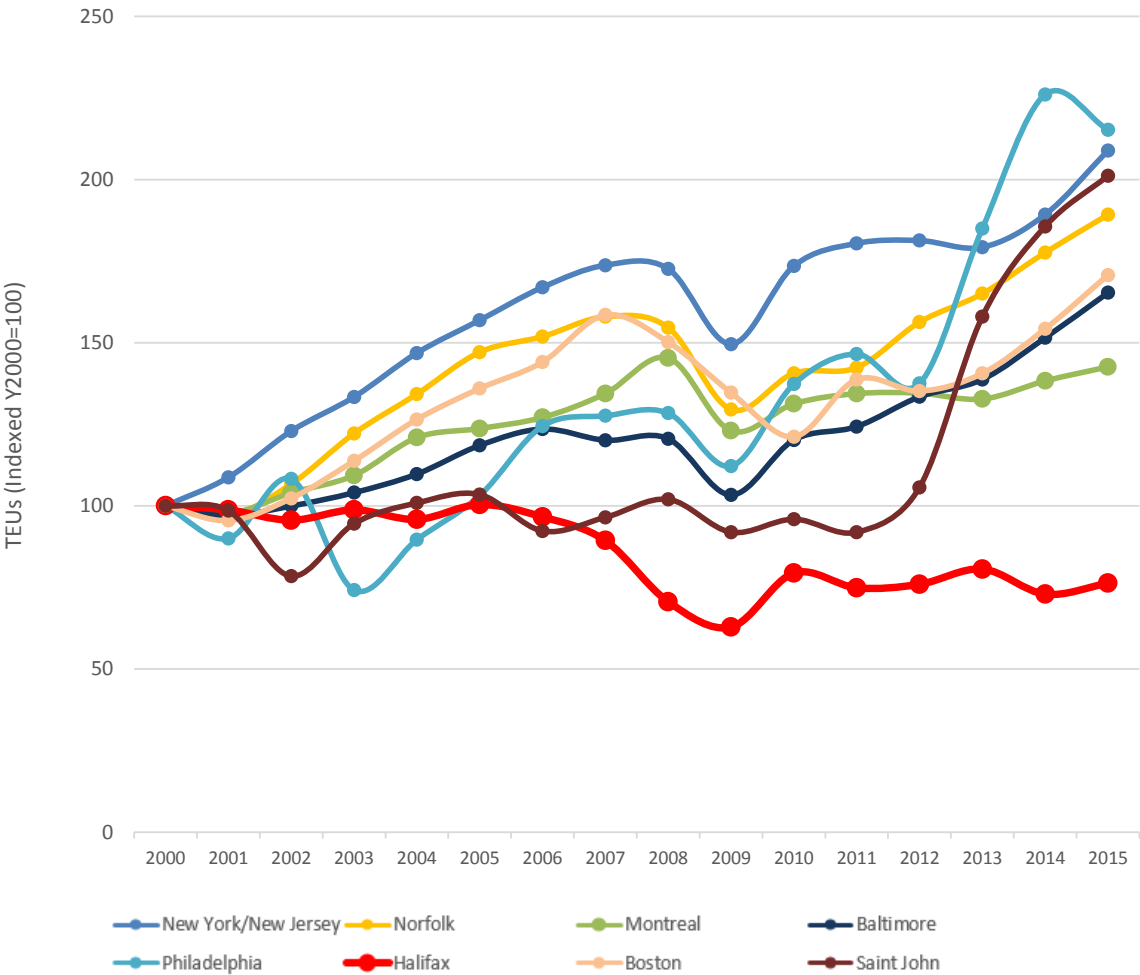
Traffic through the Port of Halifax has not kept pace with traffic growth through competing ports in Eastern North America.

Figure 3-5: Container Throughput in Major Atlantic Canada and US Northeast Ports



Source: CPCS analysis of data from American Association of Port Authorities

Figure 3-6: Container Throughput in Major Atlantic Canada and US Northeast Ports (Indexed Y 2000=100)



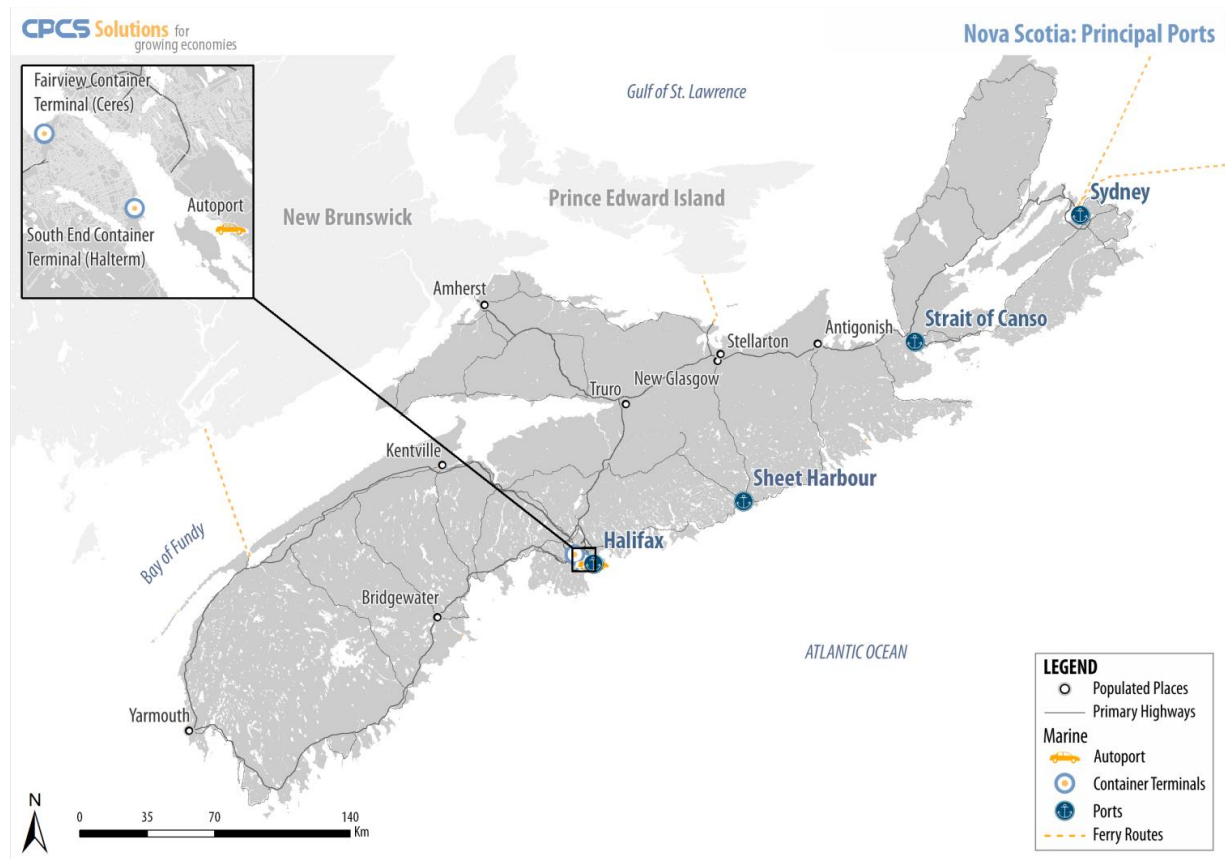
Source: CPCS analysis of data from American Association of Port Authorities

4 Nova Scotia's Trade Related Transportation Assets

4.1 Port Facilities

Nova Scotia's principal trade-related ports are at Halifax, Strait of Canso and Sydney. These are shown in Figure 4-1.

Figure 4-1: Nova Scotia Principal Ports



4.1.1 Port of Halifax

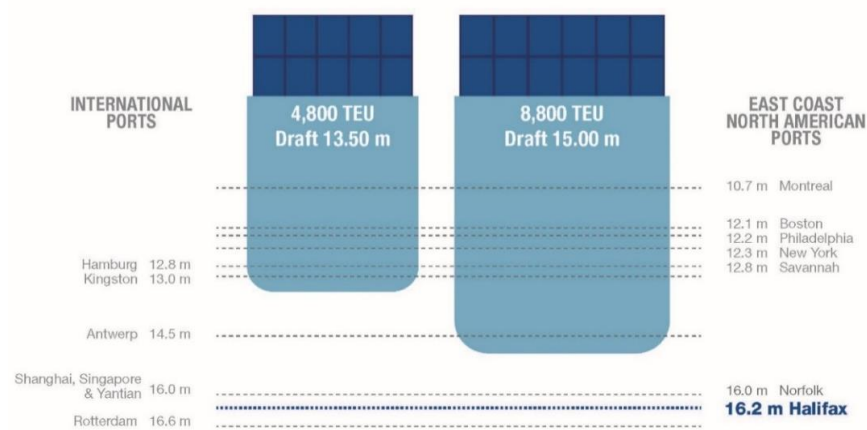
The Port of Halifax is managed by the Halifax Port Authority (HPA), one of the federal Canada Port Authorities. The Port is situated on the Great Circle Route, in proximity to major shipping lanes between Europe and North America, and has a natural ice-free deep harbour. It is Canada's fourth largest container port in terms of volume handled after Metro Vancouver, Montreal and Prince Rupert.⁵¹ In 2015, container handling at Halifax totalled 418,359 TEUs.⁵² However, with its modern infrastructure and recent investments the Port has the capability of handling 1.4 million TEU annually.⁵³ Given the importance of perishables among the containerized export commodities handled at Halifax, recent years' investments by the HPA has included 1,000 reefer plugs.

In addition to containers, the Port handles non-containerized cargo including project cargo, and other general cargo including breakbulk, bulk and vehicles. The recently completed \$66 million Richmond Terminals expansion and upgrade, co-funded by the HPA and the federal government, has significantly expanded the Port's capacity to handle general cargo. As well, the HPA now manages and operates (on behalf of the Province of Nova Scotia) the Marine Terminal at Sheet Harbour, complementing the existing facilities at Halifax. The HPA believes this arrangement may be a model for operating other small ports in the Province.⁵⁴

Container Handling Facilities

Halifax has two container terminals: the South End Container Terminal, leased to Halterm Container Terminal Limited and referred to as Halterm, and Fairview Cove Container Terminal, leased to NYK/Cerescorp Company and referred to as the Ceres terminal. Halifax offers the greatest depth for container shipping among all existing East Coast ports (Figure 4-2).

Figure 4-2: Halifax Berth Depth



Source: http://www.halifaxgateway.com/site-ghp2/media/HalifaxGateway/depthChart_HighRes.jpg

⁵¹Transport Canada, *Transportation in Canada 2014 Statistical Addendum*, Table M19.

⁵²Port of Halifax, Cargo, Statistics at <http://portofhalifax.ca/cargo/statistics/>.

⁵³Port of Halifax, *Diversified by Design, Shareholder Report 2014* at http://portofhalifax.ca/wp-content/uploads/2013/10/HPA_Stakeholder2014_WEB.pdf.

⁵⁴Consultation.

Halterm has a throughput capacity of 750,000 TEU. It contains 74.5 acres of land and 8,000 feet of on-dock, double stack rail (320 TEU). The terminal has seven gantry cranes which include four Super Post-Panamax cranes and three Post Panamax cranes. Berth depth at Halterm ranges from 13.9 metres to 16.2 metres.⁵⁵ The Ceres terminal has a throughput capacity of 780,000 TEU. It contains 70 acres of land and has 11,000 feet of on-dock double stack rail (440 TEU). The terminal has five gantry cranes, including three Super Post-Panamax cranes and two Post Panamax cranes. Berth depth at Ceres is 16.8 metres.⁵⁶

Non-Containerized Cargo

Halifax's general cargo facilities include Richmond Terminals and Ocean Terminals, handling a variety of breakbulk cargoes including steel, rubber, forest products, project cargo and resupply cargoes for offshore oil and gas. Both terminals have on-dock rail and truck access. Richmond Terminal offers 2,659 feet of berthing space at minimum water depths of 30 feet, covered storage space of approximately 210,000 square feet and an open area exceeding 230,000 square feet. Ocean Terminals offers 13 berths and over 400,000 square feet of covered storage.⁵⁷

With its current facilities, the HPA intends to capitalize on cargo resulting from more than \$120 billion in planned or developing Atlantic Canada mega projects as identified by APEC. These include the National Shipbuilding Procurement Strategy, energy projects, offshore oil and gas development, and mineral extraction.⁵⁸ The Port of Sheet Harbour, well suited for oversized project cargo, complements the existing facilities of the HPA.⁵⁹

Autoport, owned by CN, is one of the largest vehicle transshipment facilities in North America. The 100-acre facility handles around 185,000 vehicles per year. As noted in Section 2.4.1 above, Autoport could be a significant beneficiary of CETA.

Halifax Grain Terminal, located at the west end of Ocean Terminals, has the capacity of 50,000 bushels of grain per hour. It is operated by Halifax Grain Elevator Limited which continues to pursue opportunities to export agri-food products.

4.1.2 Strait of Canso

Strait of Canso Superport

Located in the Strait of Canso between the mainland of Nova Scotia and Cape Breton Island, the Strait of Canso Port, referred to as the Superport, handles bulk and breakbulk cargo. It is

⁵⁵Port of Halifax, South End Container Terminal at <http://portofhalifax.ca/infrastructure-leasing/hpa-facilities-cargo/south-end-container-terminal/>.

⁵⁶Port of Halifax, Fairview Cove Container Terminal at <http://portofhalifax.ca/infrastructure-leasing/hpa-facilities-cargo/fairview-cove-container-terminal/>

⁵⁷ Port of Halifax, Breakbulk cargo configurations to suit any shipper's needs at <http://portofhalifax.ca/wp-content/uploads/2013/04/BreakbulkInsert.pdf>,

⁵⁸Ibid.

⁵⁹Canadian Sailings, *More opportunity for improved port of Sheet Harbour* (September 15, 2014) at <http://www.canadiansailings.ca/?p=8985#sthash.fkXT3VqF.dpuf>.

Nova Scotia's largest port in terms of tonnage, handling approximately 68 percent of Nova Scotia's international and domestic marine cargo tonnage. Commodities shipped include, among others, crude oil and petroleum products (transhipped), aggregate, gypsum, forestry products, road salt, coal, and gravel.⁶⁰ In 2011, the Port handled 23.8 million tonnes, and more than 30 million tonnes annually over 2005-2010.⁶¹ Canso is Nova Scotia's major gateway for transshipped liquid bulk.

Under the federal government's port divestiture program, the non-profit Strait of Canso Superport Corporation owns and operates the former Transport Canada Mulgrave Marine Terminal and Port Hawkesbury Pier assets. The Superport Corporation's mission also includes promoting and accommodating marine operations in the Strait of Canso for the benefit of the local economy. However, harbour bed management and regulatory control of shipping in the Strait remains with Transport Canada.

The Strait of Canso Port is the deepest ice-free harbour on the North American east coast with a limiting depth of 27 m. The port is 20 km long, up to 1.5 km wide and can handle vessels of up to 500,000 dwt.⁶² In addition to the Mulgrave Marine Terminal and Port Hawkesbury Pier, marine facilities located along the Superport include those of Nu Star Energy, Martin Marietta Materials, Nova Scotia Power Inc., Georgia Pacific, Stern Group (Port Hawkesbury Paper) and Anadarko Petroleum.⁶³

Melford Terminal

Melford Terminal is a private-sector led proposed greenfield container terminal project proposed for the Strait of Canso.⁶⁴ First conceived in the mid-2000s when west coast ports were faced with congestion due to rapidly growing Asian imports, Melford is regarded by its proponents as an east coast version of the Fairview Terminal at Prince Rupert. Melford would have a two day sailing advantage over New York and a four day sailing advantage over Norfolk on the Great Circle Route, although its inland rail leg to Central Canada would be slightly longer than the present route from Halifax.

The proposed Melford project is intended to be fully privately financed, owned and operated. The proponents claim that because of its location, construction cost would be low and there would be no space constraints. In addition, it would not have to contend with existing bridges, ice, or limitations on vessel size. It would have a modern collective agreement and employ state-of-the art technology, all of which would allow Melford to be a low cost alternative to other East Coast ports. The proposed development is also in proximity to rail lines although it would require the construction of a spur rail line to Canso. According to the proponents, Genesee and Wyoming (G&W) have arranged with CN that G&W will supply the crews but equipment will be CN so there will be no need for transfer. Although the terminal at this stage

⁶⁰ Strait of Canso Superport, About the Port at <http://straitsuperport.com/port/about/>.

⁶¹ Strait of Canso Superport, Statistics at <http://straitsuperport.com/port/statistics/>.

⁶² Strait of Canso Superport Fact Sheet at http://straitsuperport.com/uploads/documents/fact_sheet.pdf.

⁶³ Strait of Canso Superport, Marine Facilities at <http://straitsuperport.com/port/marinefacilities/>.

⁶⁴ Melford Terminal project description is based on Consultation, February 17, 2016.

is still a vision, all necessary land has been acquired, environment approvals have been secured, and First Nations are participating.

Also, according to proponents, shippers and carriers believe New York, and the East Coast, need an alternative as a safety valve. New York container terminals, it is argued, do not have sufficient room to grow, are slow and suffer from truck congestion.

According to the proponents, Melford needs 125,000 TEU to start up. Proponents see this as the initial level and see traffic ramping up similar to Prince Rupert, reaching about 500,000-600,000 TEU in 5-6 years. All traffic projected by the proponents is viewed as new traffic, not diverted traffic. It is argued that this traffic would be from cargo owners and carriers not presently using Halifax. Melford believes there is opportunity for export traffic, particularly temperature controlled products. Export traffic would be carried as affordable back haul.

4.1.3 Port of Sydney

The Port of Sydney is located in Cabot Strait at the northeast shore of Cape Breton Island. It is situated within a 10 mile long “Y” shaped inlet open to year round shipping with a harbour channel maximum draft of 16.5 meters. The harbour covers some 40 square km with the principal activities concentrated at five points: Sydney Marine Terminal, Nova Scotia Lands Wharves, International Coal Wharf, Sydport Industrial Park, and Marine Atlantic-North Sydney.⁶⁵

There are three fully-serviced business parks, with water, rail and road access, adjacent to the harbour: Northside Business Park, Sydport Industrial Park and Harbourside Commercial Park. In all, the Port has in excess of 1,000 acres of brownfield/greenfield land available for immediate development and an additional 1,200 acres of land available at deepwater for future development.⁶⁶ The Port of Sydney Development Corporation (PSDC), formed in 2015, has the mandate to manage the Sydney Marine Terminal and to develop the harbour and related infrastructure.

Proposed Novaport Container Terminal

Prior to the PSDC, port management had been for a number of years promoting the development of a new container terminal at Sydney similar in concept to the Melford Terminal proposed for the Strait of Canso. The PSDC sees a new container terminal, newly named as Novaport, as its top priority business development opportunity. If developed, the terminal would be located in Sydney Harbour on a partly developed 500+ acre brownfield site near Sydport owned by the Cape Breton Regional Municipality (CBRM). The CBRM would concession the site on a long term basis to the private sector developers and/or operators with the construction to take place in two phases. The PSDC views the project as having many of the same advantages as the Melford Terminal project (low construction cost, deep water, modern labour agreement, proximity to rail etc.).

⁶⁵Port of Sydney, *Cruise/Dock Specs* at <http://www.sydneyport.ca/cruise/doc-specs/>

⁶⁶Port of Sydney, *Business Prospectus* at <http://www.sydneyport.ca/portofsydney/port-of-sydney-prospectus/>

The PSDC believes Sydney is well positioned geographically to serve the international market. PSDC maintains that with ship sizes growing there is a need for a new mega hub in the Northeast of North America. This is to accommodate ships of 18,000 TEU capacity where they could be completely offloaded and loaded. Dredging to accommodate such ultra-large 18,000 TEU ships has been completed. If Sydney were successful in attracting ships of this size, and if they were to be completely offloaded/loaded, Sydney would have the land necessary to store and transfer the numbers of containers involved. The PSDC recognizes that there is also the Melford Terminal that is being proposed for development at Canso, but notes that this is based on a pure rail strategy whereas the Sydney strategy, it is argued, also includes transshipment and short sea shipping of containers to Montreal and other ports.⁶⁷

The capacity throughput envisioned is 750,000 TEUs in Phase 1 and 1.5 million TEUs in Phase 2. There would be direct rail service to/from the terminal with capacity to service 10,000-12,000 foot long unit trains. Upgrading of the rail line from Port Hawkesbury to Sydney would, however, be required. These costs have been estimated to be \$31 million at minimum, with a possible \$5 million also required to upgrade the bridges.⁶⁸ Other project elements would include: a new wharf allowing for four vessels serviced by eight large ship to shore gantry cranes, a berth depth of 16.5 metres, an intermodal transfer facility (rail and road) and off-site rail and road improvements to the site.⁶⁹

⁶⁷ Consultation.

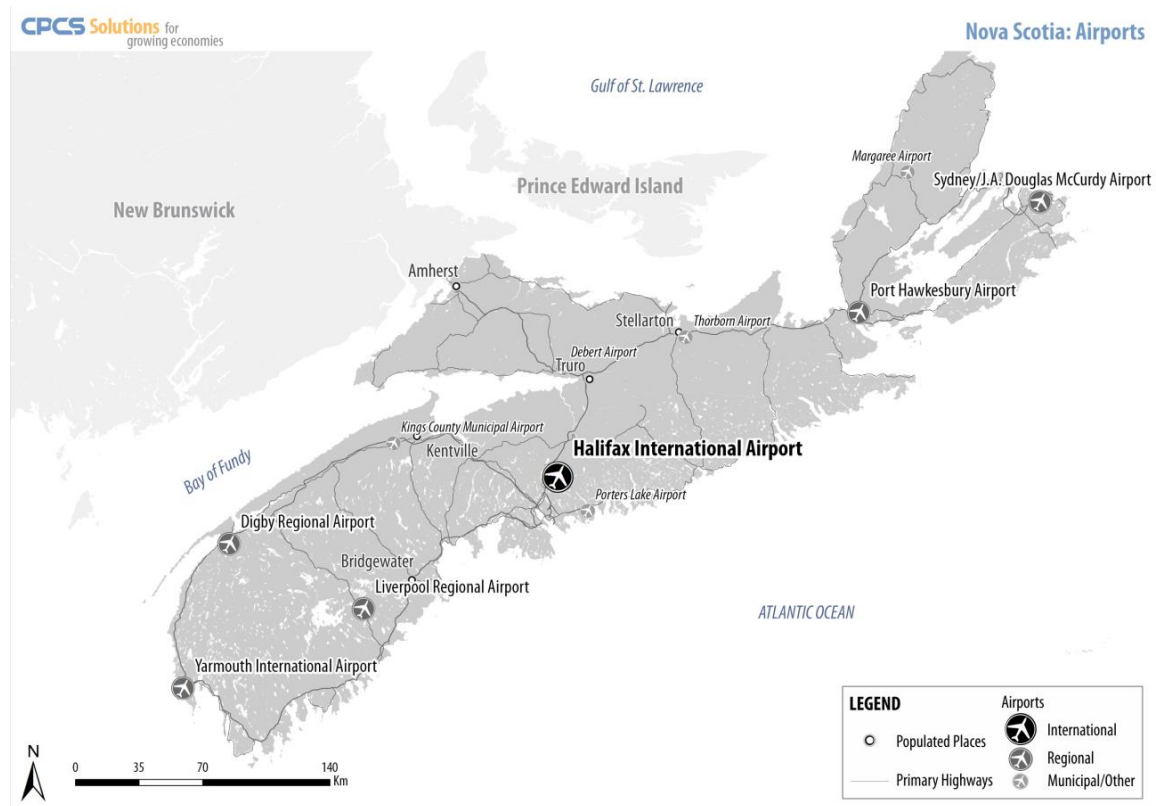
⁶⁸ Cape Breton Regional Municipality, Mayor and council welcome information in Province's rail studies (September 25, 2015), www.cbrm.ns.ca/mayor-and-council-welcome-information-in-province-s-rail-studies.html.

⁶⁹ Ibid.

4.2 Air Cargo Facilities

Nova Scotia's principal airports are the airports at Halifax and Sydney. These are shown in the figure below.

Figure 4-3: Nova Scotia Principal Ports



4.2.1 Halifax Stanfield International Airport

Halifax Stanfield International Airport, the primary air hub for Atlantic Canada, is the only airport in Nova Scotia with international cargo shipment facilities. In 2015, an estimated total of 33,373 metric tonnes of cargo was shipped through the airport.⁷⁰ Air cargo at HSIA includes mail and commercial cargo carried in the belly-holds of passenger aircraft and on freighters. In contrast to the current world trend, Nova Scotia is experiencing growth in air cargo, driven by lobster exports.⁷¹ Major air exports via HSIA include seafood, electronics, machinery, and industrial equipment with the primary export being fresh seafood including lobster. The

⁷⁰Halifax Stanfield International Airport, *Atlantic Canada's Air Gateway to the World*, Cargo Logistics Canada, 2016.

⁷¹ Consultation.

runway extension to 10,500 feet, completed in 2012 with federal and provincial contributions, has facilitated further growth in air cargo by allowing service from larger freighters.⁷²

Air carriers handling cargo at HSIA include (in alphabetical order): Air Canada, Air St. Pierre, Air Transat, Cargojet, Icelandair, Korean Airlines, Leisure Air Cargo, Skylink Express and WestJet. Federal Express and Purolator provide integrated courier services.⁷³ Cargojet, however, now supplies the domestic air cargo services for the Canada Post Group, including Purolator's national air cargo network.⁷⁴ In 2013, Cargojet jumped to first in volume at HSIA with their domestic network plus weekly service to Cologne, while Air Canada had been the major capacity provider for many years. FedEx is third in volume at HSIA.⁷⁵

HSIA is well positioned for cargo with its runway, apron and storage capacity.⁷⁶ The airport has a multi-tenant cargo facility covering 40,000 square feet, of which 7,000 square feet is climate controlled space with direct air access that is used for seafood shipments.⁷⁷ However, based on the latest available statistics provided by HIAA, close to four times the volume of fish/seafood leaving HSIA by air is leaving Nova Scotia by truck for Toronto, Montreal and Boston to be air lifted overseas. Although not as fresh upon arrival, shipment through these larger airports is required in part because of insufficient air lift capacity at Halifax.⁷⁸

Once CETA is ratified, the Halifax International Airport Authority (HIAA), that manages HSIA anticipates a positive impact on lobster and live seafood exports to the EU, which is already Nova Scotia's largest export destination. In addition, the Canada-Korea Free Trade Agreement, which has eliminated tariffs on almost all of Nova Scotia's key exports, provides access to new opportunities in Asia's fourth largest economy. The Chinese market also remains a focal point, with Nova Scotia lobster exports experiencing a more than 400 percent increase in the past five years. Importantly, these export opportunities for HSIA will require enhanced air cargo service.⁷⁹ With its export imbalance, HSIA needs to grow imports to achieve greater balance with exports.⁸⁰

⁷²Halifax International Airport Authority, 2016 Business Plan at <http://hiala.ca/wp-content/uploads/2016/02/2016-Business-Plan-Public-Final.pdf>.

⁷³ Halifax International Airport Authority, *Air Cargo* at <http://hiala.ca/airport-authority/business-opportunities/air-cargo/>.

⁷⁴ Cargojet, *Cargojet Awarded Purolator and Canada Post (Canada Post Group of Companies) Domestic Air Cargo Network Services Contract* (February 19, 2014) at <http://www.cargojet.com/pressReleases/2014/2014-03.htm>.

⁷⁵ Halifax Stanfield International Airport, *Atlantic Canada's Air Gateway to the World*, Cargo Logistics Canada, 2016.

⁷⁶ Consultation.

⁷⁷ Airport-Technology.com, *Halifax Robert L Stanfield International Airport, Nova Scotia, Canada* at <http://www.airport-technology.com/projects/halifax-airport/>

⁷⁸ Consultation, February 29, 2016.

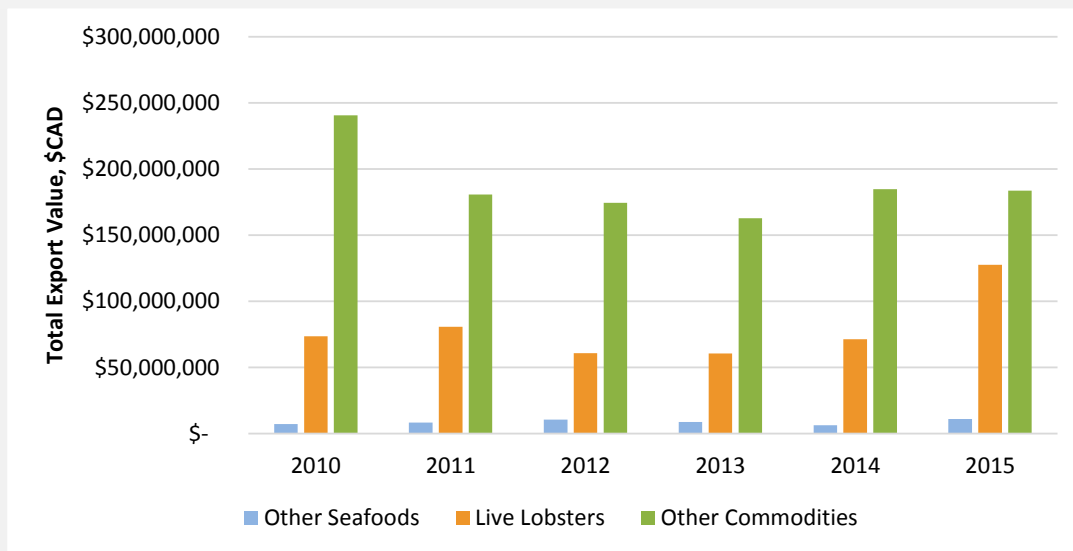
⁷⁹Halifax International Airport Authority, 2016 Business Plan at <http://hiala.ca/wp-content/uploads/2016/02/2016-Business-Plan-Public-Final.pdf>.

⁸⁰Halifax Stanfield International Airport, *Atlantic Canada's Air Gateway to the World*, Cargo Logistics Canada, 2016.

HSIA Lobster and Seafood Markets

Over the past five years, live lobster exports have grown rapidly in importance as air cargo for HSIA as shown in Figure 4-4. In 2015, HSIA live lobster exports by air reached nearly \$128 million, an increase of 74 percent from the total of \$74 million in 2010. As a result, the value of HSIA live lobster exports by air accounted for 27 percent of the total value of all HSIA commodities exported by air in 2015. This was up from 23 percent in 2010. Correspondingly, the share of HSIA non-seafood exports by air in the total value of all HSIA air exports declined from 75 percent in 2010 to 70 percent in 2015. In terms of value, HSIA non-seafood exports by air declined from \$241 million in 2010 to \$184 million in 2015.

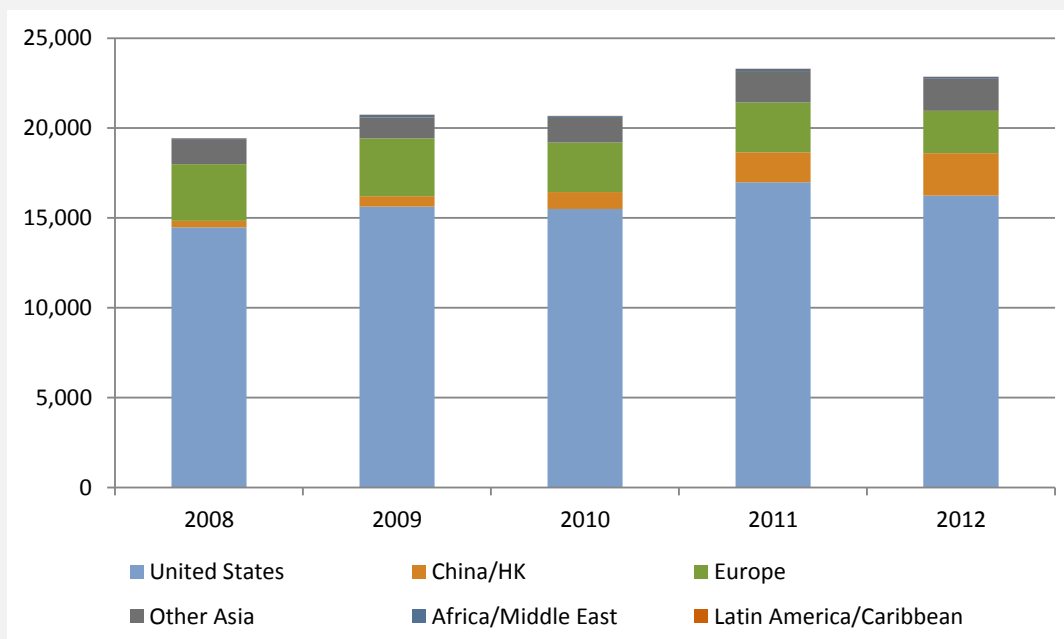
Figure 4-4: HSIA Total Export Values by Air (\$CAD)



Sources: Halifax International Airport Authority

In terms of destination markets, the figure below shows Nova Scotia live lobster exports by world region. These include both exports leaving the Province by both air and ground. The most notable change is the strong growth in exports to China and Hong Kong, which increased nearly six fold from 1,596 tonnes in 2010 to 9,453 tonnes in 2015, and with nearly 80 percent of this growth being from exports to mainland China.

Figure 4-5: Nova Scotia Live Lobster Exports by Region (tonnes)



Sources: Halifax International Airport Authority

4.2.2 J.A. Douglas McCurdy Airport

Sydney's J.A. Douglas McCurdy Airport does not have the runway capacity to handle dedicated air freighters and, as noted in our consultations, traffic does not justify expanding the runway. The airport also has no cold storage cargo handling facilities. Air Canada is handling some cargo; Westjet is handling none. The Sydney Airport Authority generally recognizes that the HSIA is the main airport in the Province.

As described in our consultations, there is generally no business case for cargo at Sydney. Louisbourg Seafood, a major supplier from Cape Breton, trucks product to Halifax for shipment, mainly lobster to Europe, China and Asia. Taking seafood out of Sydney by air means there would have to be enough demand for scheduled passenger carriers to come in, but Cape Breton population and industry have been declining. As well, Halifax is only a few hours away by road. There are also seasonal issues. The lobster fishing season is 2-3 months and the lobsters are stored until the high demand season. Louisbourg would need an airplane to be available at Sydney when they are ready to ship. In all, the economics do not support seafood traffic going out of Sydney by air.

On the passenger side, Sydney did get direct Sydney-Toronto year round service in 2013, which was "transformative" for Cape Breton. It has boosted the tourist and summer resident segments. Also, Westjet Encore came in July 2015 and this has dropped fares dramatically. Sydney had been working with Halifax to promote this service. Sydney Airport would like to maintain these advances in air service. However, traffic has dropped off with the decline in the Alberta economy.

Yarmouth International Airport

The future of Yarmouth International Airport (YQI) is the subject of a recent RFP issued in conjunction with the Western Region Enterprise Network. The purpose is to determine the potential for resuming service at YQI. There have been many previous efforts to maintain or resume scheduled passenger service at YQI and the current assessment is being used to help decide the next steps for YQI as a regional infrastructure asset.⁸¹ This current study coincides with the Government of Nova Scotia's recent decision to support the renewal of ferry service between Yarmouth and the State of Maine.⁸²

YQI facilities include a modern airport terminal building and combined services building, two runways (one 5,000 ft and one 6,000 ft), two taxiways and separate parking aprons for both commercial and general aviation. The airport property has 750 acres with easily accessible industrial land. Given its location and population of its catchment area, the potential of YQI is, at best, to serve as a spoke for HSIA.

⁸¹Yarmouth International Airport Corporation, *Request for Proposals for Market Assessment and Route Development for Yarmouth International Airport (YQI) Passenger Service* (October 6, 2015) at http://novascotia.ca/tenders/pt_files/tenders/WRENYQIRFP2015.pdf.

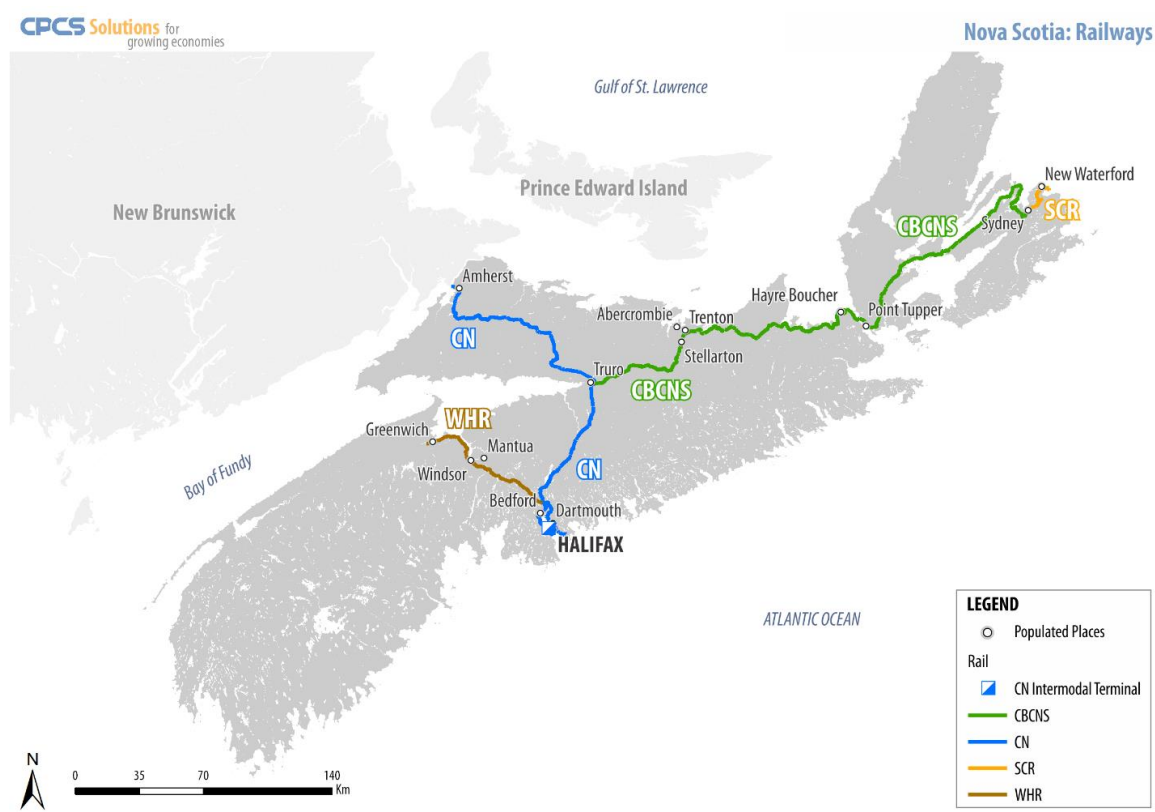
⁸²CBC News, *New Yarmouth to Maine ferry will be U.S. navy ship* (March 24, 2016) at <http://www.cbc.ca/news/canada/nova-scotia/yarmouth-ferry-announcement-mar24-1.3505585>.

4.3 Rail Infrastructure

Currently, there are four operating railways in Nova Scotia:

- Canadian National Railway (CN)
- Cape Breton and Central Nova Scotia Railway (CBCNS)
- Sydney Coal Railway (SCR); and
- Via Rail Canada (VIA).

Figure 4-6: Nova Scotia Main Railway Lines



There are 419 miles of main track currently operated in the Province, owned as follows:

- CN - 160 miles
- CBCNS - 245 miles
- Sydney Coal Railway - 14 miles.

CN is the only Class I freight railway serving Nova Scotia. Its main line ends at the South End Container Terminal (Halterm). As well, CN has access to Fairview Cove Container Terminal (Ceres). CN Autoport is connected to CN branch lines coming out from Windsor Junction through Dartmouth. CN Intermodal Terminal is located just across from the HPA Richmond Terminals. CN ships containers, bulk, break bulk and Ro/Ro cargoes. There are no public data

available on the volumes of cargo that CN ships to/from the Port of Halifax, but according to consultations, around 2/3rds to 3/4ths of the Port's cargoes are shipped by CN.

Beyond Halifax-Dartmouth, there are two other key locations for CN in Nova Scotia. The first is the gypsum mine owned and operated by National Gypsum (Canada) Ltd at East Milford. CN transports one train of gypsum daily (more if needed) between the mine and National Gypsum's dock facility at Wright's Cove in Dartmouth. The second location is Truro where CN interchanges with CBCNS on a daily basis. In addition, there are a number of local customers in the area.

CBCNS, owned by Genesee & Wyoming Inc., is a shortline operating between Truro and Port Hawkesbury. In 2015, CBCNS operation between Port Hawkesbury and Sydney was terminated due to lack of profitability. As of April 1, 2016, the railway can apply to abandon the line but must follow new procedures (similar to the federal regulations) put into effect by the Province on March 29, 2016.⁸³ However, Sydney Harbor-Port Development Partners and Genesee & Wyoming have been discussing the possibility of reopening the recently closed stretch if the proposed Sydney container terminal is developed. The capital cost of rehabilitating the line up to a Class 3 operating standard has been evaluated at \$28.4 million.⁸⁴

SCR is a shortline in Cape Breton. It is used to transport imported coals from Sydney Harbour to Langan Generating Station. SCR interchanges traffic with CBCNS at Sydney; at least for now as the CBCNS line may be abandoned in the near future.

Operations ceased on another shortline, WHR, in 2011 due to lack of traffic, amid the demise of the gypsum industry which was the main commodity being shipped. In February 2013, control of the line between Windsor Jct. and Windsor was returned to CN. CN advertised the line for disposal in April 2013. However, it has not yet been abandoned and the operating company, WHR, exists and much of the infrastructure remains in place.

In October, 2013, VIA reduced service frequency on the Ocean Limited between Montreal and Halifax from six times per week to three times per week. The Ocean departs Montreal and Halifax on Wednesdays, Fridays and Sundays. VIA owns and manages the station facilities, but no infrastructure that has any bearing on freight train operations.

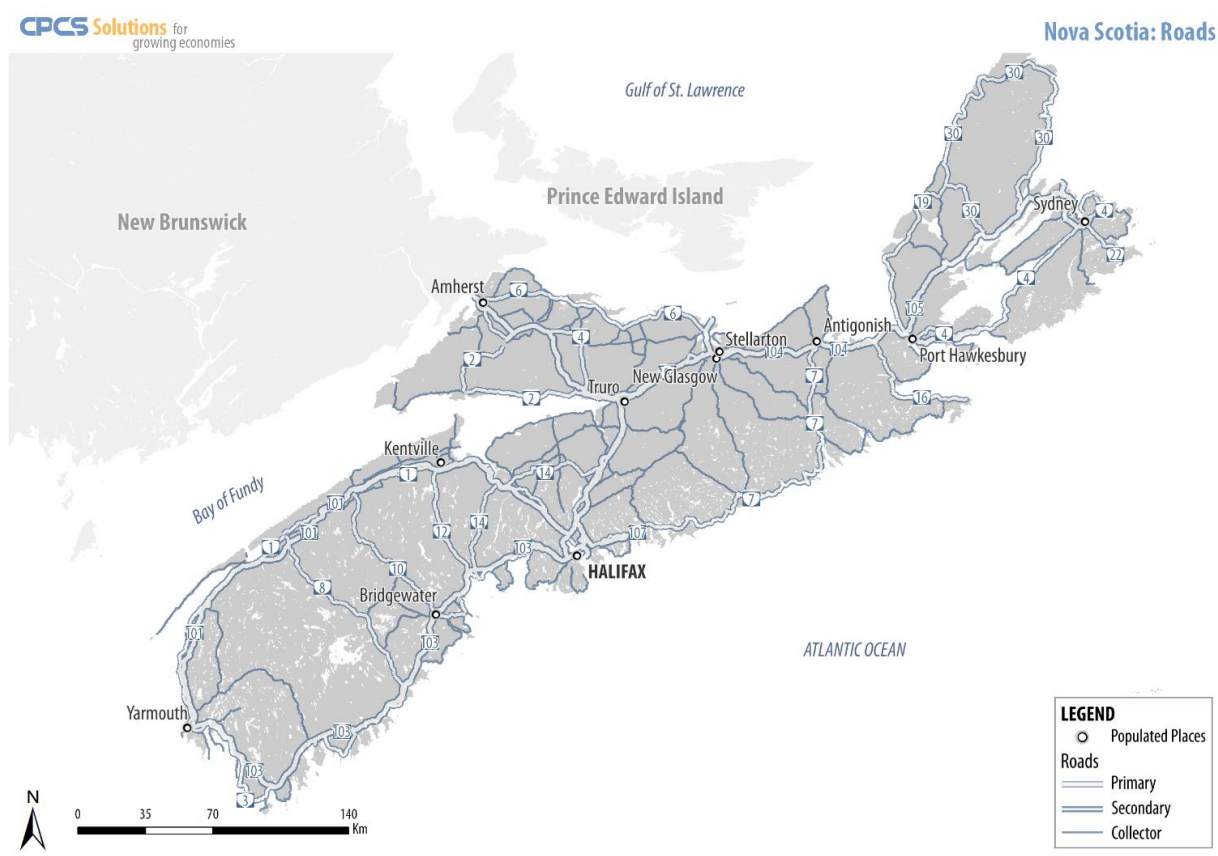
⁸³ Cape Breton Post, Cape Breton rail abandonment regulations take effect (March 29, 2016) at <http://www.capebretonpost.com/News/Local/2016-03-29/article-4480929/Cape-Breton-rail-abandonment-regulations-take-effect/1>.

⁸⁴ CANARAIL Consultants Inc., Evaluation CBNS Sydney Subdivision (July 2015).

4.4 Road Infrastructure

Nova Scotia's road network is shown in Figure 4-7.

Figure 4-7: Nova Scotia Road Network



Nova Scotia has practically 1,200 km of roads that are part of the National Highway System (NHS), of which over 900 km are core routes.⁸⁵

NHS highways in Nova Scotia include:

- Routes 101, 102, 103, 104/Trunk 4, 125/105 (Sydney to North Sydney), 106, 111 (Victoria Rd. to 118), 118 and 303.

Intermodal linkages include:

- Joseph Howe/Kempt/Barrington/Lower Water/Hollis Streets, from Highway 102 to Port of Halifax; and
- Dartmouth - Routes 111 and 322 from Route 118 to Port of Halifax Autoport.⁸⁶

⁸⁵Transport Canada, *Transportation in Canada 2014 Statistical Addendum*, Table RO1.

Several highways in the Province are regarded as in need of capacity increases. The Province is assessing the feasibility of twinning eight sections of four 100 series highways (101, 103, 104 and 107) covering 301 kilometers.⁸⁷ APTA also confirmed the need for twinning, in particular to improve conditions for cargo moving north and intended for Newfoundland. APTA also noted Highway 185 in Quebec needs twinning to enable a continuous route for LCVs into Ontario. As it is now, LCVs need to be taken apart and reassembled to continue the journey. A continuous route would make this unnecessary and make LCVs a much more practical option. APTA suggested there would be a significant increase in LCV use as a result.

APTA also noted Highway 185 in Quebec needs twinning to enable a continuous route for LCVs into Ontario.

A CPCS study in 2013 on truck mobility and performance found truck congestion points in downtown Halifax on the route to the Halterm Terminal (Lower Water St. and Barrington St). While the Port is currently operating significantly below capacity and the problem is therefore not as severe as it could be, this could change if the Port were to attract more cargo in the future (e.g. regional export cargo arriving at the Port by truck). Congestion on the bridges to Dartmouth have also been identified as problematic. Moreover, several studies have identified the Cogswell Interchange as the site of potential real estate development initiatives.⁸⁸ Concern has been noted that the development could impact truck traffic to and from the Halterm Container Terminal, particularly during the construction phase. We understand from the City of Halifax that the design criteria for the Cogswell Interchange will be set such that the development will have substantially no negative impact on truck flows once the project is complete. Interim road layouts and plans are also being considered to minimize negative impacts on truck traffic flows during the construction stages.

Truck transload facilities are located at the port of Halifax and Burnside Business Park which includes the new Halifax Logistics Park. The CN Autoport is one of the largest vehicle processing and transload facilities in North America, with annual throughput of 185,000 vehicles a year.⁸⁹ Burnside has a gross area of 3,400 acres. It is the largest such facility north of Boston and east of Montreal, hosting more than 1,500 businesses. Burnside is adjacent to five 100 series highways, is within 10-15 minutes of downtown Halifax and the Port, and readily accessible to the HSIA. Burnside is serviced by CN mainline, siding and common user facilities, and has the largest concentration of truck transportation in Atlantic Canada. The Park is also served by public transit links including the Rapid Transit bus route.⁹⁰

⁸⁶New Brunswick department of Transportation, Charting the Course, Atlantic Canada Transportation Strategy 2008-2018, p. 8 at <https://novascotia.ca/tran/publications/chartingcourse.pdf>.

⁸⁷CBC News, *Highway twinning study in N.S. awarded to CBCL Limited* (September 21, 2015) at <http://www.cbc.ca/news/canada/nova-scotia/nova-scotia-road-tolling-twinning-highways-1.3237186>.

⁸⁸Halifax, *Cogswell Interchange Lands Plan* at <https://www.halifax.ca/property/CogswellInterchange.php>.

⁸⁹Port of Halifax, Autoport at <http://portofhalifax.ca/infrastructure-leasing/non-hpa-facilities/autoport/>.

⁹⁰Halifax, *Burnside Business Park* at https://www.halifax.ca/business_parks/parks/burnside.php.

5 Competitive Positioning of Nova Scotia's Marine Gateway

Key Chapter Takeaway

The Port of Halifax is Nova Scotia's primary marine intermodal gateway. Though it boasts certain competitive attributes (proximity to major trade lanes, deep water, available capacity, for example), it lacks the same critical mass of traffic enjoyed by other ports competing for traffic to/from inland markets, owing in no small part to the small regional market in Nova Scotia. It also suffers from a relatively long geographic distance to inland markets and a single rail service provider. As a result, the Port of Halifax is likely to remain a largely discretionary port. Global and North American trends and market developments are unlikely to materially change this. Key to the long term success of Nova Scotia as a marine gateway is critical mass of traffic – essential for attracting shipping lines, and other logistics activity. Diluting critical mass of traffic across multiple ports in Nova Scotia risks being counterproductive.

5.1 Competitiveness of Nova Scotia's Marine Gateway

The following text box⁹¹ summarizes some of the key factors that make ports competitive.

Attributes of Competitive Ports

- proximity to key centers of production and consumption, and major trade lanes
- competitive connectivity to markets in terms of (in order of importance) reliability, cost and transit time
- high productivity, translating into lower port costs relative to competing ports
- stability of port labour

⁹¹ Adapted from Theo Notteboom and Wei Yim Yap, *Port Competition and Competitiveness*, in *The Blackwell Companion to Maritime Economics*, ed. Wayne K. Talley (2012), p. 552.

Beyond the competitive factors noted above, port competitiveness is underpinned by critical mass of traffic volumes. Simply, marine carriers will go where there is business. It matters less whether this traffic is regional, or destined/originated further inland, though the former is the most certain and generally viewed as the most valuable as it supports ship calls whether they be a direct call or the call of a feeder service.

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At a North American scale, Nova Scotia is a small market. Beyond niche markets such as seafood, blueberries and tires, it is neither a major production center nor a major consumption center. This is equally true of Atlantic Canada. Consequently, notwithstanding niche products and important volumes of transshipped crude and petroleum products at the Strait of Canso, the Nova Scotia and broader Atlantic Canada economies – on their own – generate relatively low port traffic volumes compared to larger markets such as Montreal or New York.

Beyond its relatively small regional market, Nova Scotia – and in particular the Port of Halifax – is also a gateway to and from inland markets, including Ontario, Quebec and the US Midwest.

For the purposes of assessing the competitiveness of Nova Scotia as a marine gateway to and from inland markets, we focus on container markets. This is Nova Scotia's most significant gateway traffic (that is traffic destined to/from inland markets). Containers also represent close to 90 percent of the tonnage handled by Port of Halifax facilities. At present, the Port of Halifax is the only Nova Scotia port handling containers.

Our consultations have indicated that the Port of Halifax's container traffic is sensitive to the Canadian dollar exchange rate, and corroborating this there has been in recent months a strong uptick in container traffic. In the first quarter of 2016, container throughput at the Port of Halifax was up 28 percent year-over-year in terms of TEUs, due to a 45 percent increase in exports and 13 percent increase in imports. In terms of tonnes, exports of containers were up 38 percent year-over-year in the first quarter of 2016, while imports were up 17 percent.⁹²

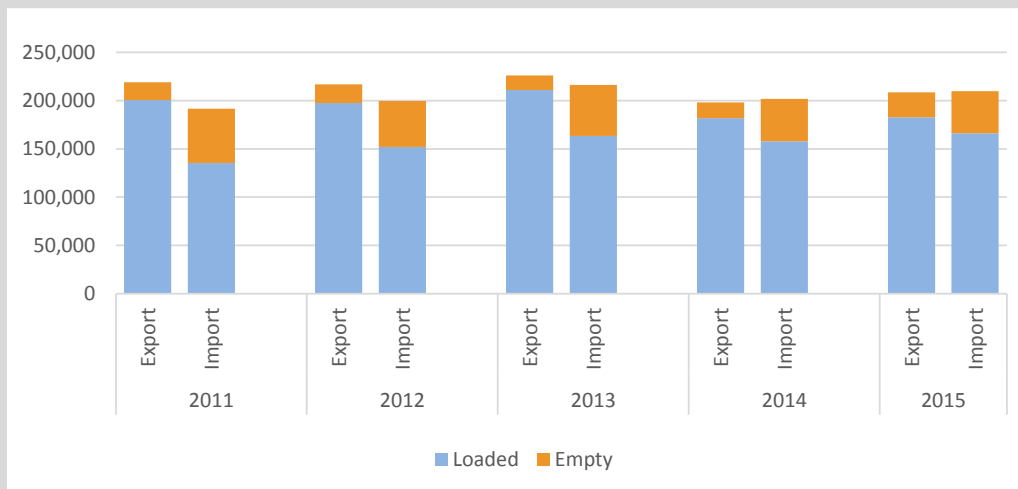
⁹² Port of Halifax, *Statistics* at <http://portofhalifax.ca/cargo/statistics/>.

Port of Halifax Container Traffic: More Exports than Imports

Although overall container volumes (loaded plus empty) moving through the Port of Halifax are well balanced in terms of inbound and outbound, loaded containers are more heavily weighted towards exports than imports. Over 2011-2015, loaded export container throughput accounted for 91 percent of total export container throughput, as compared to 76 percent for imports (Figure 5-1).

By commodity, and in terms of TEUs, the top exports over the past five years have been traffic originated in the region, including newsprint and paper, wood pulp, and seafood. Leading commodities on the import side have been somewhat more varied, having included manufactured goods, clothing, machinery and equipment, automobile parts, furniture, iron and steel, chemicals and rubber.⁹³

Figure 5-1: Container Throughput at the Port of Halifax, 2011-2015 (TEUs)



Source: Port of Halifax and American Association of Port Authorities

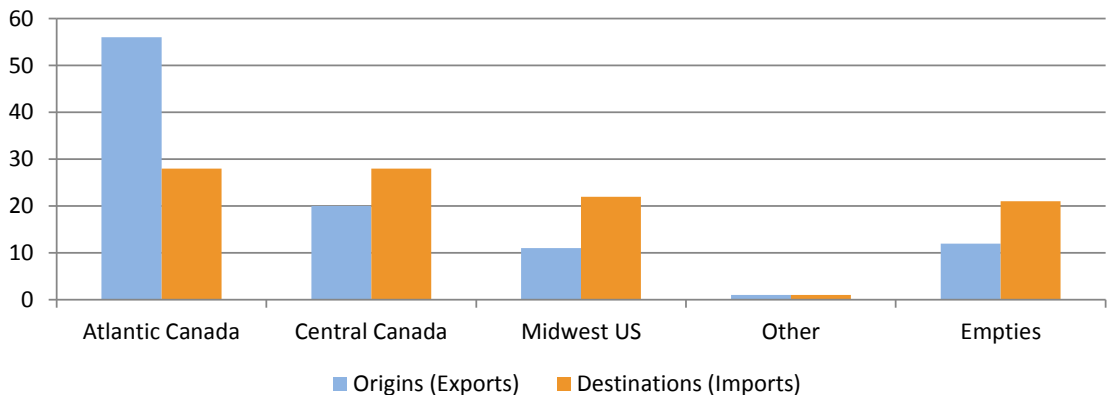
Over half of the container exports leaving the Port of Halifax originate in Atlantic Canada (Figure 5-2). Put differently, for container exports, the Port of Halifax is predominantly an outlet for regional products. In terms of imports, the Port of Halifax has a stronger gateway function for serving inland markets.

Roughly half of the containers imported through the Port of Halifax are destined to inland markets beyond Atlantic Canada (by comparison, the share of export traffic originated in inland markets is less than 30 percent).

For container exports, the Port of Halifax is predominantly (more than 55%) an outlet for regional products.

⁹³ Port of Halifax, *Statistics 2015* and prior years at <http://portofhalifax.ca/cargo/statistics/>.

Figure 5-2: Halifax Container Throughput (TEUs) by North American Region, 2015 (% distributions)



Source: Halifax Port Authority

There could be scope to increase the share of inland traffic moving through Nova Scotia. But this traffic is highly contested. To be competitive in serving inland markets, Nova Scotia must offer a competitive advantage relative to competing marine gateway ports (box below) with respect to total transportation reliability, cost and transit time to end markets (i.e. it must be “economically” closer to end markets relative to competing gateways, such as Montreal).

There could be scope to increase the share of inland traffic moving through Nova Scotia. But this traffic is highly contested.

Competing Container Ports

The specific ports Halifax competes with for traffic to/from inland markets varies depending on the specific origin/destination regions involved (table below). For traffic destined to/from Ontario/Quebec to/from Europe and the Mediterranean for example, the Port of Halifax competes primarily with the Ports of Montreal and New York/New Jersey. For traffic to/from the US-Midwest to/from South East Asia, the Port of Halifax competes with ports on both the East Coast (mainly New York/New Jersey, Norfolk) and West Coast (mainly Vancouver, Prince Rupert). For container traffic destined inland, the Port of Montreal has virtually the same inland market as the Port of Halifax. Ships generally do a full unload/load at Montreal which is attractive to shipping lines.

Figure 5-3: Key Competing Ports, by Origin (Left Column) Market (Top Row)

	Eastern Canada	Central Canada	Midwest USA
NE Asia	HFX, MTL, BOS	VCR, PRP, NYNJ, HFX, MTL	VCR, PRP, NYNJ, NRF, HFX
SE Asia	HFX, MTL	VCR, PRP, NYNJ, HFX, MTL	VCR, PRP, NYNJ, NRF, HFX
ISC/ME	HFX, MTL	NYNJ, HFX, MTL	NYNJ, NRF, HFX, MTL
Mediterranean	HFX, MTL, BOS	MTL, NYNJ, HFX	NYNJ, NRF, HFX, MTL
N. Europe	HFX, MTL, BOS	MTL, HFX, NYNJ	NYNJ, MTL, NRF, HFX
Latin America	HFX, STJ	HFX, STJ, MTL, NYNJ	NYNJ, NRF

Source: Port of Halifax

5.1.1 How Competitive is the Port of Halifax for Traffic to/from Inland Markets?

With respect to container trades, specifically, the Port of Halifax boasts several competitive attributes, including:

- On the great circle route between Europe and key markets on the US East Coast – requiring a deviation of less than an hour from the route to New York, for example
- Physical capacity to accommodate the largest container vessels (Halifax has the deepest container berths on the East Coast of North America)
- Uncongested terminals – current capacity utilization of container terminals is around 35%
- Excellent temperature-controlled cargo handling facilities, including over 1000 reefer plugs
- Strong physical connections to inland markets, via CN, including on dock rail and double stack service
- Port labour stability
- Favourable transit time to inland markets due to low container dwell times (36 hours or less) and direct rail service. For example, the Port of Halifax notes a 5 day advantage to the US Midwest by rail versus other US East Coast ports.
- Lower port costs relative to competing ports (see text box)

Port of Halifax Cost Advantage, and Disadvantage

Port of Halifax container handling costs per forty-foot equivalent unit (FEU, equal to two TEUs) are lower than those at key competing ports including Montreal, New York/New Jersey and Vancouver.⁹⁴

Figure 5-4: Container Handling Costs Per FEU for Selected Ports

	Halifax		Montreal		New York		Vancouver	
	<u>C\$/unit</u>	<u>US\$/unit</u> <u>@ 0.75</u>	<u>C\$/unit</u>	<u>US\$/unit</u> <u>@ 0.75</u>	<u>C\$/unit</u>	<u>US\$/unit</u> <u>@ 0.75</u>	<u>C\$/unit</u>	<u>US\$/unit</u> <u>@ 0.75</u>
Canadian								
Cargo	\$327	\$245	\$410	\$307	-	\$454	\$505	\$379
US Cargo	\$289	\$216	\$410	\$307	-	\$454	\$505	\$379
Halifax Cost Advantage								
Canadian								
Cargo	-	-	\$83	\$62	n/a	\$209	\$178	\$134
US Cargo	-	-	\$121	\$91	n/a	\$238	\$216	\$163

Source: Halifax Port Authority, *Small change BIG IMPACT* (March 2015)

⁹⁴ Because Halifax has different tariff rates for cargo wharfage for Canadian and US laden cargo, whereas the other ports do not, the Halifax total per unit cost rates shown are different for Canadian and US laden cargo.

Port charges are of course only part of the transportation costs incurred in moving containers to and from inland markets. Other costs, in particular inland transportation costs can be significant and can influence the competitiveness of ports.

It has been noted in consultations that rail rates to inland markets is a larger driver of the competitiveness of the Port of Halifax for inland traffic relative to competing ports than Port costs and services. The significance of land transportation costs are a key reason shipping lines look to negotiate rates with CN before committing to call at the Port of Halifax.

Though not assessed in detail in this study, it is expected that land transportation costs from Halifax to inland markets in Ontario, Quebec, and the US-Midwest would be higher than that from many competing ports that are geographically closer to these markets given shorter inland transportation distances by rail and truck. Though now dated, an earlier CPCS study of total transportation costs confirmed that inland transportation costs were higher from Halifax to Chicago, relative to costs from Montreal, New York, and Norfolk.

It is our expectation that a reduction in rail rates to/from the Port of Halifax to more aggressively attract new business would mean an almost certain reduction in CN's short term profitability. If the cargo should materialize, there could potentially be an increase in CN's longer term revenue and profits. It appears, however, that the company has chosen to take a more conservative "show me the volume first" approach.

It is our expectation that a reduction in rail rates to/from the Port of Halifax to more aggressively attract new business would mean an almost certain reduction in CN's short term profitability.

Notwithstanding the competitive advantages and attributes which the Port of Halifax enjoys, it remains a small player in North American container markets. This is due in large part to the small regional market in Nova Scotia and the fact that competing ports for inland markets (e.g. Montreal, New York/New Jersey) have been successful in building critical mass of traffic, thereby attracting greater interest from container shipping lines.

Commercial factors influencing ship calls are varied and complex. They are, however, driven primarily by the profits associated with a ship call, this being a function of the container volumes and rate per container. For example, a shipping line will find it more compelling and will be more committed to moving 4000 TEUs per port call through the Ports of New York/New Jersey – most of that destined for the immediate region - than 400 TEUs through the Port of Halifax with these split between regional and inland markets. Exports of seafood and other perishables in reefer containers through the Port of Halifax are a draw for shipping lines given the higher revenue per container associated with this business. Nevertheless, a rough rule of thumb is that a port call will be attractive if a ship can move 10 percent or more of its capacity through a port, all other things being equal (by comparison, a shipping line will

typically drop/pick up 30-50 percent of its vessel's capacity at the Port of New York/New Jersey). As well, when shipping lines have financial interests in terminals, they will be more inclined to use those terminals (e.g. MSC and Maersk own terminals in New York).

The significance for the Port of Halifax is that when shipping lines look to cut calls from their rotations, ports representing lower revenues for the line (i.e. fewer moves) are often the first to be cut. For this same reason, a call at Halifax is also more likely to be skipped if a ship is running late en route to New York (where lines typically have slots reserved in advance and face penalties when late).

The surest way for the Port of Halifax to attract and retain shipping line calls is for it to build more traffic. Without greater critical mass, the Port of Halifax will likely remain a discretionary port. That said, it should also be recognised that any call will be somewhat discretionary if it takes time from the ship schedule. If for whatever reason ships fall behind and have to drop a port, it will most likely be their smallest port of call. However, if productivity is significantly higher than other ports, and if sufficient boxes are involved in the call, the time impact of the diversion could actually be positive.

The surest way for the Port of Halifax to attract and retain shipping line calls is for it to build more traffic. Without greater critical mass, the Port of Halifax will likely remain a discretionary port.

5.1.2 Would New Container Ports in Nova Scotia Make the Province a More Competitive Gateway?

The proposed Melford Terminal at the Strait of Canso and the newly renamed Novaport development at Sydney aim to accommodate the new ultra-large container ships with capacities of 18,000 + TEU. The proponents' basic assumption underlying these projects is that with ship sizes growing as they are there is need for a new mega-gateway (and hub, in the case of the proposed Novaport project) in the Northeast as the existing ports lack the required land side space necessary to handle the numbers of containers involved.

According to their proponents, both projects will have certain competitive attributes – no land side space constraints, low construction costs, deep water, modern labour agreements, and state of the art technology enabling higher productivity. Both, however, also have the disadvantage of greater distance to inland markets than existing ports. Of the two projects, Melford may be the more competitive given a somewhat shorter distance to inland markets and fewer upfront rail costs. One industry insider also suggested that Melford would likely have a more advantageous arrangement with respect to port labour.

For its part, Novaport also aims to handle transshipment business using short sea shipping (as distinct from a pure gateway by rail function as proposed for Melford). In our view, the extra cost of transshipping and short sea shipping to, say Montreal, would be prohibitive. In Montreal, cargo would still have to go through the port and incur the same inland costs it would if shipped directly to Montreal.

In any case, it is our view that the current market would be unlikely to support more container ports in Nova Scotia. The case has been made that higher productivity could lead to important cost advantages, though this depends on the success in attracting the necessary container traffic volumes to realize economies of scale and remains speculative. Certainly, there remains significant excess container capacity at the Port of Halifax to accommodate future organic growth. Also, new facilities risk diluting the volume that the Port of Halifax already has. It has also been suggested that this could potentially send conflicting signals to the shipping line industry about the future of Nova Scotia's marine gateway.

Perhaps telling, both proposed new container terminal projects have yet to announce specific information regarding securing shipping line commitments, a terminal operator, or financing. In consultations, Melford has indicated their status as being comfortable with operator and

Both proposed new container terminal projects have yet to make public or announce specific information regarding the securing of shipping line commitments, a terminal operator or financing.

financing, and being well along in discussion/negotiation with carrier. PSDC has indicated they have secured financing and are close on the matter of terminal operator and shipping line. However, the consulting team has received no related details.

5.2 Nova Scotia Marine Gateway Opportunities

Sources of increased maritime business in Nova Scotia, that is new traffic that could contribute to building critical mass, can be broken down into regional traffic and inland gateway traffic.

5.2.1 Regional Traffic Opportunities

Regional Container Markets

As noted, more than half of the loaded container exports moving through the Port of Halifax originate in Atlantic Canada. On the import side, containers destined to remain within Atlantic Canada account for 28 percent of loaded container imports moving through the Port of Halifax. Beyond increases in container traffic relating to regional mega projects, overall growth in regional container markets will be largely tied to regional demographic and economic growth. As suggested by Statistics Canada's current population projections, the population base in Nova Scotia is expected to be basically flat or declining in the coming 25 years,⁹⁵ meaning little growth or a drop in consumer demand for containerized imports. Beyond mega projects, regional economic activity is expected to follow its historic pattern, generally underperforming the national economy in key areas including GDP growth, per capita income and unemployment. Real GDP, for example, is estimated to grow at a slow pace of 1.3 percent per year (CAGR) between the years 2010 and 2021.⁹⁶ In short we do not expect that regional demographics or economic activity will result in significant demand growth with the possible exception of Nova Scotia's niche exports (seafood, frozen fruits, tires).

Beyond potential increases in traffic relating to Atlantic Canada mega projects, or regional niche product exports, the regional container market is expected to remain relatively flat.

5.2.2 Inland Gateway Traffic Opportunities

To capture inland gateway traffic opportunities, Nova Scotia must be "economically closest" to end markets, i.e. the cargo that's using the port as a gateway will have the lowest overall end-to-end cost of transportation. This is also somewhat relative because conditions vary according to origin, shipping line's port rotation etc. The Port of Prince Rupert relies almost solely on this type of traffic which, along with the opportunity created by the explosion in Asian-North American traffic and congestion in the major California ports, explains why it has grown despite not having a regional market of any significance. Other likely factors include CN's competitive interest in capturing a share of CP's business in Vancouver and high volume of traffic and resulting positive implications for CN's operating ratio.

⁹⁵ Statistics Canada, *Table 3.1 Total population, observed (2013) and projected (2038) according to seven scenarios, Canada, provinces and territories* at <http://www.statcan.gc.ca/pub/91-520-x/2014001/tbl/tbl3.1-eng.htm>.

⁹⁶ Canmac Economics Limited, *Nova Scotia Demographic-Economic Outlook 2011-2021* (April 2012).

Inland Containerized Trade

Nova Scotia, specifically the Port of Halifax, is expected to continue to be an important gateway to/from inland markets for container trades. Two factors will be central to growing this transit traffic: i) an absolute growth in container volumes to/from inland markets, and ii) the ability of the Port of Halifax to improve its competitive position in serving inland markets relative to competing ports (i.e. be “economically” closer to inland markets).

With respect to absolute growth in container volumes, the inland container market is expected to continue to slightly outpace North American real GDP, but possibly to a decreasing degree as containerization increasingly becomes saturated. By one estimate, North American container market growth is expected to average between 3 percent and 4 percent over the next decade. The expected Canada-European Union Comprehensive Economic and Trade Agreement will likely further bolster container volumes to/from the Port of Halifax destined to/from inland markets in Canada, though to what extent remains unclear.

With respect to the Port of Halifax’s competitive position in serving inland markets, many structural factors (as distinct from cyclical factors, such as exchange rates) are likely to influence this. In many cases, the expected implication for the Port of Halifax’s competitiveness and traffic remain unclear, even to insiders in the container shipping business.

Figure 5-5: Structural Factors Potentially Impacting Port of Halifax Competitiveness in Container Trades

Structural Factor	Competitiveness Implication for Port of Halifax
Deployment of larger container ships	<ul style="list-style-type: none"> • Unclear, but the higher capital cost of these ships will likely necessitate a greater consolidation of container volumes in fewer ports that have and can sustain critical mass of traffic (provided that they can also physically accommodate the larger ships). • Shift from pendulum to greater around the world services possible – could be beneficial for Halifax as first and last port of call in North America from/to Europe/Med. • In our view, while the Port of Halifax can physically accommodate the larger ships (except for air draft to Ceres for largest ships), the fact that Halifax does not serve a large local market will pose a challenge to attracting and retaining calls by these larger ships.
Suez Canal capacity expansion	<ul style="list-style-type: none"> • This will continue to result in greater traffic to/from Asia to eastern North America. • This is likely good news for the Port of Halifax in terms of increasing its share of Asian traffic, as Asian traffic shifts from West Coasts to East Coast and as Halifax is well positioned to compete on traffic from Southeast Asia.
Panama Canal expansion	<ul style="list-style-type: none"> • As with the expansion of the Suez Canal, this will likely result in more Asian traffic moving to the North American East Coast. The expansion of both canals could lead to strings of ships going eastbound (only) and others westbound (only), the latter favouring first ports of call in eastern North American – like Halifax. It is unlikely that shipping lines from Asia via the Pacific would bypass the West Coast as it is a large market, very close and practically en route (though a two port run, e.g. Shanghai to New York, could be very efficient in terms of ship utilisation and transit time). • This may lead to further consolidation of port calls. • In our view, the increase in traffic will be greatest at US East Coast ports.

Raising of the Bayonne Bridge (NY/NJ)	<ul style="list-style-type: none"> • The raising of the Bayonne Bridge from 151ft to 215 ft will increase the maximum capacity of ships that can call NY/NJ from about 8,000 TEUs today to 13,000 TEUs once the project is complete. • This will likely erode some of the Port of Halifax's business as it will no longer have the same advantage over NY/NJ for accommodating ships over 8,000 TEUs.
Consolidation of ocean carriers	<ul style="list-style-type: none"> • Unclear, but will likely lead to further consolidation of port calls – to the benefit of ports that already have and can sustain critical mass of traffic.
Development of North American Hub Ports	<ul style="list-style-type: none"> • The deployment of larger ships will also likely promote more hub and spoke operations, with smaller ships serving spokes. It is unlikely that there will be hubs in the US due to cabotage restrictions under the Jones Act • It is in our view unlikely that the Port of Halifax (or for that matter a port elsewhere in Nova Scotia) will become a major hub.

The Port of Halifax will continue to have competitive attributes, such as those described in section 5.1.1. However, many unknowns remain and the major structural changes in global container markets – as noted above - will likely create significant headwinds for Nova Scotia and the Port of Halifax to serve inland markets.

Some lines may seek to maintain or even increase business through Halifax to promote the resilience of their service (for example, in the event of labour disruptions in US Northeast ports). This is certainly not bad news for Halifax, but is unlikely to be a major traffic driver through the Port.

Though many unknowns remain, we expect that structural industry changes, such as increasing ship size and shipping line alliances will on the whole create headwinds for the Port of Halifax in container markets.

Automotive

Autoport is the only east coast Canadian port at which automobiles sold by European-based manufacturers operating in Canada are unloaded.⁹⁷ In 2010, CN, the HPA, and container terminal operators Ceres and Halterm jointly established new performance standards for vessel unloading and loading times, the placement of rail cars at the terminals and CN transit times to key markets in eastern and central Canada and the U.S. Midwest. As a result, supply chain efficiencies reduced dwell times for European import vehicles at Autoport by about 25 percent.⁹⁸

⁹⁷ There are exceptions, for example, in winter 2015 when severe weather resulted in some cargo being rerouted through the port at Davisville, Rhode Island. See Automotive Logistics, *Ice storm buries vehicles at CN auto terminal in Nova Scotia* (March 31, 2015) at <http://automotivelogistics.media/news/ice-storm-buries-vehicles-at-cn-auto-terminal-in-nova-scotia>.

⁹⁸ Halifax Gateway Council, *Halifax Gateway Transportation and Logistics Sector Profile* (April 2012), p. 26.

CN Autoport could be a significant beneficiary of CETA. The agreement calls for a phased reduction in duties on a reciprocal basis which should help the growth of traffic. On the import side, Autoport could be the first stop for European manufacturers shipping products into North America, at least those destined for Canada and up to the limitations of Autoport's capacity or ability to expand. On the export side, Autoport currently has very little traffic but this could change. It would depend, in part, on the extent to which Canadian plants produce models meant for the global market. In addition, Halifax currently has a shipping advantage to Europe for Canadian made vehicles as Montreal lacks space for vehicle exports. Any use of Montreal's land reserve is several years away, and may or may not include a vehicle terminal.

5.2.3 Outlook for Nova Scotia's Marine Gateway

The Port of Halifax will likely remain Nova Scotia's primary container gateway port. Regional Megaprojects, the pending Canada-EU trade agreement and shipping line resilience strategies represents opportunities for the Port of Halifax, as does increasing Asian trade via the Suez Canal, though the extent of these opportunities in terms of increased traffic are unclear. Nevertheless, owing in large part to its small immediate market, the Port of Halifax is likely to remain a discretionary port. Although many unknowns remain concerning the likely impact of the major trends in global shipping on traffic through the Port of Halifax, we do not expect that related developments will lead to a major change in container volumes moving through Nova Scotia.

Key to the long term success of Nova Scotia as a marine gateway is critical mass of traffic – essential for attracting shipping lines and other logistics activity. Diluting critical mass of traffic across multiple ports in Nova Scotia risks being counterproductive.

Key to the long term success of Nova Scotia as a marine gateway is critical mass of traffic – essential for attracting shipping lines and other logistics activity.

6 Competitive Positioning of Nova Scotia's Air Gateway

Key Chapter Takeaway

HSIA is the primary air hub for Atlantic Canada. It has a number of strong competitive attributes, including competitive fees, available infrastructure capacity and a multi-tenant cargo facility. The competitiveness of HSIA is however constrained by its small population and economic base compared to major centers outside the region. Live lobster exports are driving the growth of air cargo at HSIA, and live lobsters are expected to be a key driver of Nova Scotia air export growth in coming years. Attracting more outbound air cargo service to serve this demand is largely contingent on air carriers finding new inbound markets. Until then, most of Nova Scotia live lobster exports (about 80% in 2015) will continue to be trucked to larger airports (e.g. Boston, Montreal, Toronto) for onward overseas export by air.

6.1 Competitiveness of Halifax Stanfield International Airport

The following text box⁹⁹ highlights key factors making airports competitive.

Attributes of Competitive Airports

- Market potential including the local area population, popularity of the destination and use of the airport as a hub
- Quality of the infrastructure including airport and ground infrastructure
- Competitiveness of airport charges

As with marine ports, airport competitiveness is underpinned by a critical mass of traffic. In the case of the air sector, this is driven by population and economic activity around the airport. Air carriers go where the business exists. This, moreover, is as important in determining air cargo capacity as it is in determining passenger capacity, the former being in

⁹⁹ Adapted from Martin Grancay, *Evaluating competitiveness of airports - Airport competitiveness index*, MPRA Paper No. 16488 (January 2009) at <http://mpra.ub.uni-muenchen.de/16488/>.

large part a by-product of the latter. As noted, close to half of global air cargo capacity is belly space of passenger aircraft. In Canada and Nova Scotia, with relatively little dedicated air freighter capacity serving the market, belly cargo space dominates to an even larger degree.

As Cities Go, So Do Airports

“You may have the best airport in the world but if there isn’t an economically vibrant city behind it to drive that traffic, then airlines aren’t interested.” James Cherry, CEO Aéroports de Montréal, *Montreal Gazette* (February 13, 2016).

6.1.1 How Competitive is the Halifax Stanfield International Airport?

The Halifax Stanfield International Airport is generally acknowledged as the primary air hub for Atlantic Canada. It has a number of strong competitive attributes, as summarized in the text box below.

Summary of HSIA Key Competitive Advantages

Services and Fees

- No operational restrictions — 24/7 operation, customs service, weather service; no noise curfew
- Competitive landing and terminal fees

Infrastructure

- 2 runways — 7,000 ft, and 10,500 ft allows for handling large wide-body and heavy aircraft
- Multi-tenant cargo facility located directly airside — 40,000 sq. ft., includes 7,000 sq. ft. temperature controlled space

Operations

- Three fixed-base operators (FBOs) provide aeronautical services including fuelling
- The only US pre-clearance facility in Atlantic Canada

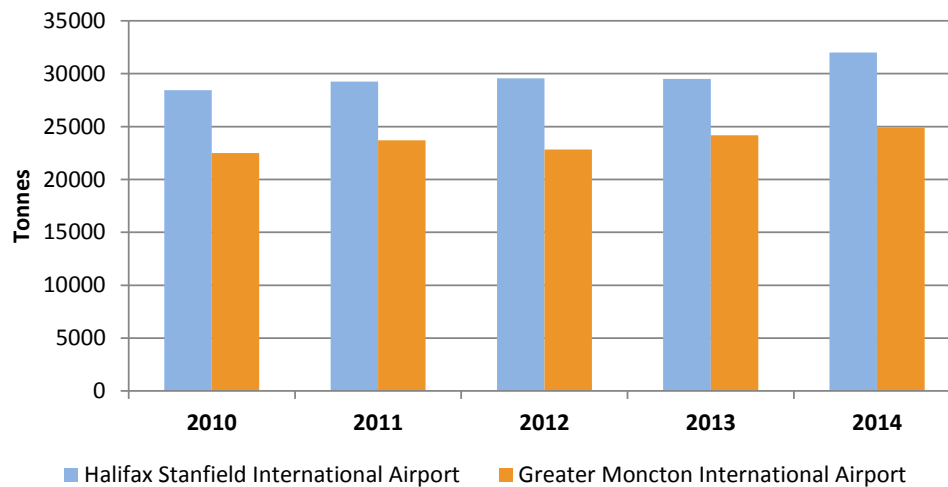
HSIA handles over half of cargo tonnage and passenger traffic in the Maritimes region.¹⁰⁰ Although Halifax and Moncton compete directly for air cargo, especially dedicated cargo

¹⁰⁰ Halifax Stanfield International Airport, *Atlantic Canada’s Air Gateway to the World*, Cargo Logistics Canada 2016.

capacity,¹⁰¹ Halifax has the advantage mainly because of having the region's largest population and its historic role as the region's commercial centre.

Between 2010 and 2014, air cargo at HSIA grew 12.5 percent, while air cargo through Greater Moncton International Airport (GMIA) grew 10.7 percent.

Figure 6-1: HSIA and GMIA Air Cargo Volumes, 2010-2014 (tonnes)



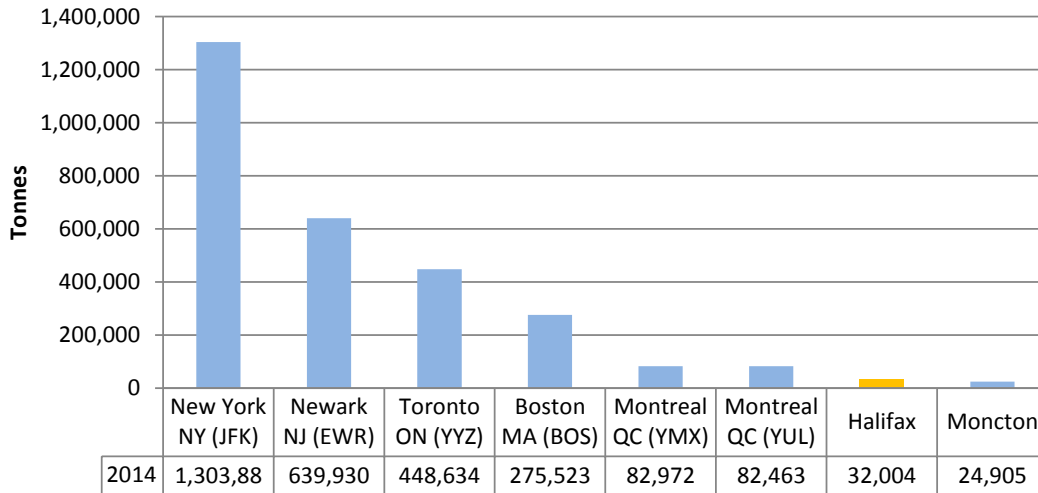
Sources: Halifax International Airport Authority, Greater Moncton International Airport, Transport Canada

Notwithstanding its competitive attributes and role as a regional hub, the competitiveness of HSIA is constrained by its small population and economic base compared to major centers outside the region, including Montreal, Toronto and Boston, which more easily attract flights. The total volume of cargo handled by HSIA is consequently much smaller than airports in these larger population centers.

The following figure positions air cargo volumes at Halifax in the context of the volumes handled at major northeastern US and eastern Canadian airports. As indicated, air cargo volumes tend to track population.

¹⁰¹ Halifax and Moncton airports have, with the support of the Atlantic Gateway Funding Program, both completed in recent years runway extensions and now have 10,000+ foot runways that can accommodate larger freighters. As well both have state-of-the-art cold chain facilities to serve growing fish and seafood exports, the Gateway Facilities ULC MTCF at Halifax and the new 47,000 sq. ft. facility with cold storage at Greater Moncton Airport operated by Xtreme Cold Storage Ltd.

Figure 6-2: Air Cargo Volumes at Major Northeast US and Eastern Canada Airports, 2014 (tonnes)



Sources: Airports Council International, Halifax International Airport Authority, Greater Moncton International Airport

Successful air cargo operations depend on a large regional consuming and producing market not just for the sheer volume of cargo but to provide balance between inbound and outbound freight. This is critical to the financial success of an air cargo operation. Carriers need inbound traffic to help justify their interest in handling exports. Korean Air, for example, stops in Chicago to drop off and pick up cargo before going on to Halifax to load cargo for export. While Halifax is a hub in Atlantic Canada, it is dependent on import traffic emanating at other airports.

Of the exports going to the US, we understand that only 20 percent of that traffic remains in the US. The balance is destined for shipment by air to overseas markets.¹⁰² These are trucked from Halifax to airports in places such as Boston, Montreal, New York and Newark, NJ. According to our consultations, lack of air lift capacity at Halifax is one explanation but a bigger factor is that US based companies send buyers to Halifax on a regular basis. These companies have storage facilities in the US, and buy and store lobster for year-round sales to overseas markets. Some have Canadian partners. Another factor is that the US catch has been diminishing.

Of the exports going to the US, we understand that only 20 percent of that traffic remains in the US. The balance is destined for shipment by air to overseas markets.

¹⁰² Estimate provided by HIAA.

6.2 Nova Scotia Airports Market Opportunities

As shown in Figure 4-4, live lobster exports are driving the growth of air cargo at HSIA, and live lobsters are expected to be a key driver of Nova Scotia export growth in coming years. As forecasted by the Export Development Corporation, Nova Scotia agri-foods exports will rise 9 percent in 2016 and 5 percent in 2017, bolstered by a lower Canadian dollar and continued strong demand for live lobster. Even with a slowing in China's economic growth, its rising disposable incomes and appetite for seafood will drive continued growth in sales to China, the most important destination for Nova Scotia live lobster after the US. Also promising for the seafood industry is the expected ratification of the CETA agreement.¹⁰³ This, however, must also be viewed with some caution given the current attempt by some European interests to have imports of live North American lobster banned from the EU.¹⁰⁴

Importantly, the export opportunities for HSIA emanating from China, the EU and other countries in Asia will require expanded air cargo service. However, while HSIA could accommodate more air traffic, the ground infrastructure (Gateway facilities) can, according to our consultations, accommodate only one or two, or possibly three, more flights per week.

6.2.1 Outlook for Nova Scotia's Air Gateway

Halifax Stanfield International Airport will without doubt remain Nova Scotia's primary gateway for air cargo. HSIA will also be limited in its attempts to attract carriers and build air cargo lift capacity by its small immediate market. As with marine cargo, key to Nova Scotia's long term success as a gateway for air cargo is critical mass of traffic. Furthermore, competition that dilutes the available traffic across multiple airports risks being counterproductive in terms of concentrating critical mass.

¹⁰³ Export Development Corporation, *Global Export Forecast* (Spring 2016) at <http://www.edc.ca/EN/Knowledge-Centre/Economic-Analysis-and-Research/Documents/gef-spring-2016.pdf>.

¹⁰⁴ The Wall Street Journal, *Marauding American Lobsters Find Themselves in Hot Water* (May 5, 2016) at <http://www.wsj.com/articles/marauding-american-lobsters-find-themselves-in-hot-water-1462457114>.

7 Recommended Strategy

Key Chapter Takeaway

Nova Scotia's gateway strategy should focus on enabling a greater mass of traffic through the Port of Halifax and HSIA. To this end, public policies, plans and investments should focus on the growth of the regional freight market (exports and imports). In tandem, the Province should do more to support the Port of Halifax and HSIA marketing efforts in overseas markets for inland gateway traffic. Any investments should focus on incremental improvements necessary to bolster the competitiveness of these existing gateways and associated corridors, rather than grand (and risky) projects seeking to redefine trade flow patterns through Nova Scotia.

Investment in major projects facing long term market uncertainties should be left to private sector actors who are better able to plan for, manage and adapt to market risks. We recommend against public investments in developing new or alternative marine gateways in Nova Scotia for container traffic and risking diluting critical mass of traffic through existing, underutilized Nova Scotia gateway facilities.

7.1 Strategic Context

Increasing trade with Asia via the expanded Suez Canal, the deployment of larger container ships, and increasing role hub airports in global trade are some examples of international trends and structural changes that could influence trade flows through Nova Scotia's marine and air gateways. However, there remains considerable debate and uncertainty – including within the transportation industry itself - about the long term implications of these and other factors on Nova Scotia's trade related transportation system.

One thing is certain, the capital intensity of international trade infrastructure and services is expected to continue to increase as asset owners seek to realize greater economies of scale and productivity to drive down operating costs and be more competitive globally. Consequently, transportation services providers will tend to gravitate to where there is critical mass of traffic to maximize the utilization of their assets and to drive up profitability. This is as true for shipping lines, airlines, and railways.

Transportation services providers will tend to gravitate to where there is critical mass of traffic to maximize the utilization of their assets and to drive up profitability.

The long term success of Nova Scotia's gateway transportation system will in many respects be dependent on attracting and keeping a critical mass of traffic. Atlantic Canada is likely to continue to drive trade traffic through Nova Scotia's gateway assets. However, the relatively small size of this market, together with region's modest growth prospects, will unlikely be enough to generate substantially higher levels of critical mass of traffic in the long term.

Larger markets further inland, including in Ontario, Quebec and the US-MidWest represent greater opportunities to drive critical mass of traffic through Nova Scotia – particularly for its marine gateways, but these markets are and will continue to be highly contested.

In our view, Nova Scotia faces headwinds in attracting a greater share of traffic to and from inland markets. The global trend towards greater capital intensity in the trade infrastructure and services will likely result in consolidation of operations in fewer places. Beyond continuing to serve their immediate regional markets, smaller gateway ports and airports, like the Port of Halifax and the HSIA risk losing market share to larger marine ports and airports unless they can offer and sustain a distinct competitive advantage in serving inland markets.

7.2 Nova Scotia Gateway Strategy: Focus on Enabling Critical Mass of Traffic

Province of Nova Scotia policies, plans and investments should favour a concentration of trade flows through as few gateway facilities as possible, to enable greater critical mass, and greater asset utilization in those locations.

From the perspective of Nova Scotia's marine gateways, we recommend that public policies, plans and investments prioritize improvements that support the competitiveness of the Port of Halifax as Nova Scotia's and in fact Atlantic Canada's primary marine gateway. Certainly, we recommend against public investments in new or alternative marine gateways in Nova Scotia for container traffic.

From the perspective of Nova Scotia's air gateway, we likewise recommend that public policies, plans and investments prioritize measures that will drive traffic through the existing air gateway at HSIA.

7.3 Trade Promotion to Attract More Traffic

Any public initiative that could facilitate more trade through Nova Scotia would positively contribute to critical mass of traffic through the Port of Halifax and/or HSIA. In addition, the HPA and HIAA must continue to be aggressive

in searching out new opportunities and promoting Nova Scotia for gateway traffic.

Public policies, plans and investments should focus on growing the regional freight market (exports and imports). This is as much a trade promotion strategy as a gateway strategy.

Specific initiatives could include:

- Regional trade promotion activities, that could drive greater exports from Nova Scotia to international markets, or to attract regional investment that could bolster imports bound for the region.
- Promoting Nova Scotia's gateway assets with one voice. Several consultations suggested a lack of leadership and coordination in promoting Nova Scotia's gateway assets overseas. The Province should do more to support the Port of Halifax, HSIA and their partners' (e.g. CN, terminal operators, etc.) marketing efforts in overseas markets for traffic destined to/from inland markets.

7.4 Incremental Improvements Rather than Grand Projects

The Port of Halifax and HSIA both for the most part have significant available capacity and have strong competitive attributes. These attributes should continue to be marketed broadly. There are nevertheless opportunities to improve the performance of these gateways and their access to inland corridors through incremental improvements. Without being exhaustive, road access to/from the Halterm Container Terminal on Barrington St. and Lower Water St. in Halifax are notable examples. The development of a truck lane in the rail cut from the Halterm Container Terminal is one option that has been discussed as a means of improving truck flows into and out of the Halterm Container Terminal. Additional temperature controlled air cargo capacity at the HSIA, as and when market demand so justifies, is another incremental improvement option.

We would certainly advise against direct public support for significant infrastructure development plans premised on a major reconfiguration of North American transportation flows. Both the Melford and Novaport container terminal development projects are predicated upon such major reconfigurations. In our view, there are simply too many market uncertainties and associated risks to warrant public funding for such projects, which may, or may not materialize in attracting new traffic and a greater share of North American traffic flows through Nova Scotia.

7.5 Let the Private Sector Manage Market Risks

Private sector operators of port terminals, shipping lines, airlines and railways are in a better position to understand transportation market risks than the public sector. They are also generally in a better position to manage and adapt to long term market risks.

If private actors wish to invest in and operate transportation facilities, such as the proposed Melford container facility, the Province should not prevent such developments, if privately financed. This should however not be construed as public sector endorsement of these projects.

7.6 Role of the Province of Nova Scotia

The present report is intended to provide a high level strategy to inform decisions on future investments, policies and plans that aim to bolster the long term competitiveness of Nova Scotia's trade related gateway and trade corridor assets. So what should the Province of Nova Scotia do?

The reality is that the Province of Nova Scotia has limited jurisdiction over the Port of Halifax or HSIA. But, it should do what it can – within its jurisdiction – to promote its two key gateway assets, facilitate trade through them to the extent that it can enable more regional imports and exports, and undertake improvements that would positively contribute to the competitiveness of these assets to serve inland markets. In fairness, this may not be materially different than what the Province does today.

We recommend that provincial gateway policies (as distinct from broader transportation policies) focus on and around Nova Scotia's two existing gateways – the Port of Halifax and the HSIA – and on incremental improvements falling within provincial jurisdiction that can positively influence the competitiveness of these existing gateways.

Appendix A: Organizations Consulted

Name
Air Canada Cargo
Armour Transportation Systems
Atlantic Canada Opportunities Agency
Atlantic Provinces Economic Council
Atlantic Provinces Trucking Association
Canadian National Railway
Cargojet
Ceres Halifax inc.
CMA CGM Canada
Cape Breton Regional Municipality
Government of Nova Scotia
Halifax Gateway Council
Halifax International Airport Authority
Halifax Port Authority
Halterm Container Terminal Limited
J A Douglas McCurdy Sydney Airport
J.D. Irving
Melford Terminals
Nova Scotia Business Inc.
Oxford Frozen Foods
Port Hawkesbury Paper
Port of Sydney
Strait of Canso Superport Corporation
ZIM Integrated Shipping Services (Canada) Co. Ltd.