REPORT HIGHLIGHTS

Highlights of the Report "ECONOMIC OPPORTUNITIES IN RELATION TO SYDNEY SUBDIVISION OF THE CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY" completed by LMS Logistics Marketing Services Inc. in January of 2023

NOTE: A previous version of this Document and the Associated Report was noted as Confidential. This document has had the private information contained in Technical Appendix 5 removed and replaced with a high-level summary to enable the public release of the majority of this report. This version as been made public on the website of the Cape Breton Partnership in November 2023.

PREPARED BY

Cape Breton Partnership
Scotia Rail Development Society

March 1st, 2023

OVERVIEW

In January 2023, Logistic Marketing Services Inc. prepared a study for the Cape Breton Partnership and the Scotia Rail Development Society focusing on the economic impact a continuation of rail services in Cape Breton could offer. Logistic Marketing Services Inc. was the lead consultant on the study, and contributions from AECOM Rail Freight Canada, Lonsdale Business Development Ltd., and DMDE Engineering Ltd. were also utilized in the study.

The report is a pre-feasibility study that was completed for the Cape Breton Partnership to identify "New and Existing Economic Opportunities in Relation to the Sydney Subdivision of the Cape Breton and Central Nova Scotia Railway." Information in the study shows that there should be as many as 9,600 rail cars running annually on the Sydney Subdivison with potential for growth beyond this number.

The main objective of the study was to consider the nature and volume of both inbound and outbound truck and rail freight shipments occurring in the region as a means of predicting whether sufficient rail-able freight volumes exist to support the restoration of service in the Sydney subdivision, a rail line measuring 157 kilometres connecting communities from the Town of Port Hawkesbury to Sydney, Nova Scotia.

The future prosperity of Atlantic Canada is closely tied with its ability to improve policies and infrastructure to support and nourish companies in the region, including companies outside of major population centres. By reestablishing the rail system, communities will be better connected to one another, and globally. The increased potential for the shipment of goods into the region by rail will be far more efficient than current logistics presently being used.

The projected costs are outlined as follows:

Cost to Repair Projected Cost to Repair the Port Hawkesbury to Sydney Portion of the CBNS To Track Class 3 Status	**$100 - $120 Million** Page 11 of 35 of the Report
VS	
Cost to Deconstruct Projected Cost to Deconstruct The Port Hawkesbury to Sydney Portion of the CBNS (Required if the Track is Not Repaired)	**$50 Million** On Page 21, the consultants note this cost to be as high as $50 Million, not including the opportunity cost of a permanently deconstructed rail line
VS	
Cost to Construct a New Line Projected Cost of Building A New Line From Scratch (With New Bridges and Trestles, not including the necessary land purchase and assembly that would be required)	**$309 - $412 Million** On Page 21, the consultants note that the cost of replacing the existing line would be three to four times the cost of refurbishment, not taking into account land purchase and assembly costs

As the table illustrates, the cost to repair the Sydney Subdivision, while substantial, is only about two to three times the cost to deconstruct the line, and creates a path to economic growth, increased trade, and a more reliable logistics link to Newfoundland. Deconstruction, in contrast, would not only be expensive, but instead of long-term economic benefit such a decision would permanently cut off the second-largest population centre in Nova Scotia and the Marine Atlantic ferry system to Newfoundland. It would also permanently bar one of the most developed industrial harbours in the province from contributing to the Nova Scotia economy and value proposition for future growth and development.

The projected cost of constructing a new line further underscores the relative value and need to repair and refurbish the existing Sydney Subdivision.

STUDY HIGHLIGHTS

THERE IS DEMAND FOR RAIL SERVICE IN NORTHERN NOVA SCOTIA

There are two rail subdivisions that serve Cape Breton Island and northern Nova Scotia via the shortline rail company Cape Breton and Nova Scotia Railway (CBNS). The subdivisions are:

Hopewell Subdivision – Running 187 kilometres in length, this line extends from Truro to Havre Boucher with spurs at Stellarton to Abercrombie (16 kilometres) and New Glasgow to Trenton (4.8 kilometres).

In 2023, the Hopewell Subdivision continues to operate, generating significant rail traffic.

Sydney Subdivision - This line runs 183.3 kilometres in length, and extends from Havre Boucher all the way to Sydney. Spurs for this line exist at Port Hawkesbury to Point Tupper (1.9 kilometres) and Jefferson to Edwardsville (4.3 kilometres).

The study shows that there is a significant local demand for this service, in addition to significant opportunities for international trade connections should this line be refurbished (Page 13 of the Report).

Based on existing truck and rail freight data, the authors of the study estimate that it is conceivable that a refurbished Sydney Subdivision could attract between 6,000 and 9,000 rail cars annually. (Pages 10-11 of the Report).

INNOVATION DRIVEN ENTERPRISES REQUIRE ROBUST LOGISTICAL CONNECTIONS

As shown in this study, there has been a growing interest in Cape Breton Island as an enticing location from which business can be conducted, and along with this revitalized interest brings a renewed opportunity for the region.

In order to ensure this momentum continues and Cape Breton continues to emerge as world class location for businesses to operate, a suitable rail system must be in place to facilitate this movement.

These findings correlate with the research, objectives, and "must-win battles" of the Cape Breton – Strait MIT REAP (Rural Entrepreneurship Acceleration Program), organized and supported by the Cape Breton Partnership. This initiative revealed over 45 Innovation-drive Entrepreneurs (IDE) in the Strait Cape Breton Region, as well as many supporting structures such as the Verschuren Centre that foster those already here, and continue to attract others.

RE-ESTABLISHING RAIL SERVICE WILL BE AN ECONOMIC DRIVER

The cost of remediating the Sydney Subdivision *has been estimated to cost between $100 million and $120 million*. Statistics Canada publishes Input Output Multipliers to be used to estimate the impact of capital investments, capturing the impact as investment flows through the community and is re-spent by suppliers, workers, and so on. There is also a job-focused multiple that estimates the direct and indirect employment created. *For Nova Scotia, the economic multiplier indicates that for every dollar invested, another $0.879 is recycled, and the jobs multiplier is 4.577 jobs for every million dollars invested.* (Page 11 of 35 of the Report)

The table below illustrates the projected economic impact of this initiative utilizing the aforementioned parameters:

ECONOMIC IMPACT			
CONSTRUCTION PHASE	Low	Medium	High
Sydney Subdivision Refurbishment Investment	100,000,000	125,000,000	150,000,000
Economic impact multiplier per dollar of output .879x	87,900,000	109,875,000	131,850,000
Economic impact	**187,900,000**	**234,875,000**	**281,850,000**
Construction jobs 4.577 per $1M spent	402	503	603
Indirect jobs	805	1,006	1,207
Construction phase job creation	**1,207**	**1,509**	**1,810**
OPERATIONS PHASE			
Economic Impact			
Tonnes shipped	128,383	128,383	128,383
Gross revenue per tonne	10	15	20
Sub-total Gross Revenue	1,283,829	1,925,743	2,567,658
StatsCan Economic impact multiplier per dollar of output (x.879)	1,128,486	1,692,728	2,256,971
Economic impact	**2,412,314**	**3,618,472**	**4,824,629**
StatsCan Indirect jobs multiplier (4.577 per $1M spent)	11	17	22
Direct jobs (indirect x 2)	22	33	44
Operations phase job creation	**33**	**50**	**66**

THE COST OF ABANDONMENT IS HIGH AND PERMANENT

The study states that, if it is decided to abandon the Sydney Subdivision permanently, the cost could be as much as $50 million. In recent years, a provincial subsidy has been in place in exchange for the line not being abandoned, but the railway has now indicated a desire to initiate the rail line abandonment process. If this were to occur, it would involve the removal of the tracks and a commencement of environmental remediation processes. (Page 21 of 35 of the Report)

ENVIRONMENTAL BENEFITS

Environmental concerns are a critical consideration for this initiative. *An analysis of rail vs. truck carbon emissions has found that a shift from truck to rail would result in a decrease of 5573.5 tonnes of C02, an increase of 7.8 tonnes of NOx, and an increase of 0.6 tonnes of particulate matter.* Utilizing tabletop emission factors, the authors concluded that the change in C02 emissions for truck vs. rail in Cape Breton would be a reduction of 4593.8 tonnes. *This is equivalent to removing approximately 100 cars from the road; at $50/tonne for carbon emissions, the cost would be in the range of $230,000 to $250,000.* (Page 27 of 35 of Report)

COMPETITIVENESS FOR RETAINING AND GROWING INDUSTRY

Organizational operating costs is projected to be impacted greatly as well. *Diesel fuel is reported to represent 25-30% of a Class 1 rail carrier's* operating costs and, as the table below indicates, over the past decade *fuel costs for trucks have ranged from 21% to 38% of total operating costs*, with the percentage moving in tandem with crude oil prices. (Page 28 of 35 of Report)

Transport Truck Fuel Operating Cost as % of Total Operating Cost										
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fuel cost % of total operating cost	38%	34%	26%	21%	22%	24%	24%	19%	22%	?
Average closing price of crude oil	97.98	93.17	48.66	43.29	50.8	65.23	56.99	39.68	68.17	94.82

STRONG INDICATIONS OF LOCAL AND INTERNATIONAL DEMAND

To assess the existence of commodity freight volumes that could potentially be switched from truck to rail, data was obtained from Statistic Canada's Canadian Freight Analysis Framework (Technical Appendix 2). This data was used to generate a rail traffic forecast (Technical Appendix 6) of future potential rail freight volumes to and from Newfoundland, Cape Breton, and northern Nova Scotia. *Some forecast highlights from Technical Appendix 6 are:*

a. Newfoundland's top three inbound by truck commodities are food (23%), miscellaneous products (19%), and base metals (19%), constituting 63% of total shipments by weight.

Newfoundland Inbound Truck			
Commodity group	7-year average MT	%	Rank
Agricultural products	71,040	6%	6
Food	274,959	23%	1
Minerals	17,498	1%	10
Fuel oils and crude petroleum	45,249	4%	8
Plastic and chemical products	49,428	4%	7
Forest products	97,232	8%	5
Base metals and articles of base metals	202,550	17%	3
Automobiles and other transportation equipment	19,603	2%	9
Other manufactured goods	116,833	10%	4
Waste and scrap	1,476	0%	11
Miscellaneous products	229,819	19%	2
Grand total	1,125,688	93%	

b. Quebec and Ontario are the two top originating jurisdictions for Newfoundland's inbound truck commodities, constituting 58% of inbound traffic by weight.

Newfoundland Inbound by Region	
Rest of Nova Scotia	180,939
New Brunswick	177,406
Quebec	306,544
Ontario	352,507
United States & Mexico	79,641
Western Canada	28,652
Total	1,125,688

c. If we assume that 12% of Newfoundland's inbound truck freight is converted to rail and conveyed to Sydney where it would be transloaded into intermodal chassis and delivered to Newfoundland, *this would entail 5,266 x 53 ft intermodal units and 878 articulated flat rail cars per year, or 17 cars per week.* (Page 8 of 28 of Technical Appendix 6)

d. Newfoundland's top three outbound commodities are Food (34%), base metals (19%), and forest products (12%), constituting 60% of outbound traffic by weight. (Page 8 of 28 of Technical Appendix 6)

e. Newfoundland shipped 142,096 metric tonnes of food products off the island in 2021, which includes 106,000 metric tonnes of seafood products. These products are currently being trucked to domestic markets and to the USA or to Halifax where the freight is transloaded to rail. If we assume that 12% of Newfoundland's outbound truck

freight amounting to 28,270 metric tonnes is conveyed to Sydney in 1,131 x 53' intermodal units on chassis to be loaded onto 188 articulated flat rail cars per year, or 4 cars per week. (Page 10 of 28 of Technical Appendix 6)

BENEFIT & OPPORTUNITY FOR REGIONAL FISH & SEAFOOD INDUSTRY

It is projected that a major commodity that would be shipped over a refurbished CBNS Sydney Subdivision line would be the food products category, particularly fish and seafood. The fish and seafood industry in Cape Breton, northern Nova Scotia, and Newfoundland & Labrador is substantial. Some key takeaways are:

a. *Canada's fish and seafood exports were worth $8.79 billion in 2021, a 36% increase over 2020 and an 18% increase over the previous high in 2019.* It is safe to say that the trend for this industry on a national level is positive and steadily increasing, and this trend extends to our region (source).
b. *Quantity of exports nationally was 613,000 tonnes, which represented an 8% increase from 2020, while average fish and seafood export prices increased 26% over 2020 figures* (source).
c. Top destinations were the United States ($6.18 billion), China ($1.12 billion), and the EU (excluding the UK) ($453 million) (source). Fish and seafood products shipped to markets in the United States and Asia are either trucked directly to the USA customer, or trucked to Halifax where they are moved into refrigerated intermodal containers and then put to rail.
d. The main exporting provinces were Nova Scotia ($2.48 billion), New Brunswick ($2.21 billion), and Newfoundland & Labrador ($1.42 billion) (source).

Table 3. Canada's Fish and Seafood Exports by Province and Territory, 2021

Province	Value ($M)	Quantity (thousand tonnes)	Species	Share of Exports
Nova Scotia	2,480	159	Lobster	53.1%
			Crab	14.1%
			Scallop	6.8%
New Brunswick	2,211	124	Lobster	56.1%
			Salmon	18.2%
			Crab	16.5%
Newfoundland and Labrador	1,422	106	Crab	62.1%
			Shrimp, Prawn	12.5%
			Lobster	8.5%

MARINE TRANSPORT OPERATORS IN REGION

There are a number of major marine transportation organizations that are projected to be major partners should the Sydney Subdivision line be restored and once again made operational. A list of these projected partners and a brief description is outlined in the following table:

Organization Name	Summary
Oceanex	○ Montreal based company with over 400 employees which provides intermodal transportation services to the province of Newfoundland & Labrador. ○ Provides vessel cargo services for the automotive industry transporting vehicles into Newfoundland & Labrador ○ This company is integrated with CN intermodal service yards across North America where shippers can have their containers loaded to rail and delivered to coordinate with Oceanex sailings from Halifax or Montreal to Newfoundland.
Marine Atlantic	○ An independent Canadian federal Crown Corporation mandated to operate ferry services between Nova Scotia and Newfoundland & Labrador.
MSC: Global Shipping Container Company	○ A global container line headquartered in Geneva, Switzerland, which has 150,000 employees working from 675 offices worldwide. ○ This company has 730 vessels traversing 260 routes while servicing 520 ports in 155 countries, shipping 23 million TEU on an annual basis ○ The service to Corner Brook commenced in May of 2020 with sailings forecasted to be twice a month. They deliver 350 empty containers to Corner Brook Pulp and Paper and pick up containers loaded with newsprint.
Eimskip	○ Eimskip specializes in seafood and operates 17 vessels and 42 warehouses and cold storages in North America, Europe, and Asia. ○ They offer agency services, freight forwarding, trucking/distribution, warehousing, terminal operations and also provide offloading, stevedoring, and cold storage services from operations at Harbour Grace and St. Anthony. ○ Eimskip interest in the region regarding the future of utilizing Sydney port and integrated rail services.
ZIM Canada	○ ZIM Canada (website) is an integrated shipping company which currently transports refrigerated containers from Halifax to Vancouver with a 10-day transit duration. *If the Sydney Subdivision of CBNS was operational, it is conceivable that Newfoundland-based fish and seafood processors could utilize this system to access customers on the west coast of the United States as well as Asia.*
Corner Brook Port Corporation (CBPC)	○ In October of 2020, the Corner Brook Port Corporation (CBPC) announced that MSC Mediterranean Shipping Company was increasing its container service with a weekly call to the Ports of Montreal, Saint John, and Corner Brook. MSC is the only international ocean carrier providing access to and from Asian and South American markets directly linked to Newfoundland, and figures to be a critical player should the Sydney Subdivision line be restored.

Technical Appendix 7 presents GIS maps and company directories that reflect the location and contact information for Nova Scotia and Newfoundland businesses in key sectors. The underlying data was obtained from Scott's Atlantic Directory, which is considered to be a reliable source of data on Canadian manufacturers, industrial companies, wholesalers, distributors, wholesale agents, and manufacturer's sales offices. We can utilize this data to

identify relevant products ordinarily trucked to/from Atlantic Canada or products that would typically be railed and transloaded at other sites across the region.

Although there is no data specific to Cape Breton, it is projected that 31% of freight volumes associated with the rest of Nova Scotia relate to Cape Breton (this assumption is based on a GIS review of commercial business operations in Cape Breton that identified 111 manufacturing and processing companies holding potential to utilize inbound and outbound truck freight. Other factors that factored into this assumption included Cape Breton's economy, which in 2015 saw 200 fisheries operations capturing 80% of the province's seafood shipments by volume.

RAIL ENABLES PRIVATE SECTOR PORT DEVELOPMENT

A significant negative future impact associated with the permanent abandonment of the Sydney Subdivision would be the potential loss of opportunity for the Port of Sydney, which comes equipped with several unique features that make it an attractive location for companies seeking an ultra deep-water port on the east coast of North America. If similar portside developments around the world are any indication, the investment range for this type of economic development opportunity could easily range from $500 million to $1 billion. *Port-rail integration would be an absolute requirement for this type of investment to occur.* (Page 21 of 35 of the Report)

WE CAN LEARN FROM OTHER COMMUNITIES

The researchers did not assess or analyze data specific to Cape Breton in the periods before and after the rail closure, however, past studies illustrate that communities impacted by this rail closure have experienced:

- Reduced economic development and investment attraction opportunities
- Loss of high paying jobs
- Loss of businesses and/or a reduced performance as a result of higher logistic costs
- Loss of population
- Loss of tax revenues with the possibility of the reduction of local services or an increase in tax
- Increase in local street and road traffic, representing a threat to driver and pedestrian safety
- Increased road maintenance expense
- Increased noise and air pollution (increased carbon footprint)
- Reduced commercial and residential property values

SUMMARY

Top 3 takeaways

- Based on existing truck and rail freight data, the authors of the study estimate that it is conceivable that a refurbished Sydney Subdivision could attract between 6,000 and 9,000 rail cars annually.
- The authors believe that the most likely freight to be converted involve inbound and outbound commodities associated with Cape Breton and Newfoundland & Labrador.
- An aggressive marketing strategy can be created and implemented to attract and retain new customers as well as to maximize the output of existing customers, which would include establishing and maintaining an excellent working relationship with the Class 1 carrier with whom the shortline interchanges.

In summary, this “Report Highlights” document has included some brief descriptions of key takeaways from the overall report developed by Logistic Marketing Services, Inc., but does not describe all elements, so it is critical to review the entire report to understand the current situation.

The main report takes a deep dive into these specific areas, and also describes other important items to consider when developing a plan for the Sydney Subdivision short line.

ECONOMIC OPPORTUNITIES
CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY
SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Funding Acknowledgement

This study, “ECONOMIC OPPORTUNITIES IN RELATION TO SYDNEY SUBDIVISION OF THE CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY,” otherwise known as the “Cape Breton Railway Freight Economic Opportunities Study,” was made possible through the support of the Government of Canada through the Atlantic Canada Opportunities Agency and by the Government of Nova Scotia through the Department of Public Works.

Atlantic Canada Opportunities Agency

Agence de promotion économique du Canada atlantique

Canada

NOVA SCOTIA

About Logistic Marketing Services Inc.

Logistics Marketing Services Inc is the lead consultant on this project in association with AECOM Rail Frieght Canada, Lonsdale Business Development Ltd. and DMDE Engineering Ltd.

- Learn more about the Logistic Marketing Services Inc. here: www.logisticmarketing.ca

The consulting group has deep experience in geographic analysis, logistics, corporate finance, economic development, heavy structural and civil engineering, and local knowledge of the history of rail in Unama'ki - Cape Breton.

• **Lead Consultant Mr. David Spearin, President, Logistics and Marketing Services Inc**. has a Bachelor of Arts in Geographic Analysis from Ryerson University and has worked in the logistics field for over 30 years. Prior to initiating LMS in 1995, Mr. Spearin was the Director of Logistics for Noranda Inc., one of Canada's largest mining and metallurgy companies, and later with Central Canada Potash. His clients include public entities and global corporations. and he has worked both domestically and internationally.

• **Mr. John Falcetta, CCLP, MBA, Vice-President AECOM Rail Freight Canada**, is responsible for AECOM's railway engineering, consulting services in Canada. He has over 30 years of experience with a significant railway corporate, operations, finance, logistics, trucking, warehouse management and a business management background. Mr. Falcetta has held executive positions within rail, transportation, logistics and warehousing companies, including Canada Pacific Railway, where he was involved in several development, operations, and commercial roles.

• **Mr. Kim Lonsdale, MBA, President, Lonsdale Business Development Ltd.** has a Masters Certificate in Project Management along with extensive private and public sector employment and consulting experience that spans the areas of commercial debt and equity finance, economic development, and investment attraction. From 2009-2013, Mr. Lonsdale served as the Director, Resource Sector Development with the Saskatchewan Ministry of the Economy where he was responsible for the planning, development, and implementation of economic development and investment attraction strategies for Saskatchewan's agriculture, agri-value, oil and gas, forestry, manufacturing, minerals, manufacturing and transportation and logistics sectors. This experience provided Mr. Lonsdale with a thorough understanding of the truck to rail logistics challenges facing Alberta and Saskatchewan companies in these sectors.

• **Mr. Dan MacDonald, M.A.Sc. P.Eng., FEC, FCSSE, Senior Project Manager, CBCL Limited** has a Master's degree in applied science in structural engineering and has more than 40 years of experience specializing in project management heavy civil design engineering. Mr. MacDonald was employed by Public Works Canada as a heavy civil design engineer and has been involved in numerous projects in Atlantic Canada. In 1981, Mr. MacDonald joined the Cape Breton Development Corporation, coal mining operations and became the Director of Engineering where he was responsible for 450 million dollars of construction. In 1989, Mr. MacDonald joined the consulting engineering field, providing services to heavy industry, marine, power generation, and large-scale infrastructure projects.
Mr. MacDonald brings over 40 years experience in the delivery of projects in the Eastern, Cape Breton area and is fully aware of all of the aspects of industry and transportation. He will provide his extensive knowledge of the region to this study.

About the Cape Breton Partnership

The Cape Breton Partnership is Unama'ki – Cape Breton's private sector-led economic development organization. The Partnership brings together people who believe in the power of working together to increase economic opportunities and seeks to transform Cape Breton-Unama'ki into the most creative and prosperous place on Earth.

- Learn more about the Partnership here: www.CapeBretonPartnership.com .

The Partnership is the Economic Development partner of 5 municipalities and 4 Indigenous communities in Unama'ki - Cape Breton through the Regional Enterprise Network program and with the support of the Province of Nova Scotia through the Department of Economic Development.

The Partnership commissioned this report to quantify and assess existing and new industrial economic opportunities for the Sydney Subdivision rail line in support of the objectives of the Scotia Rail Development Society and the economic development of the whole of Unama'ki – Cape Breton.

About the Scotia Rail Development Society

The Scotia Rail Development Society's five-fold mission is to:

- Explore various options for continuation of the rail service to Sydney, Cape Breton
- Demonstrate the vital importance regionally in order to support the continuation of the rail link to Sydney, Cape Breton
- Support efforts to ensure continuation of the rail link to Sydney, Cape Breton
- Secure in perpetuity the right of way of the line
- Demonstrate that rail transport is the most affordable and environmentally friendly land transport for climate change
- Learn more about the Society here: www.scotiarail.ca

The Scotia Rail Development Society has long advocated for the development of a professional third-party report that will quantify and assess existing and new industrial economic opportunities for the Sydney Subdivision rail line.

Contents

Executive Summary

This report is a pre-feasibility study that was completed for the Cape Breton Partnership to identify “New and Existing Economic Opportunities in Relation to Sydney Subdivision of the Cape Breton and Central Nova Scotia Railway.”

The Sydney Subdivision of Cape Breton and Central Nova Scotia Railway is a 157 km long rail line that connects the communities of Port Hawkesbury and Sydney, Nova Scotia. Rail service was suspended in the subdivision in 2015 and its infrastructure has experienced some degradation that will require significant investments to enable rail service to return. The purpose of the study is to consider the nature and volume of inbound and outbound truck and rail freight shipments in the region as a means of predicting whether sufficient rail-able freight volumes exist to warrant the restoration of service on the Sydney Subdivision.

The source of statistical data used to compile this report are Statistics Canada’s *Canadian Freight Analysis Framework (CFAF)* and *Trucking Commodity Origin and Destination Survey (TCOD)* datasets. Statistics Canada gathers detailed freight logistics data using mandatory industry surveys of Canada’s major air, truck and rail freight carriers, and/or other sources. The data for 2011-2017, which was released to the public in 2020, is the most recent freight information available and this is presented online in a searchable format that provides data concerning the value, commodity, origin, destination, distance, number of shipments, weight transported, tonne-kilometres and revenue earned for different modes of freight transportation in Canada. In relation to this study, inbound and outbound truck and rail freight volumes associated with 11 commodity groups were tracked from 19 North American jurisdictions.

To avoid replication of past research and analysis, a review of the nine previous Cape Breton rail studies was conducted (see page 22).

A GIS review of commercial business operations in Cape Breton identified 111 manufacturers and processors that could potentially utilize rail freight services. Of the commodities associated with Newfoundland and Cape Breton, the most probable commodity of interest to a shortline operating on the Sydney Subdivision would be fish and seafood. Atlantic Canada produces more than 400,000 tonnes of fish and seafood. According to Fisheries & Oceans Canada’s *Fish & Seafood Trade 2021 Overview*, Newfoundland & Labrador exported 106,000 tonnes and Nova Scotia exported 159,000 tonnes of fish and seafood products. Approximately 90% of these fish and seafood exports were shipped to the USA (70%), Asia (20%) and Europe (10%). Fish and seafood products shipped to markets in the USA and Asia are either trucked directly to the USA customer or trucked to Halifax to be stuffed into refrigerated intermodal containers and then loaded onto a ship bound for Europe, or on a train bound for Canada’s west coast where it will be loaded onto a ship bound for Asia. Fish and seafood are not the only commodities that could utilize rail but they represent a significant market opportunity for a shortline railway.

As indicated in the two tables below, from 2011-2017 an average of 4,395,560 tonnes of inbound truck freight and 1,981,482 tonnes of inbound rail freight were flowing from 19 jurisdictions to Nova Scotia and Newfoundland, and an average of 2,700,283 tonnes of outbound truck freight and 1,988,616 tonnes of outbound rail freight was flowing from Nova Scotia and Newfoundland to those jurisdictions.

ALL Inbound Freight to NS & NFLD		
Inbound truck	4,395,560	69%
Inbound rail	1,981,482	31%
Inbound total	**6,377,041**	100%

ALL Outbound Freight to NS & NFLD		
Outbound truck	2,700,283	58%
Outbound rail	1,988,616	42%
Outbound total	**4,688,899**	100%

CFAF identifies two jurisdictions for Nova Scotia, “Halifax” and the “Rest of Nova Scotia,” but there is no separate category for Cape Breton. The authors conducted a GIS analysis of Nova Scotia businesses most likely to utilize rail and conclude that approximately 31% of Rest of Nova Scotia rail and truck freight can be attributed to businesses operating in Cape Breton. This would be 31% of the Rest of Nova Scotia’s 1,720,316 tonnes of inbound truck freight and 31% of the Rest of Nova Scotia’s 1,536,951 tonnes of outbound truck freight, which amounts to an estimated 533,298 tonnes of freight inbound to Cape Breton and an estimated 476,455 tonnes of freight outbound from Cape Breton. To put this in perspective, Statistics Canada’s CFAF data for 2017 indicates that the average for-hire commercial truck hauled an 11-tonne load, which suggests that based on these truck volumes Cape Breton would experience 91,796 inbound/outbound commercial trucks per year or annual average daily traffic (AADT) of 251 trucks per day.

The Province of Newfoundland also represents a market opportunity for a Cape Breton shortline. Between 2011 and 2017, Newfoundland experienced an average of 944,750 tonnes of inbound truck freight and 235,586 tonnes of outbound truck freight. Marine Atlantic operates a year-round ferry service between Cape Breton and Newfoundland that handles about 55% of Newfoundland’s surface freight, which suggests that 516,912 tonnes of inbound truck freight and 129,572 tonnes of outbound truck freight travel through Cape Breton. To put this in perspective, if these trucks were loaded to Statistics Canada CFAF’s 2017 average of 11 tonnes per load it would represent an estimated 59,000 trucks per year or annual average daily traffic (AADT) of 160 trucks per day.

The objective of a shortline start-up would be to convince shippers to convert a percentage of these 411 daily trucks (i.e. 251+160) to utilize rail. A tabletop analysis of rail vs truck carbon emissions suggests that if 15% of the region's truck freight was conveyed by rail on the Sydney Subdivision this would result in an estimated decrease of 5,574 tonnes of carbon dioxide (CO2), an increase of 7.8 tonnes of nitrous oxide (NOx) and an increase of .6 tonnes of particulate matter. This may not seem substantial in terms of Canada's strategy to reduce GHG emissions associated with climate change, however, when one considers that transportation-related public health impacts associated with air and noise pollution from heavy-duty freight engines are associated with respiratory and cardiovascular illnesses, cancer, diabetes, nervous system and cognitive effects, hospital admissions, sleep disruption, and premature mortality, this reduction should be seen in a positive light. There is also the issue of public safety: while large trucks don't cause more accidents than other vehicles, when they are involved in collisions the number of severe injuries or deaths increases. Lastly, a reduction in transport truck traffic would reduce the costs of maintaining public infrastructure for the province and its municipalities.

To determine the appetite of local companies for shortline rail service in Cape Breton, the researchers conducted structured interviews with 16 Cape Breton Companies who collectively use trucks to receive 141,896 tonnes and ship 74,058 tonnes for a total of 215,924 tonnes, which would equate to 2,947 railcars including well cars (containers), closed hoppers (plastic pellets, livestock feed), open hoppers (solid waste), autoracks (cars and trucks), tankers (liquid asphalt), and boxcars (building products, bioproducts, agricultural products). Some of this equipment would be difficult to consistently source, however, there are alternatives and a highly innovative, adaptive shortline that has collaborative relationships with its upstream and downstream logistics partners can find ways to meet these needs. The positive feedback received from Cape Breton shippers indicates a strong desire for rail service to be restored.

In addition to the rail volumes identified through the structured interviews, the authors reviewed the inbound and outbound freight streams associated commodity mixes and based on their collective expertise estimate that an aggressively marketed shortline could attract somewhere in the order of 6000 to 6600 railcars per year and when added to the 2947 railcars identified through the shipper interviews, this would come to somewhere between 9000 and 9600 railcars per year. This is summarized by freight stream in the table below.

RAIL DEMAND MODEL				
	Lower-end of Range		Upper-end of Range	
Freight Stream	Railcars	Railcars per week	Railcars	Railcars per week
Newfoundland Truck Inbound	3,070	59	3,070	59
Newfoundland Truck Outbound	762	15	762	15
Halifax Truck Inbound	-	-	-	-
Halifax Truck Outbound	-	-	-	-
Rest of Nova Scotia Truck Inbound	593	11	1,159	22
Rest of Nova Scotia Truck Outbound	1,661	32	1,661	32
Halifax Rail Inbound	-	-	-	-
Halifax Rail Outbound	-	-	-	-
Rest of NS Rail Inbound	-	-	-	-
Rest of NS Rail Outbound	-	-	-	-
Sub-total	6,086	117	6,652	128
Cape Breton Rail Future (Interview results)				
Cape Breton Future Inbound	1,816	35	1,816	35
Cape Breton Future Outbound	1,131	22	1,131	22
Sub-total	2,947	57	2,947	57
GRAND TOTAL	9,033	174	9,600	185

Note that the authors did not include a capture of market share of existing inbound or outbound rail volumes from Rest of Nova Scotia beyond that identified in the shipper interviews.

The cost of remediating the Sydney Subdivision to Class I standards has been estimated at $100M-$120M. Statistics Canada publishes Input Output Multipliers for each province to use in estimating the impacts of capital investments. The concept captures the impact as investment

flows through the community and is re-spent by suppliers and workers and so on. There is also a jobs multiple that estimates the direct and indirect employment created. For Nova Scotia, the economic multiplier indicates that for every dollar invested another $.879 is recycled and the jobs multiplier is 4.577 jobs for every million dollars invested. A calculation of a low-medium-high scenario based on a $100M, $125M and $150M investment during the Construction Phase and gross revenue per tonne revenue of $10, $15, and $20 during the Operations Phase indicates that the estimated economic impact during the Construction Phase would range from $187.9M - $281.8M with an estimated 1207 to 1810 direct and indirect jobs created over two years, while the estimated economic impact during the Operations Phase would be $2.4M to $4.8M with 33 to 66 direct and indirect jobs created.

ECONOMIC IMPACT			
CONSTRUCTION PHASE	Low	Medium	High
Sydney Subdivision Refurbishment Investment	100,000,000	125,000,000	150,000,000
Economic impact multiplier per dollar of output .879x	87,900,000	109,875,000	131,850,000
Economic impact	187,900,000	234,875,000	281,850,000
Construction jobs 4.577 per $1M spent	402	503	603
Indirect jobs	805	1,006	1,207
Construction phase job creation	1,207	1,509	1,810
OPERATIONS PHASE			
Economic Impact			
Tonnes shipped	128,383	128,383	128,383
Gross revenue per tonne	10	15	20
Sub-total Gross Revenue	1,283,829	1,925,743	2,567,658
StatsCan Economic impact multiplier per dollar of output (x.879)	1,128,486	1,692,728	2,256,971
Economic impact	2,412,314	3,618,472	4,824,629
StatsCan Indirect jobs multiplier (4.577 per $1M spent)	11	17	22
Direct jobs (indirect x 2)	22	33	44
Operations phase job creation	33	50	66

Study Objectives

1. Identify the current inbound and outbound movement of freight by trucks and containers to Newfoundland and Cape Breton region by commodity type and by geographic origin and destination provincial regions.
2. Identify the industries and commercial operations that truck commodities.
3. Evaluate the historical transport studies to cross-validate findings.
4. Identify the commodities with the most market potential to utilize an intermodal facility at Sydney to transfer products from trucks to intermodal trains. In addition, identify various market scenarios to provide estimated TEU units of activity using different market share assumptions that can be used for developing business case.
5. Identify future other market export commodity opportunities that would benefit from rail and port of Sydney.
6. Develop economic impact model to measure potential direct and indirect benefits of refurbishing the Sydney Subdivision and developing a container intermodal transfer site.

Current Freight Movement

Statistics Canada Data

Statistics Canada's *Canadian Freight Analysis Framework (CFAF)* and *Trucking Commodity Origin and Destination Survey (TCOD)* datasets are the sources of statistical data used in this report. Statistics Canada gathers commercial air, truck and rail freight data using mandatory industry surveys of Canada's major freight carriers, and/or other sources. The data for 2011-2017 is the most recently released information and this is presented online in a searchable format that provides data concerning the value, commodity, origin, destination, distance, number of shipments, weight transported, tonne-kilometres and revenue earned for different modes of freight transportation in Canada. This data reveals the types and volumes of rail-able commodities that are being trucked in and out of these regions. This data was used to generate a rail traffic forecast of future inbound/outbound rail freight volumes from the following 19 jurisdictions:

New Brunswick	Windsor, Ontario	Edmonton, Alberta
Québec, Quebec	Rest of Ontario	Rest of Alberta
Montréal, Quebec	Winnipeg, Manitoba	Vancouver, British Columbia
Rest of Quebec	Rest of Manitoba	Rest of British Columbia
Oshawa, Ontario	Saskatoon, Saskatchewan	United States and Mexico
Toronto, Ontario	Rest of Saskatchewan	
Hamilton, Ontario	Calgary, Alberta	

And the following 11 commodity groupings:

Agricultural products	Plastic and chemical products	Other manufactured goods
Food	Forest products	Waste and scrap
Minerals	Base metals and articles of base metals	Miscellaneous products
Fuel oils and crude petroleum	Automobiles and other transportation equipment	

The challenge in estimating future freight volumes lies in the lack of a specified scenario with assumptions that help refine the analysis. To address this issue, a Microsoft Excel-based Scenario Generator was developed and is included with this report. This tool contains all of Statistics Canada's CFAF 2011-2017 truck and rail freight data, including the commodity mix and origin/destination of shipments associated with the relevant freight streams which are presented herein. This tool allows users to quickly drill down and view the inbound and outbound commodity mixes for each jurisdiction, and new scenarios can be quickly developed based on changing the market share assumptions for each freight stream.

The authors of this study believe it is possible that a refurbished Sydney Subdivision can provide a critical link in attracting future rail traffic for Cape Breton region and provide a fulcrum for traffic to and from Newfoundland that utilizes Marine Atlantic ferry services between Sydney and Port aux Basque. Researchers considered various scenarios and settled on the basic assumption that during the reconstruction period of the Sydney Subdivision, a shortline start-up operation would focus its marketing efforts on nearby prospects and work outward from there. In other words, the shortline would pursue inbound and outbound freight volumes associated with Cape Breton and Newfoundland businesses, which the authors believe holds the most promise for conversion to rail.

Inbound Outbound Freight Summary Tables

Newfoundland Inbound Truck Commodity Mix

Newfoundland Inbound Truck			
Commodity group	7-year average MT	%	Rank
Agricultural products	71,040	6%	6
Food	274,959	24%	1
Minerals	17,498	2%	10
Fuel oils and crude petroleum	45,249	4%	8
Plastic and chemical products	49,428	4%	7
Forest products	97,232	9%	5
Base metals and articles of base metals	202,550	18%	3

Automobiles and other transportation equipment	19,603	2%	9
Other manufactured goods	116,833	10%	4
Waste and scrap	1,476	0%	11
Miscellaneous products	229,819	20%	2
Grand total	1,125,688	100%	

Newfoundland Inbound Truck by Originating Jurisdiction

The Microsoft Excel-based Scenario Generator that accompanies this report contains Statistics Canada's CFAF truck and rail freight data which includes the commodity mix and origin/destination of shipments associated with the relevant freight streams presented herein. This tool allows users to drill down and view the commodity mixes for each jurisdiction.

Newfoundland Inbound by Originating Jurisdiction			
	7-year average MT	%	Rank
Rest of Nova Scotia, origin of shipments	180,939	16%	2
New Brunswick, origin of shipments	177,406	16%	3
Rest of Quebec, origin of shipments	31,722	3%	5
Montréal, Quebec, origin of shipments	151,640	13%	4
Québec, Quebec, origin of shipments	123,181	11%	9
Oshawa, Ontario, origin of shipments	5,298	0%	13
Toronto, Ontario, origin of shipments	223,233	20%	1
Hamilton, Ontario, origin of shipments	20,773	2%	10
Windsor, Ontario, origin of shipments	2,662	0%	19
Rest of Ontario, origin of shipments	100,541	9%	6
Winnipeg, Manitoba, origin of shipments	4,099	0%	16
Rest of Manitoba, origin of shipments	1,331	0%	22
Saskatoon, Saskatchewan, origin of shipments	1,948	0%	21
Rest of Saskatchewan, origin of shipments	2,434	0%	20
Calgary, Alberta, origin of shipments	3,605	0%	17
Edmonton, Alberta, origin of shipments	6,108	1%	11
Rest of Alberta, origin of shipments	2,726	0%	18
Vancouver, British Columbia, origin of shipments	5,365	0%	12
Rest of British Columbia, origin of shipments	1,036	0%	23
United States and Mexico, origin of shipments	79,641	7%	8
Grand total	1,125,688	100%	

Newfoundland Inbound Truck Estimate of Potential Rail Demand

RAIL DEMAND SUMMARY	Lower end of Range		Upper end of Range	
Freight Stream	Railcars	Railcars per week	Railcars	Railcars per week
Newfoundland Truck Inbound	3,070	59	3,070	59

Newfoundland Outbound Truck Commodity Mix

Newfoundland Outbound Truck			
Commodity group	7-year-average	%	Rank
Agricultural products	5,825	1%	6
Food	103,181	25%	1
Minerals	12,112	3%	8
Fuel oils and crude petroleum	4,042	1%	10
Plastic and chemical products	9,460	2%	9
Forest products	34,845	8%	3
Base metals and articles of base metals	14,384	3%	2
Automobiles and other transportation equipment	8,924	2%	11
Other manufactured goods	20,696	5%	5
Waste and scrap	16,991	4%	7
Miscellaneous products	48,965	12%	4
Total	**279,424**	**67%**	

Newfoundland Outbound Truck by Destination

Newfoundland Outbound by Destination	7-year-average	%	Rank
Rest of Nova Scotia, destination of shipments	43,838	11%	1
New Brunswick, destination of shipments	74,904	18%	2
Québec, Quebec, destination of shipments	6,067	1%	8
Montréal, Quebec, destination of shipments	29,338	7%	6
Rest of Quebec, destination of shipments	21,590	5%	5
Oshawa, Ontario, destination of shipments	1,607	0%	9
Toronto, Ontario, destination of shipments	27,800	7%	4
Hamilton, Ontario, destination of shipments	2,879	1%	11
Windsor, Ontario, destination of shipments	1,961	0%	9
Rest of Ontario, destination of shipments	12,806	3%	7
Winnipeg, Manitoba, destination of shipments	1,548	0%	13

Rest of Manitoba, destination of shipments	745	0%	15
Saskatoon, Saskatchewan, destination of shipments	44	0%	18
Rest of Saskatchewan, destination of shipments	1,858	0%	12
Calgary, Alberta, destination of shipments	478	0%	17
Edmonton, Alberta, destination of shipments	2,957	1%	10
Rest of Alberta, destination of shipments	558	0%	16
Vancouver, British Columbia, destination of shipments	4,343	1%	8
Rest of British Columbia, destination of shipments	785	0%	14
United States and Mexico, destination of shipments	43,317	10%	3
Total	279,424	67%	

Newfoundland Inbound Truck Estimate of Potential Rail Demand

Freight Stream	Railcars	Railcars per week	Railcars	Railcars per week
Newfoundland Truck Outbound	762	15	762	15

Rest of Nova Scotia Inbound Truck Commodity Mix

Rest NS Inbound Truck			
Commodity group	MT	%	Rank
Agricultural products	83,445	5%	7
Food	578,833	34%	1
Minerals	29,863	2%	9
Fuel oils and crude petroleum	50,303	3%	8
Plastic and chemical products	103,848	6%	4
Forest products	277,770	16%	3
Base metals and articles of base metals	95,510	6%	5
Automobiles and other transportation equipment	23,135	1%	10
Other manufactured goods	87,946	5%	6
Waste and scrap	17,638	1%	11
Miscellaneous products	372,025	22%	2
Total	1,720,316	100%	

Rest of Nova Scotia Inbound Truck by Origin

Rest NS Inbound Truck	7-yr-average MT	%	Rank
New Brunswick, origin of shipments	686,388	40%	1
Québec, Quebec, origin of shipments	56,533	3%	7
Montréal, Quebec, origin of shipments	207,580	12%	4
Rest of Quebec, origin of shipments	104,857	6%	6
Oshawa, Ontario, origin of shipments	1,514	0%	15
Toronto, Ontario, origin of shipments	210,875	12%	3
Hamilton, Ontario, origin of shipments	20,683	1%	8
Windsor, Ontario, origin of shipments	1,655	0%	14
Rest of Ontario, origin of shipments	127,768	7%	5
Winnipeg, Manitoba, origin of shipments	2,281	0%	13
Rest of Manitoba, origin of shipments	838	0%	16
Saskatoon, Saskatchewan, origin of shipments	485	0%	17
Rest of Saskatchewan, origin of shipments	366	0%	18
Calgary, Alberta, origin of shipments	3,036	0%	12
Edmonton, Alberta, origin of shipments	5,153	0%	10
Rest of Alberta, origin of shipments	11,951	1%	9
Vancouver, British Columbia, origin of shipments	3,428	0%	11
Rest of British Columbia, origin of shipments	1,235	0%	14
United States and Mexico, origin of shipments	273,690	16%	2
Total	1,720,316	100%	

Rest of Nova Scotia Inbound Truck Estimate of Potential Rail Demand

Freight Stream	Railcars	Railcars per week	Railcars	Railcars per week
Rest of Nova Scotia Truck Inbound	593	11	1,159	22

Rest of Nova Scotia Outbound Truck Commodity Mix

Rest NS Outbound Truck			
Commodity group	7-year-average MT	%	Rank
Agricultural products	203,051	13%	6
Food	406,749	26%	1
Minerals	51,219	3%	8
Fuel oils and crude petroleum	3,107	0%	12
Plastic and chemical products	247,075	16%	4
Forest products	253,335	16%	3
Base metals and articles of base metals	95,954	6%	7
Automobiles and other transportation equipment	9,354	1%	11
Other manufactured goods	32,673	2%	9
Waste and scrap	24,947	2%	10
Miscellaneous products	209,488	14%	5
Total	1,536,951	100%	

Rest of Nova Scotia Outbound Truck by Destination

Rest NS Outbound Truck	7-year-average MT	%	Rank
New Brunswick, destination of shipments	524,757	34%	1
Québec, Quebec, destination of shipments	31,041	2%	7
Montréal, Quebec, destination of shipments	106,762	7%	4
Rest of Quebec, destination of shipments	72,930	5%	6
Oshawa, Ontario, destination of shipments	4,150	0%	13
Toronto, Ontario, destination of shipments	150,029	10%	3
Hamilton, Ontario, destination of shipments	18,504	1%	8
Windsor, Ontario, destination of shipments	1,075	0%	16
Rest of Ontario, destination of shipments	78,492	5%	5
Winnipeg, Manitoba, destination of shipments	5,122	0%	10
Rest of Manitoba, destination of shipments	1,451	0%	15
Saskatoon, Saskatchewan, destination of shipments	863	0%	17
Rest of Saskatchewan, destination of shipments	308	0%	19
Calgary, Alberta, destination of shipments	8,200	1%	9
Edmonton, Alberta, destination of shipments	4,793	0%	11

Rest of Alberta, destination of shipments	2,762	0%	14
Vancouver, British Columbia, destination of shipments	4,648	0%	12
Rest of British Columbia, destination of shipments	836	0%	18
United States and Mexico, destination of shipments	520,230	34%	2
Total	1,536,951	100%	

Rest of Nova Scotia Outbound Truck Estimate of Potential Rail Demand

Freight Stream	Railcars	Railcars per week		Railcars	Railcars per week
Rest of Nova Scotia Truck Outbound	1,661	32		1,661	32

Economic Impacts

Impact of Rail Service Termination

Past

The authors did not assess or analyze data specific to Cape Breton in the periods before and after the rail closure, however, past studies have indicated that communities impacted by rail closure have experienced:

- Reduced economic development and investment attraction opportunities
- Loss of high-paying jobs
- Loss of businesses and/or reduced business performance due to higher cost logistics
- Loss of population
- Loss of tax revenues with the possibility of reduction of local services or an increase in taxes
- Increase in local street and road traffic and increased road maintenance expense
- Increased levels of noise and air pollution
- Reduced commercial and residential property values

The loss of rail service on the Sydney Subdivision followed the loss of the coal and steel industries, which together represented massive social and economic costs for Cape Breton. However, these costs will have already been experienced and the region's people and its companies have either adapted or moved on. Whether looking forward or backward in time, it is hard to put a price on the loss of a generation of skilled workers, entrepreneurial talent and investment capital that accompanies a long-term economic downturn.

Present

Another issue difficult to place a value on is that while the Sydney Subdivision sits at a standstill, the regional logistics environment continues to evolve as other jurisdictions capture emerging opportunities.

To a certain extent, the loss of economic opportunities associated with rail closure were offset by a proportionate gain in economic opportunities for the trucking industry and its supply chain, as Cape Breton companies who were shipping by rail in the years leading up to 2014 shifted their freight volumes over to trucks, thereby creating a roughly equivalent number of jobs and business opportunities in the community. This extends to other businesses as well; for example, Port Hawkesbury Paper (PHP) has monetized some of their unused rail infrastructure and provided CBRS with access to a rail spur for 15 cars and some warehouse space on PHP's site. The intent of the CBRS in setting up this transload site was to provide Cape Breton shippers with the ability to continue accessing rail for inbound and outbound freight. The stakeholder interviews associated with this report have confirmed that at least one company is currently utilizing this infrastructure.

For several years, CBNS owners offset their costs for the Sydney Subdivision with a provincial subsidy that hinges on the line not being abandoned. The railway has now indicated a desire to initiate the rail line abandonment process on the Sydney Subdivision, which would see the tracks removed and environmental remediation commenced. The deconstruction of the Sydney Subdivision could cost as much as $50M, and assuming local contractors and workers are used, a substantial portion of this would be spent in Nova Scotia. The cost of removal and remediation would likely be recovered by the owner from the sale of scrap steel and/or useable rails, switches and so on, but there is not likely to be any net salvage value.

Future

By far the most significant negative future impact associated with the permanent abandonment of the Sydney Subdivision would be the potential loss of opportunity for the Port of Sydney, which has several unique features that make it an attractive location for companies seeking an ultra-deep-water port on the east coast of North America. If similar portside developments around the world are any indication, the investment level for this type of economic development opportunity could easily range from $500M-$1B. Port-rail integration would be an absolute requirement for this type of investment to occur. If the tracks on the Sydney Subdivision remain in place, this opportunity remains in play because it is conceivable that the line could be refurbished sometime in the future by replacing the ties and ballast and repairing some trestles and bridges. However, if the tracks were removed, the likelihood of it being replaced would be virtually nil because the cost of developing a new rail line with new bridges and trestles would be 3-4 times the cost of refurbishing the existing line.

Impact of Rail Service Reinstatement

The cost of remediating the Sydney Subdivision to Class I standards has been estimated at $100M-$120M. Statistics Canada publishes Input Output Multipliers for each province to use in estimating the impacts of capital investments. This concept captures the impact as investment flows through the community and is re-spent by suppliers and workers and so on. There is also a jobs multiplier that estimates the direct and indirect employment created. For Nova Scotia, the economic multiplier indicates that for every dollar invested another $.879 is recycled and the jobs multiplier is 4.577 jobs for every million dollars invested. The table below depicts a low-medium-high scenario based on a $100M, $125M and $150M investment during the Construction Phase and gross revenue per tonne revenue of $10, $15 and $20 during the Operations Phase.

ECONOMIC IMPACT			
CONSTRUCTION PHASE	Low	Medium	High
Sydney Subdivision Refurbishment Investment	100,000,000	125,000,000	150,000,000
Economic impact multiplier per dollar of output .879x	87,900,000	109,875,000	131,850,000
Economic impact	187,900,000	234,875,000	281,850,000
Construction jobs 4.577 per $1M spent	402	503	603
Indirect jobs	805	1,006	1,207
Construction phase job creation	1,207	1,509	1,810
OPERATIONS PHASE			
Economic Impact			
Tonnes shipped	128,383	128,383	128,383
Gross revenue per tonne	10	15	20
Sub-total Gross Revenue	1,283,829	1,925,743	2,567,658
StatsCan Economic impact multiplier per dollar of output (x.879)	1,128,486	1,692,728	2,256,971
Economic impact	2,412,314	3,618,472	4,824,629
StatsCan Indirect jobs multiplier (4.577 per $1M spent)	11	17	22
Direct jobs (indirect x 2)	22	33	44
Operations phase job creation	33	50	66

The $100M cost estimate to refurbish the Sydney Subdivision was based on the cost to replace ties and ballast.

Environmental Carbon Modal Shift Benefits

Our tabletop analysis of rail vs truck carbon emissions suggests that a shift from truck to a Class I carrier would result in a decrease of 5573.5 tonnes of CO2, an increase of 7.8 tonnes of NOx and an increase of .6 tonnes of particulate matter. Using tabletop emission factors, the authors conclude that the change in CO2 emissions for truck vs rail in Cape Breton would be a reduction of 4593.8 tonnes.

Carrier type	Emissions factor	CO2 Emissions
Truck	52.93	5,906.00
Rail	11.76	1,312.20
Change MT		- 4,593.80

This is equivalent to removing ~100 cars from the road. At $50 per tonne for carbon emissions, the cost would be in the range of $230K to $250K.

Regional Transportation Historical Studies Review

The following past studies were reviewed, summarized and the data cross-checked:

- *Minister's Rail Advisory Committee*, Cape Breton Rail Studies
- *Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services*, 2015, ATN Consulting
- *Assessment Rail/Truck Shipping Between Cape Breton and Mainland Nova Scotia*, 2015, Marinova
- *Summary Report: Overview of Studies Undertaken with Respect to Rail Services on the Sydney Subdivision*, 2015, Group ATN Consulting Inc.
- *Newfoundland Domestic Trade Routes & Competition Assessments CPCS*, 2015, Transport Canada
- *Study on Potential Hub Spoke Container Transhipment Operations in Eastern Canada for Maritime Movements of Freight*, 2008, CPCS
- *Nova Scotia Port Competitiveness*, 2018, CPCS
- *Nova Scotia Transport Infrastructure Roads (NSTIR)*
- *Ports of Sydney Master Plan*, 2007 CBCL, Bermello Ajamil & Partners, Martin Associates

Marine Transportation Regional Assessments

Oceanex

Oceanex Inc. is a Montreal-based company with over 400 employees that provides intermodal transportation services to the province of Newfoundland and Labrador. This includes pier-to-pier (between marine terminals) and door-to-door (from shipper's warehouse to consignee's facility) transportation services utilizing three RoRo vessels capable of handling 20', 40' and 53' intermodal containers. Oceanex also provides

vessel cargo services for the automotive industry transporting vehicles to NL. The company offers vessel service from Montreal and Halifax and can provide intermediate transfer of container cargos from international inbound/outbound marine cargo shipments arriving in Montreal/Halifax for any freight that is destined to Newfoundland. The company is also integrated with CN intermodal service yards across North America (i.e. Brampton, Montreal, Chicago, Detroit, Indianapolis, Winnipeg, Calgary, Edmonton, Saskatoon, Regina, Vancouver and Moncton) from which shippers can have their containers loaded to rail and delivered to coordinate with Oceanex sailings from Halifax or Montreal to Newfoundland.

Marine Atlantic

Marine Atlantic is an independent Canadian federal Crown corporation mandated to operate ferry services between the provinces of Newfoundland and Labrador and Nova Scotia. They offer a year-round, 96 nautical mile daily ferry service between Port aux Basques, Newfoundland and Labrador and North Sydney, Nova Scotia, as well as a daily 280 nautical mile ferry sailing from mid-June until late September between Argentia, Newfoundland and Labrador and North Sydney, Nova Scotia.

MSC: Global Container Shipping Company

MSC is a global container line headquartered in Geneva, Switzerland with 150K employees working from 675 offices worldwide. They have 730 vessels traversing 260 routes while servicing 520 ports of call in 155 countries and they ship 23 million TEU annually[1]. Canadian ports served by MSC include: Bécancour, QC; Halifax, NS; Montreal, QC; Vancouver, BC; Prince Rupert, BC; Quebec City, QC; Saint John, NB and Corner Brook, NL. The service to Corner Brook commenced in May 2020 with sailings forecast to be twice a month. They deliver 350 empty containers to Corner Brook Pulp and Paper and pick up containers loaded with newsprint.

[1] www.msc.com

Eimskip

Eimskip is a global shipping company headquartered in Reykjavík, Iceland that has 55 offices in 20 countries. Eimskip specializes in worldwide freight forwarding services with a focus on frozen and chilled commodities. Eimskip operates 17 vessels and 42 warehouses and cold storages in North America, Europe, and Asia. Their Canadian office is in St. John's and their vessels service the ports of Argentia and St. Anthony in Newfoundland, and Halifax, Nova Scotia. They offer agency services, freight forwarding, trucking/distribution, warehousing, terminal operations and also provide offloading, stevedoring, and cold storage services from operations at Harbour Grace and St. Anthony. Eimskip offers sailing services for its charter ships from St John's and Halifax and Portland ME to northern European Atlantic ports. The company specializes in seafood. They also indicate interest in the region regarding the future of utilizing Sydney port and integrated rail services.

Interviews Future Rail

To answer the question as to whether local companies have any planned or potential projects that could result in new inbound or outbound commodity flows in the region that are suited to rail, the authors conducted structured surveys with senior representatives of sixteen Cape Breton companies who collectively receive 141,896 Mt and ship 74,058 Mt for a total of 215,924 Mt. This amounts to 2947 railcars, including well cars (containers), closed hoppers (plastic pellets), open hoppers (solid waste), autoracks (cars and trucks), tankers (liquid asphalt), boxcars (building products, bioproducts, agricultural products). The commodity mix and volumes are outlined in the table below:

Cape Breton Interviews				
	MT Inbound	MT Outbound	Inbound Railcars	Outbound Railcars
Plastic resin pellets	18,273		183	
Seafood		39,058		781
Automotive	4,250		354	
Building supplies	96,830		968	
Bioproducts	2,400		24	
Solid waste		35,000		350
Agricultural products	4,400		44	
Liquid natural gas	15,744		243	
	141,896	74,058	1,816	1,131

Regional GIS Sector Assessment Newfoundland/ Cape Breton

Technical Appendix 7 presents GIS maps and company directories that reflect the location and contact information for Nova Scotia and Newfoundland businesses in key sectors. The underlying data was taken from Scott's Atlantic Directory which forms part of this report. Scott's Directories databases are a reliable source of current and accurate data on Canadian manufacturers, industrial companies, wholesalers, distributors, wholesale agents and brokers, manufacturers' sales offices, and B2B service firms such as transportation, contractors, accounting, financial, professional, insurance, legal, real estate, rental and leasing, and retail head offices in all of Canada's major commercial centers as well as their respective surrounding markets. Nationally they can provide information on ~595,000 companies and their Atlantic Canada database contains information on ~30,000 companies.

The directory provides a listing of companies by economic sector commodity, company size and export indicator, contact names and size of employment and annual sales revenues known. Using this dataset can identify the relevant products that would truck products to/from Atlantic Canada or that are railed and transloaded at other sites across the region. In addition, the dataset provides other listings for the service sector industries which were not profiled.

As noted previously, CFAF does not provide truck or rail shipment data specific to Cape Breton and the researchers developed an assumption that 31% of freight volumes associated with the Rest of Nova Scotia relate to Cape Breton. This assumption is based on a GIS review of commercial business operations in Cape Breton that identified 111 manufacturers and processors that had some potential to utilize inbound and outbound truck freight. Other considerations that factored into this assumption included Cape Breton's economy, which in 2015 saw 200 fisheries operations capturing 80% of the province's seafood shipments by volume. This included aquaculture operations that would be shipping in feed and other inputs.

Environmental Carbon Modal Shift Benefits

Our tabletop analysis of rail vs truck carbon emissions suggests that a shift from truck to a Class I carrier would result in a decrease of 5573.5 tonnes of CO2, an increase of 7.8 tonnes of NOx and an increase of .6 tonnes of particulate matter. Using tabletop emission factors, the authors conclude that the change in CO2 emissions for truck vs rail in Cape Breton would be a reduction of 4593.8 tonnes.

Carrier type	Emissions factor	CO2 Emissions
Truck	52.93	5,906.00
Rail	11.76	1,312.20
Change MT		- 4,593.80

This is equivalent to removing ~100 cars from the road. At $50 per tonne for carbon emissions the cost would be in the range of $230K to $250K.

Based on Data Provided by Truck and Rail Carriers

SmartWay is a program sponsored by the US Environmental Protection Agency (EPA) that helps transportation, freight, and logistics companies advance supply chain sustainability by measuring, benchmarking, and freight transportation efficiency. Natural Resources Canada (NRCAN) has adopted the application and has created The SmartWay Transport Partnership to provide a range of tools and information to help companies make better decisions about their energy performance.

Carriers become SmartWay Partners by using a SmartWay Tool to submit their data and the tool calculates and aggregates company-specific emissions rates according to the fleet category. Contributing partners get value from the application by being able to calculate, analyze and monitor their carbon footprint on a continuous basis, and they can use the benchmarking data to gauge their performance against competitors and industry averages. Detailed data for each carrier is available on the NRCAN website. In 2020, the SmartWay Tool was used by 30 rail carriers, 3108 truck carriers and 15 intermodal carriers (truck and rail).

Notably, one of the carriers reporting their emissions data to The SmartWay Transport Partnership is Genesee and Wyoming (G&W), the owners of the Cape Breton & Central Nova Scotia Railway (CBNS). G&W is an American short line railroad holding company that owns or maintains an interest in 122 railroads in the United States, Canada, Belgium, Netherlands, Poland and the United Kingdom and has 7,300 employees serving 3,000 customers.

SmartWay gathers fuel, distance, and payload data of carriers to calculate carrier emissions rates using six distinct emissions categories, three of which are reflected in the table below. These emission factors are averaged except for G&W which is based on their actual reported data.

Carrier Type (# reporting)	**CO2 g/t-km**	**NOx g/t-km**	**PMg/t-km**
Class 1 Rail (7)	14.19	0.1984	0.0056
Class 2 Rail (4)	62.64	1.0954	0.0387
Class 3 Rail (18)	260.05	4.5584	0.1618
Genesee & Wyoming	33.69	0.7624	0.0198
Truck (3108)	64.14	0.1282	0.0006
Multimodal (15)	34.37	0.1987	0.0053

The above table illustrates the challenge in using a standard emission factor for all classes of railways. Class I railroads are primarily involved with long-haul transportation of commodities with as few stops in between as possible, whereas Class II & III railways operate a greater percentage of switching and terminal locomotives that might be geared for a different purpose, travel shorter distances, and are more likely to feature older, less efficient engine technology compared to the locomotives being operated by Class I railways. Even those shortlines that have a decent stretch of track will tend to have older and/or smaller, less performant locomotives pulling fewer cars with less freight and will require more switching and idling time.

Fuel Costs 25-30% of Operating Costs

Diesel fuel (refined from crude oil) produces many harmful emissions when it is burned, and diesel-fueled engines are major sources of greenhouse gas emissions, including carbon emissions and other harmful pollutants such as ground-level ozone and particulate matter. Diesel-fueled freight transportation makes up 8% of global greenhouse gas emissions and its carbon emissions are projected to double by 2050. Long-run average per tonne-kilometer results show that ocean-going vessels emit the fewest emissions, followed by rail, then trucks, and that the inclusion of life cycle processes can increase impacts by up to 32% for energy and greenhouse gas (GHG) emissions and 4,200% for conventional air pollutants.

The environmental impacts of diesel fuel would justify public policies aimed at reducing its consumption even if the cost at the pump was zero. However, the fact that diesel fuel represents the single largest cost for both rail and truck carriers serves (alongside government carbon regulations and the need to present themselves as good corporate citizens who are dedicated to environmental sustainability) as a compelling reason to implement new technologies and find operational efficiencies that reduce fuel consumption and the associated emissions. Diesel

fuel is reported to represent 25-30% of a Class 1 rail carrier's operating costs and, as the table below indicates, over the past decade fuel operating costs for trucks have ranged from 21% to 38% of total operating costs, with the percentage moving in tandem with crude oil prices.

Transport Truck Fuel Operating Cost as % of Total Operating Cost										
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fuel cost % of total operating cost	38%	34%	26%	21%	22%	24%	24%	19%	22%	?
Average closing price of crude oil	97.98	93.17	48.66	43.29	50.8	65.23	56.99	39.68	68.17	94.82

Table 1 Truck Fuel Operating Cost % 2013-2021

These costs are passed on to price-sensitive producers, processors, and manufacturers who in turn pass the cost on to price-sensitive consumers. Consequently, companies and economic sectors that can find ways to reduce fuel costs and improve efficiency can generate sustainable competitive advantages.

Both rail and truck carriers are adopting leading edge technologies that reduce emissions, however the operating life of a semi-tractor is ~15 years while the life of a locomotive is ~25 years and this impacts their respective adoption rate for the latest technologies. The reality is that there are many factors besides carbon and fuel costs that shippers consider in choosing to ship by rail or truck and it is unlikely that either mode will disappear anytime soon. More likely they will continue to function together, as Josué Velázquez Martínez, a research scientist at the MIT Center for Transportation and Logistics suggests, perhaps the best way to reduce freight's carbon footprint is to address the "first and last mile" by focusing on the trucks and vans that carry goods from regional distribution hubs to local stores or directly to people's homes due to the rise of e-commerce.

Logistic Implications Rail Services

Critical Success Factors

Upstream and Downstream Relationships

Shortline railways are intermediaries and it is critical that they maintain excellent working relationships with their Class 1 interchange partner as well as their customers. Canada's two Class I railways represent natural monopolies, a distinct type of monopoly that exists when the barriers to entry for new competitors is exceedingly high. Each owns an extensive network of rail infrastructure in relation to which they exert control over a "captive" market, enabling them to be price/terms makers in control of the price, terms, and conditions of service. This enables

them to raise and maintain price above the level that would prevail under competition and the consequence is that shippers who are reliant on a single carrier tend to face higher freight rates, reduced efficiency and challenges in accessing the railcars they prefer. The fact that shortlines typically interchange with only one Class 1 carrier and are responsible for hauling freight for the first or last few kilometers of a longer journey causes them to face similar challenges. This causes shortlines and shippers with access to a single Class 1 carrier to be price/terms takers who face higher costs and strategic risks associated with their dominant partner's evolving business operation. Shippers who have access to more than one Class 1 carrier operate in a competitive environment and can negotiate better terms.

Close collaboration between logistics supply chain participants enables them to offer seamless solutions involving multiple logistics modes that convey freight from its originating point to its destination. Supply chain collaboration is about different entities working together toward shared objectives, and sometimes it is in their shared interest to resist competition from entities seeking to participate in an existing supply chain or establish a new supply chain. To some extent, this perspective is a case of "if it's not broken, don't fix it." Accordingly, there must be a compelling reason for a Class 1 carrier to enthusiastically participate in the development of a new logistics supply chain. The most compelling reason for a Class 1 carrier to collaborate with a shortline to create a new supply chain would be a strong potential for high traffic density.

Access to Optimal Railcars and Containers

For rail to be attractive, customers need access to their desired railcar type and to reliable train service at a price that enables them to remain competitive. Shortlines can excel at providing effective services and being innovative, but they are reliant on Class 1 carriers to provide access to the types of equipment the shortline's customers desire and on the frequency of train service.

To provide effective service without sacrificing efficiency, the Class 1 carrier needs the shortline to consistently generate high volumes of rail freight and to have railcars assembled and ready to go when the train arrives at the interchange. The shortline has control over services like switching and assembling cars, but they are reliant on their customers to generate the freight volumes that interest the Class 1 carrier.

Establishing a High-level of Traffic/Freight Density

In this context, traffic refers to the number of railcars and freight density refers to the average amount of freight hauled in each railcar. Ideally, a shortline would have a large volume of inbound and more so outbound railcars that are filled to capacity.

When Genesee & Wyoming terminated service on the Sydney Subdivision, they were down to 300 railcars per year and indicated that their profitability threshold was 10,000 railcars per year. As a rough estimate, if we assume that each car was loaded to 90Mt this would amount to ~900K tonnes of freight annually, and if that sum is divided by ~100 miles of track it equals ~9,000 tonnes of freight per mile of track. By comparison, in 2019 Canada's railways collectively hauled ~333M tonnes over 26,635 miles of track or 12,499 tonnes of freight per mile of

track. Given that shortlines are price/terms takers with higher overhead than Class 1 carriers, it seems possible that the 10,000-railcar estimate could underestimate the threshold traffic volume required for shortline profitability.

Competitiveness

The different logistics modes each have their own strengths and weaknesses, and this leads them to specialize in different market segments. For example, trucking costs significantly more than rail but it is also faster, more responsive, and shippers have better load traceability. Companies that ship massive freight volumes over long distances would not be effectively served by trucking as their sole logistics mode. Class I carriers spend a significant percentage of their gross revenue on maintaining their rail infrastructure, whereas the trucking industry operates on publicly owned and maintained infrastructure. Rail carriers claim that publicly funded highways represent a subsidy to the trucking industry and while this claim may hold some merit in relation to shortlines, the fact that Class I railways enjoy monopolies weakens their argument. In the US, this disparity is recognized and shortlines receive a range of public supports, but this is not the case in Canada. Together these factors make trucking an existential threat to shortlines.

It is important to note that the competitive threats faced by the shortline include not only competition between logistics modes and within logistics modes but also between jurisdictions. Community developments such as refrigerated warehouses or newly established marine freight/container services can cause freight to be redirected.

Data Gaps Limitations

Data Sources

- Statistics Canada Canadian Freight Analysis Framework
- Nova Scotia Ministry of Highways
    - Port Competitiveness Report (PDF 870Kb)
    - Due Diligence Assessment of Plans for Second Berth at the Sydney Marine Terminal (PDF 3.7MB)
    - The Nova Scotia Transportation Sector: Global Market Challenges and Opportunities (PDF 3.7MB)
    - Charting the Course: Atlantic Canada Transportation Strategy 2008-2018
    - Traffic Control Person Training Manual
    - Traffic Volumes - Primary Highway System - 2012 to 2021
    - Traffic Volumes - Secondary Roads Book - 2012 to 2021
- Port of Sydney
    - Marine Traffic
- Nova Scotia Finance and Treasury Board Economics and Statistics

- Economic Profile Series: Cape Breton, Nova Scotia
- Statistics Canada Input-output multipliers, provincial and territorial, summary level
- Statistics Canada Census Profile, 2021 Census of Population - Cape Breton, Regional municipality

The data used to complete the underlying analysis for this report came from Statistics Canada's *Canadian Freight Analysis Framework (CFAF)*, which integrates data from several sources to create a comprehensive picture of freight flows across the country by geography, commodity and mode of transport. The framework database estimates tonnage, value, and tonne-kilometers by origin and destination, by commodity type, and by mode. The database is used in a variety of analyses including, for example, assessing highway capacity and forecasting traffic, evaluating investments in infrastructure, examining trade flows, and analyzing policies such as road pricing and multimodal freight programs. The data used is for the period of 2011-2017, which was released by Statistics Canada on May 14, 2020.

Economic multipliers impact analysis is the most common method used in the EA process to assess economic impacts, but the models used (input-output and regional income/employment multipliers) have limitations: they assume static relationships between sectors, they place no constraints on labour and capital, and they omit opportunity and other project costs. As a result, these models tend to overestimate employment, economic output and fiscal impacts of projects, and exaggerate economic benefits.[2]

Assumptions

Assumption #1

Two calculations representing the lower and upper ranges of potential demand for railcars and intermodal containers is used in this report. The lower range involves loading all modal units to their maximum capacity and the assumptions are:

- The load capacity for trucks is 30 metric tonnes in Canada and 21 metric tonnes in the USA & Mexico.
- The load capacity of a 53-foot intermodal container is 25 metric tonnes.
- The load capacity for railcars is 90 metric tonnes.
- Six 53' containers would be loaded onto an articulated flat container railcar.

The upper end of the range is based on CFAF's freight synopsis for 2017 includes the following two points that mention Canada's average truck and railcar weights for 2017:

[2] Evaluating methods for analyzing economic impacts in environmental assessments, Social Sciences & Humanities Research Council

- Each mode of transportation caters to a certain segment of the freight transportation market in terms of distance and type of commodity shipped. In 2017, for example, the average shipment for the for-hire trucking industry weighed just over **11 tonnes**, had an average shipment value of $33,786 and travelled an average distance of 584 kilometres.
- In 2017, each rail shipment or rail car weighed an average of just over **46 tonnes** and was transported about 2,212 kilometres. Agricultural products were the top commodity by weight, followed by plastic and chemical products, coal, minerals, and forest products. Together, these commodities accounted for over two-thirds (69%) of the total weight moved by rail.

Assumption #2 - Cape Breton % of Rest of Nova Scotia freight volumes

As indicated in the table below, Cape Breton has 10.7% of Nova Scotia's overall population and 21.8% of the Rest of Nova Scotia's population along with 18.7% of the province's land area. The Rest of Nova Scotia generates 56.2% of the province's GDP and it is likely that Cape Breton generates a substantial portion of that since this is historically an area with a strong industrial focus and Sydney is Nova Scotia's second largest city. Based on the foregoing factors, the authors have attributed 20% of the Rest of Nova Scotia's inbound and outbound truck volumes.

	Nova Scotia	Halifax	Rest of Nova Scotia	Cape Breton	Sydney	Res NS % NS	CB % of NS	CB % Rest NS
Population	923,598	470,980	452,618	98,722	29,904	49.0%	10.7%	21.8%
GDP (billions)	46.9	20.5	26.4			56.2%		
GDP per capita	50,726	43,526	58,217			114.8%		
Land area (sq km)	55,284	97	55,187	10,311			18.7%	

Assumption #3 Economic Impact Multipliers

Economic impact is based on Statistics Canada's economic impact and indirect jobs multipliers for Nova Scotia as noted below.

- StatsCan economic impact multiplier per dollar of output (x.879)
- StatsCan indirect jobs multiplier (4.577 per $1M spent)
- Operations Phase: $10/$15/$20 per tonne gross revenue x total tonnes shipped x multipliers
- Construction Phase: $100M/ cost to refurbish rail line ÷ $1M x multipliers

Data Gaps

Data Gap #1 - StatsCan CFAF data 5 years old

The data was released two years ago but it is 5 years old. Nevertheless, CFAF provides 7 years of data for 11 commodities being shipped to and from 26 jurisdictions and there is considerable insight to be gained from this data. A comparison of total freight movements associated with Newfoundland and Nova Scotia for 2011-2017 with Canada's GDP for the period indicates there is a correlation between the two, and the GDP data for 2018-2021 provides a sense for how freight movements might have changed since 2017.

Canada GDP 2011-2022 vs Freight Movements NS & NFLD 2011-2017											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Canada GDP (billions)	1,793	1,828	1,847	1,806	1,557	1,528	1,649	1,725	1,752	1,645	1,991
ALL Inbound & Outbound Truck & Rail Freight MT (thousands)	11,439	12,080	10,854	10,394	11,229	11,019	12,034				

Data GAP #2 - Incongruent data entries

The quality and accuracy of this data set is excellent, however, with hundreds of carriers enrolled in the program there is a potential for human error in relation to data entry or data categorization and this issue appears to be evident in some of the charts in Appendix 1 & 2. The challenge is that what might seem like a false entry may not be an error at all because large changes in annual freight volumes of commodities are not uncommon. This can make it very difficult to determine the validity of a seemingly incongruent entry.

Data GAP #3 - CFAF data limited to fleet carriers

StatsCan's Trucking Commodity Origin Destination (TCOD) survey is mandatory under the Statistics Act and the agency utilizes digital reporting by Canada's major air, rail, and truck carriers. The participation of major truck carriers in the CFAF program is mandatory, however, own-account or private trucking as well as smaller for-hire establishments with annual revenues below $1.3 million are excluded from the reporting requirement, with the result being that truck freight volumes are under-reported in the data set by an unknown amount. To determine how this might impact our examination, we conducted some further analysis.

Data GAP #4 - Cape Breton CFAF data is grouped within Rest of Nova Scotia

There is no separate pool of truck and rail freight data for Cape Breton alone. Statistics Canada's CFAF truck and rail freight data for Nova Scotia is broken down into Halifax and the Rest of Nova Scotia. Based on a GIS review of commercial business operations in Cape Breton that identified 111 manufacturers and processors that had some potential to utilize inbound and outbound truck freight, the authors estimate that 31% of the CFAF truck traffic volumes for the Rest of Nova Scotia would be associated with Cape Breton. Other considerations included Cape Breton's economy which in 2015 saw 200 fisheries operations capturing 80% of seafood shipments by volume. This included aquaculture operations that would be shipping in feed and other inputs.

Conclusions

The study utilized Statistics Canada's Canadian Freight Analysis Framework to identify the commodities and volumes currently being shipped by truck and rail from sixteen North American jurisdictions to Cape Breton and Newfoundland, and; also considered the potential for growth of the economy of Cape Breton and the opportunity for the Port of Sydney to become an important gateway port on Canada's east coast. A GIS review of commercial business operations in Cape Breton that identified 111 manufacturers and processors that could potentially utilize rail freight services, and interviews with 16 companies indicated a strong interest in having local rail service. Based on this analysis it is the researchers opinion that railcar traffic of 6,000 to 10,000 units could be achieved under the right operating circumstances.

A new geoeconomic world order is emerging that is characterized by a great power rivalry between the United States, China and Russia, and between this and the global impacts of the Covid19 pandemic on freight logistics there has been a tremendous amount of turbulence and change occurring in global supply chains. While there are no statistics that prove this, the researchers believe that the refurbishment of the Sydney Subdivision of the Cape Breton and Nova Scotia Railway represents a strategic opportunity for Canada to develop new port capacity on its east coast that would serve to capture emerging opportunities and revitalize Cape Breton's economy.

By far the most significant negative future impact associated with the permanent abandonment of the Sydney Subdivision would be the potential loss of opportunity for the Port of Sydney, which has several unique features that make it an attractive location for companies seeking an ultra- deep-water port on the east coast of North America. If similar portside developments around the world are any indication, the investment level for this type of economic development opportunity could easily range from $500M-$1B. Port-rail integration would be an absolute requirement for this type of investment to occur. If the tracks on the Sydney Subdivision remain in place this opportunity remains in play because it is conceivable that the line could be refurbished sometime in the future by replacing the ties and ballast and repairing some trestles and bridges. However, if the tracks were removed, the likelihood of it being replaced would be virtually nil because the cost of developing a new rail line with new bridges and trestles would be 3-4 times the cost of refurbishing the existing line.

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 1

CURRENT MODAL ASSESSMENT NEWFOUNDLAND

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Technical Appendix 1 Purpose

The purpose of the overall study is to determine whether a potential exists to restart rail service on the Sydney Subdivision. Within this context, the purpose of Technical Appendix I is to evaluate the movement of inbound and outbound trucked commodities to and from the Province of Newfoundland. The importance of this data lies in the fact that much of the freight moving between Newfoundland and the mainland is intermodal and conventional trucking and it is conceivable that a percentage of this freight could be shipped by rail through the Port of Sydney. Calculating the number of trucks (21Mt) and railcars (90Mt) that would be required to convey 100% of Newfoundland's inbound and outbound freight creates a baseline for our analysis. Statistics Canada truck survey data for Newfoundland was evaluated over a seven-year period of data from 2011 to 2017 and is presented in the tables in this document. This data identifies Newfoundland's 7-year average annual inbound and outbound freight tonnage data for each commodity grouping. This data was also used to present commodity and origin trend charts as a means of illustrating the dynamic nature of logistics.

Introduction

Newfoundland Economy & Demographics

The main industries in Newfoundland are mining, manufacturing, fishing, pulp and paper, and hydroelectricity. Other natural resources important to the local economy include iron ore from Labrador and the development of substantial offshore oil and natural gas reserves. Since 2008, Newfoundland's GDP has remained stable at ~$30B (2012 chained dollars). The population of the province peaked in the early 1990s at over 580,000 and is currently ~526,000, half of whom reside in the province's five largest urban centers which are listed in Table 1 below, and the remainder residing in many small communities.

Urban Area	2021
St. John's (CMA)	212,579
Corner Brook (CA)	19,806
Grand Falls-Windsor (CA)	13,853
Gander (CA)	11,880
Bay Roberts (CA)	5,974

Table 1 Urban Centres in Newfoundland

Statistics Canada Canadian Freight Analysis Framework

Statistics Canada's "Canadian Freight Analysis Framework" integrates data from several sources to create a comprehensive picture of freight flows across the country by geography, commodity, and mode of transport. The framework database estimates tonnage, value, and tonne-kilometres by origin and destination , by commodity type, and by mode. Readers interested in learning more should refer to **Canadian Freight Analysis Framework (CFAF)**, which is available online for important information on survey methods and data use.

To identify the mix of products /commodities that were shipped by truck between Newfoundland and other regions of Canada, the Statistics Canada modal transportation data known as FAF, TCOD datasets was used to assess the inbound products to Newfoundland/Cape Breton and outbound flows from these regions.

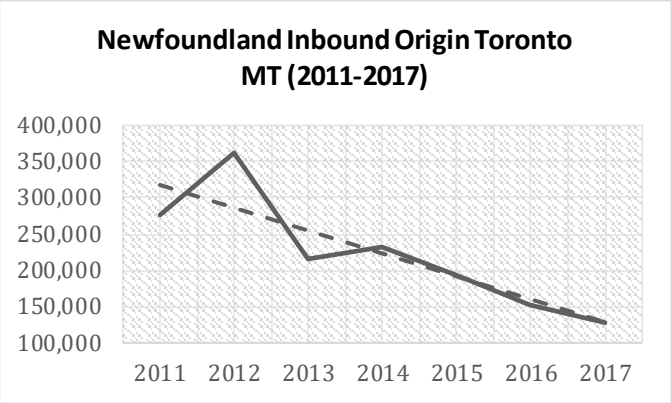
North American Industry Classification System (NAICS) Commodity Groupings

The industrial sectors associated with Newfoundland's inbound trucked commodities groups are indicated in Table 2 below along with some examples of the products that are included in the commodity classifications that are used in this survey. Statistics Canada's sector/product classification framework illustrated in the table below uses the North American Industry Classification System (NAICS). Note that there are over 200 products with NAICS identifiers in some of the industry groupings presented here.

Agricultural products [01, 02, 03, 04]	Automobiles and other transportation equipment [36, 37]	Base metals and articles of base metals [31, 32, 33]	Coal [15]	Food [05, 06, 07, 08, 09]	Forest products [25, 26, 27, 28, 29]	Fuel oils and crude petroleum [16, 17, 18, 19]	Minerals [10, 11, 12, 13, 14]	Miscellaneous products [42]	Other manufactured goods [30, 34, 35, 38, 39, 40]	Plastic and chemical products [20, 21, 22, 23, 24]	Waste and scrap [41]
Animals	Vehicles	Steel, structural		Seafood	Logs	Crude Oil	Iron Ore	Dry goods	Clothing	Fertilizers	Scrap Metals
Grains	Parts	Base Nonferrous Metals		Meats	Wood	Asphalt	Concentrates Copper Lead Zinc Nickel		Metal Products	Potash	Waste Products
Feed				Milled Grains	Lumber	Fuels	Dolomite		Wind Turbines	Frac Sands	
				Dairy	Chips	Coke	Rocks		Electrical Equipment	Polystyrene	
				Beverages	Paper	Refined gas	Sand		Furniture	Propyl Alcohol	
					Pulp		Aggregates		Ammunition		
							Salt				
							Clay				

Table 2 Commodity Group Classification Examples

Newfoundland's Inbound Commodity Mix 2011-2017



The following sections identify the Inbound commodity mix by origin. The volume was averaged over the seven-year period and an estimate by each modal unit equivalents was completed for truck at 30 Mt and rail at 90 Mt.

Inbound from Toronto

Figure 1 Nfld Inbound from Toronto

Toronto was the largest inbound origin of truck shipments to Newfoundland over the period, averaging 233,233 Mt. As indicated in Figure 1 above, overall shipments are trending downward from a high of ~362K Mt. in 2012 to ~128K Mt. in 2017. Table 4 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in table 4 the top three inbound products from Toronto include: Misc. Products at 82,339 Mt; Food at 69,366 Mt; and Other Manufactured Goods at 33,981 Mt.

Toronto, Ontario, origin of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity Mt								Average
Agricultural products [01, 02, 03, 04]	4,601	20,384	1,327	8,955	6,488	731	3,126	6,516
Automobiles and other transportation equipment [36, 37]	18,444	4,516	8,038	3,531	410	1,252	3,347	5,648
Base metals and articles of base metals [31, 32, 33]	13,641	9,076	12,698	10,149	9,036	1,063	4,884	8,650
Coal [15]	0	0	0	0	0	0	0	0
Food [05, 06, 07, 08, 09]	60,850	148,887	53,864	43,168	77,923	57,952	42,915	69,366
Forest products [25, 26, 27, 28, 29]	23,410	9,204	7,854	6,754	3,291	1,365	4,055	7,990
Fuel oils and crude petroleum [16, 17, 18, 19]	2,075	1,789	1,758	1,607	215	61	122	1,090
Minerals [10, 11, 12, 13, 14]	256	1,310	11	294	192	373	470	415
Miscellaneous products [42]	60,140	144,219	105,935	68,335	66,131	76,059	55,553	82,339
Other manufactured goods [30, 34, 35, 38, 39, 40]	76,964	15,183	22,952	84,364	20,573	11,842	5,988	33,981
Plastic and chemical products [20, 21, 22, 23, 24]	15,406	7,364	1,993	4,860	10,584	2,768	7,480	7,208
Waste and scrap [41]	118	16	8	6	7	1	55	30
Grand Total	275,905	361,948	216,440	232,023	194,852	153,466	127,996	223,233

Table 3 Toronto Inbound Truck Volumes by Commodity Group Mt

Truck and Rail Requirements for 100% of Commodity Volumes Originating in Toronto

The average inbound freight volume from Toronto was 223,233 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 7,441 truckloads or 2,480 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 5 below.

	Toronto	
	Trucks 30Mt	Railcars 90Mt
Agricultural products [01, 02, 03, 04]	217	72
Automobiles and other transportation equipment [36, 37]	188	63
Base metals and articles of base metals [31, 32, 33]	288	96
Coal [15]	0	0
Food [05, 06, 07, 08, 09]	2,312	771
Forest products [25, 26, 27, 28, 29]	266	89
Fuel oils and crude petroleum [16, 17, 18, 19]	36	12
Minerals [10, 11, 12, 13, 14]	14	5
Miscellaneous products [42]	2,745	915
Other manufactured goods [30, 34, 35, 38, 39, 40]	1,133	378
Plastic and chemical products [20, 21, 22, 23, 24]	240	80
Waste and scrap [41]	1	0
Grand Total	**7,441**	**2,480**

Table 4 Toronto Truck & Railcar Requirements at 100% volume

Inbound from the Rest of Nova Scotia (other than Halifax)

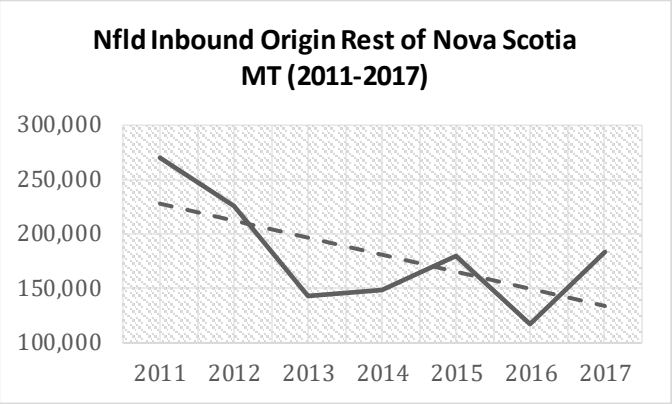


Figure 2 Newfoundland Inbound Originating in Rest of Nova Scotia

Nova Scotia (other than Halifax) was the second largest origin of truck shipments to Newfoundland over the period. As indicated in Figure 2 above, overall shipments from the Rest of Nova Scotia appear to be trending downward with a significant rebound in volumes in 2017. Table 6 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three commodity groups include: Food at 54,580 Mt; Metals 44,998 Mt and Forest Products at 32,677 Mt.

Rest of Nova Scotia, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity	MT	MT	MT	MT	MT	MT	MT	Average
Agricultural products [01, 02, 03, 04]	64,461	10,530	13,754	17,621	19,763	6,103	17,356	21,369
Automobiles and other transportation equipment [36, 37]	1,809	1,337	178	100	107	57	5,240	1,261
Base metals and articles of base metals [31, 32, 33]	115,272	19,211	44,128	19,797	23,929	27,736	64,915	44,998
Food [05, 06, 07, 08, 09]	67,249	125,441	50,291	38,914	40,766	11,826	47,575	54,580
Forest products [25, 26, 27, 28, 29]	2,058	24,928	12,070	32,581	69,269	51,507	36,326	32,677
Fuel oils and crude petroleum [16, 17, 18, 19]	7,956	4,911	3,236	4,750	447	0	289	3,084
Minerals [10, 11, 12, 13, 14]	3,295	4,390	3,824	3,809	3,284	3,502	1,994	3,443
Miscellaneous products [42]	2,114	16,694	1,206	10,009	6,592	20	2,044	5,526
Other manufactured goods [30, 34, 35, 38, 39, 40]	3,223	7,472	4,586	18,047	12,722	13,829	6,813	9,527
Plastic and chemical products [20, 21, 22, 23, 24]	2,670	10,078	7,051	2,490	3,521	2,731	520	4,152
Waste and scrap [41]	1	30	2,213	0	1	2	0	321
Grand Total	270,109	225,023	142,536	148,115	180,402	117,314	183,071	180,939

Table 5 Nova Scotia Inbound Truck Volumes by Commodity 2011-2017 Mt.

Truck and Rail Requirements for 100% of Commodity Volumes Originating in the Rest of Nova Scotia

The average inbound freight volume from the Rest of Nova Scotia (other than Halifax) was 180.939 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 6,031 truckloads or 2,009 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity group in Table 7 below.

Agricultural products [01, 02, 03, 04]	Trucks	Railcars
Automobiles and other transportation equipment [36, 37]	712	237
Base metals and articles of base metals [31, 32, 33]	42	14
Coal [15]	1,500	500
Food [05, 06, 07, 08, 09]	1,819	606
Forest products [25, 26, 27, 28, 29]	1,089	363
Fuel oils and crude petroleum [16, 17, 18, 19]	103	34
Minerals [10, 11, 12, 13, 14]	115	38
Miscellaneous products [42]	184	61
Other manufactured goods [30, 34, 35, 38, 39, 40]	318	106
Plastic and chemical products [20, 21, 22, 23, 24]	138	46
Waste and scrap [41]	11	4
Grand Total	6,031	2,009

Table 6 Nova Scotia Truck and Railcar Requirements at 100%

Inbound from New Brunswick

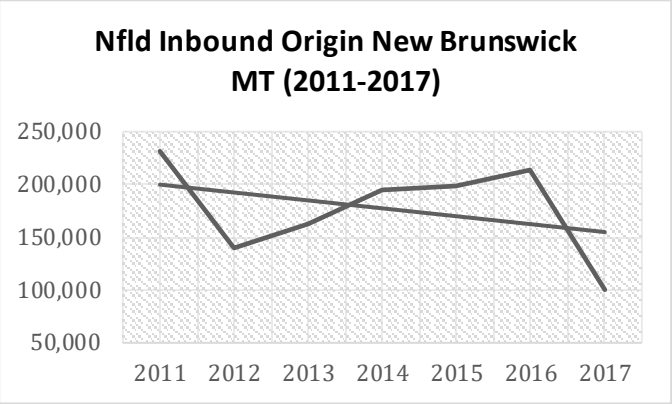


Figure 3 Nfld Inbound Originating New Brunswick

New Brunswick was the third largest origin of truck shipments to Newfoundland, averaging over 177,000 Mt. As indicated in Figure 3 above, the data is trending moderately downward but there is significant year to year variations in freight volumes. Table 10 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 55,688 Mt; Misc. Products at 36,459 Mt and Forest Products at 27,738 Mt.

New Brunswick, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	14,015	8,262	10,471	3,074	6,545	5,733	8,448	8,078
Automobiles and other transportation equipment [36, 37]	8,568	4,244	3,772	746	548	1,459	1,111	2,921
Base metals and articles of base metals [31, 32, 33]	24,317	30,517	17,350	26,146	21,007	35,056	4,138	22,647
Food [05, 06, 07, 08, 09]	104,913	30,801	63,733	69,269	57,756	41,915	21,428	55,688
Forest products [25, 26, 27, 28, 29]	15,100	8,692	29,837	23,738	56,510	39,872	20,413	27,738
Fuel oils and crude petroleum [16, 17, 18, 19]	309	101	434	7,404	52	9	37	1,192
Minerals [10, 11, 12, 13, 14]	10,158	10,499	2,748	71	2,327	25	0	3,690
Miscellaneous products [42]	17,653	39,224	25,172	32,601	36,632	73,947	29,988	36,459
Other manufactured goods [30, 34, 35, 38, 39, 40]	19,612	6,645	4,081	5,834	13,896	11,990	10,826	10,412
Plastic and chemical products [20, 21, 22, 23, 24]	16,813	1,787	4,039	25,339	4,064	3,725	3,918	8,526
Waste and scrap [41]	30	1	0	327	0	0	20	54
Grand Total	231,489	140,773	161,636	194,548	199,337	213,731	100,326	177,406

Table 7 New Brunswick Inbound Truck Volumes by Commodity 2011-2017 Mt.

Truck and Rail Requirements for 100% of Commodity Volumes Originating in the Rest of New Brunswick

The average inbound freight volume from New Brunswick was 177,406 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 5,913 truckloads or 1,972 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity group in Table 9 below.

	New Brunswick	
	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	Truck Eq 30Mt	Rail Car Eq90Mt
Automobiles and other transportation equipment [36, 37]	269	90
Base metals and articles of base metals [31, 32, 33]	97	32
Coal [15]	755	252
Food [05, 06, 07, 08, 09]	1,856	619
Forest products [25, 26, 27, 28, 29]	925	308
Fuel oils and crude petroleum [16, 17, 18, 19]	40	13
Minerals [10, 11, 12, 13, 14]	123	41
Miscellaneous products [42]	1,215	405
Other manufactured goods [30, 34, 35, 38, 39, 40]	347	116
Plastic and chemical products [20, 21, 22, 23, 24]	284	95
Waste and scrap [41]	2	1
Grand Total	5,913	1,972

Table 8 New Brunswick Truck & Railcar Requirements at 100%

Inbound from Montreal

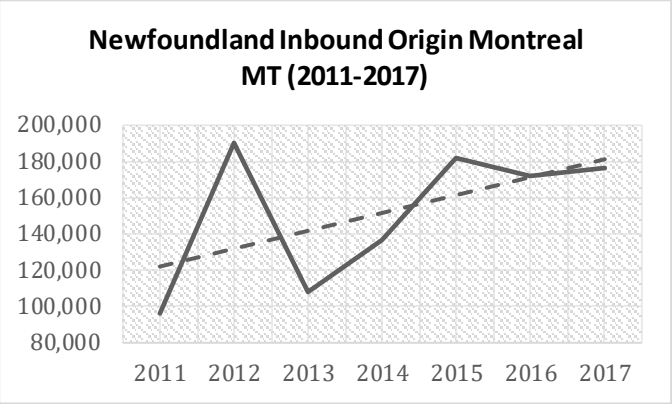


Figure 4 Newfoundland Inbound Originating in Montreal

Montreal was the fourth largest origin of truck shipments to Newfoundland, averaging over 151,000 Mt. As indicated in Figure 4 above, the overall trend is upward however there has been significant year to year fluctuation in freight volumes. Table 10 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Misc. Products at 46,752 Mt; Food at 31,980 Mt; and Base Metals at 19,205 Mt.

Montréal, Quebec, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	3,118	16,551	470	20,125	19,502	33,084	30,404	17,608
Automobiles and other transportation equipment [36, 37]	2,786	3,165	279	2,073	3,790	4,075	1,455	2,518
Base metals and articles of base metals [31, 32, 33]	8,453	18,335	13,527	8,182	42,975	24,328	18,632	19,205
Coal [15]	0	0	0	0	0	0	0	0
Food [05, 06, 07, 08, 09]	36,657	43,723	13,868	37,762	41,978	24,766	25,107	31,980
Forest products [25, 26, 27, 28, 29]	6,293	1,830	8,661	7,550	14,899	33,579	16,522	12,762
Fuel oils and crude petroleum [16, 17, 18, 19]	3,896	432	1,172	2,913	17,785	3,487	2,020	4,529
Minerals [10, 11, 12, 13, 14]	22	14	4	278	39	19	306	97
Miscellaneous products [42]	10,291	86,619	63,727	31,301	32,033	38,750	64,544	46,752
Other manufactured goods [30, 34, 35, 38, 39, 40]	15,729	13,081	4,774	22,055	5,664	8,152	14,006	11,923
Plastic and chemical products [20, 21, 22, 23, 24]	8,970	5,656	1,996	2,163	3,045	1,930	2,664	3,775
Waste and scrap [41]	10	843	2	2,366	0	1	223	492
Grand Total	**96,224**	**190,248**	**108,478**	**136,767**	**181,712**	**172,169**	**175,884**	**151,640**

Table 9 Montreal Inbound Truck Commodities

Truck and Rail Requirements for 100% of Commodity Volumes Originating in Montreal

The average inbound freight volume from Montreal was 151,640 Mt. which is broken down by commodity group in Table 11 below. Notably, most of the structural steel imported to the Atlantic Region comes via Montreal retailers/wholesalers from Europe and is typically delivered by truck from Montréal to Cape Breton and Newfoundland.

	Montreal	
Agricultural products [01, 02, 03, 04]	Trucks	Railcars
Automobiles and other transportation equipment [36, 37]	587	196
Base metals and articles of base metals [31, 32, 33]	84	28
Coal [15]	640	213
Food [05, 06, 07, 08, 09]	0	0
Forest products [25, 26, 27, 28, 29]	1,066	355
Fuel oils and crude petroleum [16, 17, 18, 19]	425	142
Minerals [10, 11, 12, 13, 14]	151	50
Miscellaneous products [42]	3	1
Other manufactured goods [30, 34, 35, 38, 39, 40]	1,558	519
Plastic and chemical products [20, 21, 22, 23, 24]	397	132
Waste and scrap [41]	126	42
Grand Total	5,037	1,678

Table 10 Montreal Truck and Railcar Requirements at 100%

Inbound from the Rest of Quebec

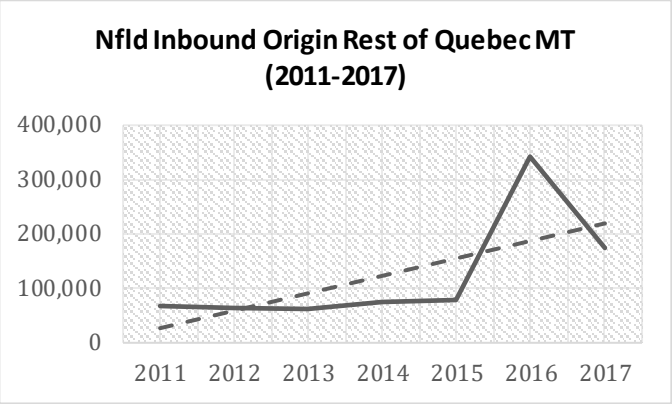


Figure 5 Nfld Inbound Rest of Quebec

The Rest of Quebec (other than Montreal and Quebec City), is the fifth largest origin of truck shipments to Newfoundland, averaging over 123,000 Mt. As Figure 5 above attests, the data is trending positive with recent fluctuations in freight volumes. Table 12 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three product groups include: Minerals at 73,164 Mt; Waste & scrap at 15,856 Mt and Forest products at 12,009 Mt.

Rest of Quebec, origin of shipments	MT							
Agricultural products [01, 02, 03, 04]	277	741	708	1,079	4,389	1,175	708	1,297
Automobiles and other transportation equipment [36, 37]	2,925	2,014	2,684	5,470	1,442	1,981	3,048	2,795
Base metals and articles of base metals [31, 32, 33]	1,543	419	6,089	1,067	3,435	26	378	1,851
Coal [15]	0	0	0	0	0	5	5	1
Food [05, 06, 07, 08, 09]	14	0	0	8	5	25,969	281	3,754
Forest products [25, 26, 27, 28, 29]	22,789	14,867	9,369	6,548	12,777	13,590	4,124	12,009
Fuel oils and crude petroleum [16, 17, 18, 19]	10,415	3,026	10,005	1,966	2,899	290	11,137	5,677
Minerals [10, 11, 12, 13, 14]	11,648	15,722	14,344	7,165	42,121	280,795	140,354	73,164
Miscellaneous products [42]	1,767	550	543	379	1,542	3,088	257	1,161
Other manufactured goods [30, 34, 35, 38, 39, 40]	5,908	6,858	7,587	6,619	3,979	5,208	3,026	5,598
Plastic and chemical products [20, 21, 22, 23, 24]	0	2	0	44	9	4	79	20
Waste and scrap [41]	9,636	18,610	10,857	43,491	7,222	10,150	11,027	15,856
Grand Total	**66,921**	**62,810**	**62,185**	**73,835**	**79,821**	**342,283**	**174,424**	**123,183**

Table 11 Newfoundland Inbound from Rest of Quebec

Truck and Rail Requirements for 100% of Commodity Volumes Originating in Rest of Quebec

The average inbound freight volume from the Rest of Quebec was 123,183 Mt. which is broken down by commodity group in Table 13 below.

	Rest of Quebec	
	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	43	14
Automobiles and other transportation equipment [36, 37]	93	31
Base metals and articles of base metals [31, 32, 33]	62	21
Coal [15]	0	0
Food [05, 06, 07, 08, 09]	125	42
Forest products [25, 26, 27, 28, 29]	400	133
Fuel oils and crude petroleum [16, 17, 18, 19]	189	63
Minerals [10, 11, 12, 13, 14]	2439	813
Miscellaneous products [42]	39	13
Other manufactured goods [30, 34, 35, 38, 39, 40]	187	62
Plastic and chemical products [20, 21, 22, 23, 24]	1	0
Waste and scrap [41]	529	176
Grand Total	4,064	1,354

Table 12 Rest of Quebec Truck & Railcar Requirements at 100%

Inbound from the Rest of Ontario

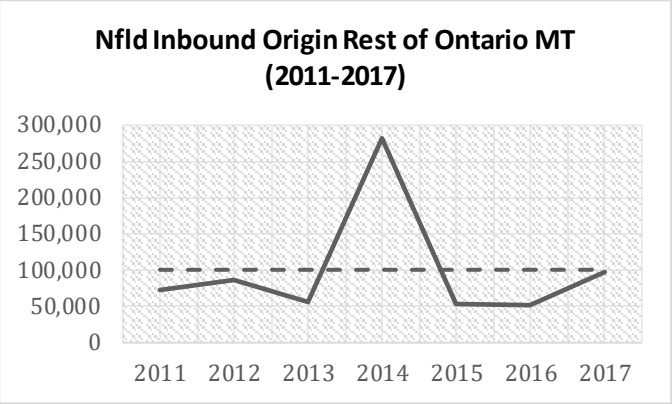


Figure 6 Nfld Inbound Rest of Ontario

The rest of Ontario (other than Toronto) was the sixth largest origin of truck shipments to Newfoundland at over 100,500 Mt. Figure 6 above suggests a relatively flat trendline however in 2014 there was a massive increase in fuel oils and crude petroleum and smaller but still anomalous increases in several other commodities. This requires further insight before averaged data can be relied upon. Table 14 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Fuel/Petroleum at 25,667 Mt; Food at 25,021 Mt and Misc. Products at 18,719 Mt..

Rest of Ontario, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	7,258	3,090	871	863	3,505	4,864	5,966	3,774
Automobiles and other transportation equipment [36, 37]	461	345	144	727	1,047	213	1,631	653
Base metals and articles of base metals [31, 32, 33]	21,800	5,062	5,498	11,666	5,743	1,393	3,072	7,748
Food [05, 06, 07, 08, 09]	11,540	41,571	20,603	48,885	25,029	15,594	11,924	25,021
Forest products [25, 26, 27, 28, 29]	2,851	1,328	1,664	1,145	1,175	643	564	1,339
Fuel oils and crude petroleum [16, 17, 18, 19]	44	13	7,540	171,951	29	44	50	25,667
Minerals [10, 11, 12, 13, 14]	901	4,600	4	12	93	42	13	809
Miscellaneous products [42]	8,215	13,840	12,821	40,503	7,125	17,255	31,273	18,719
Other manufactured goods [30, 34, 35, 38, 39, 40]	14,332	11,111	3,720	5,032	9,689	10,698	37,403	13,141
Plastic and chemical products [20, 21, 22, 23, 24]	6,031	5,774	4,613	1,130	1,152	989	5,910	3,657
Waste and scrap [41]	5	10	1	1	70	2	12	14
Grand Total	73,437	86,744	57,478	281,915	54,657	51,738	97,819	100,541

Table 13 Ontario Province Inbound Truck Volumes By commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Originating in the Rest of Ontario

The average inbound freight volume from the Rest of Ontario was 100,541 Mt. which equates to 624 trucks and 208 railcars. This is broken down by commodity group in Table 15 below.

	Rest of Ontario	
	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	126	42
Automobiles and other transportation equipment [36, 37]	22	7
Base metals and articles of base metals [31, 32, 33]	258	86
Coal [15]	834	278
Food [05, 06, 07, 08, 09]	45	15
Forest products [25, 26, 27, 28, 29]	856	285
Fuel oils and crude petroleum [16, 17, 18, 19]	27	9
Minerals [10, 11, 12, 13, 14]	624	208
Miscellaneous products [42]	438	146
Other manufactured goods [30, 34, 35, 38, 39, 40]	122	41
Plastic and chemical products [20, 21, 22, 23, 24]	0	0
Waste and scrap [41]	0	0
Grand Total	3,226	1,075

Table 14 Rest of Ontario Truck & Railcar Volumes at 100%

Inbound from Halifax

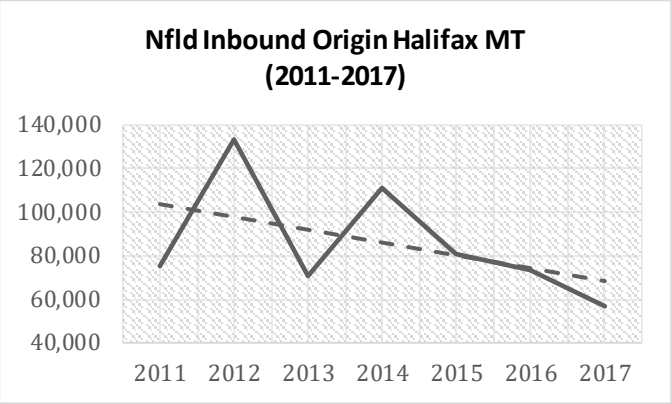


Figure 7 Nfld Inbound Halifax

Halifax was the seventh largest origin of truck shipments to NEWFOUNDLAND at over 86,044 Mt. As Figure 7 indicates, overall freight volumes from Halifax during this period trend downward. Table 16 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 32,838 Mt; Forest Products at 13,999 Mt and Misc. Products at 9,547 Mt.

Halifax, Nova Scotia, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	2,328	3,480	1,071	108	468	8,665	8,527	3,521
Automobiles and other transportation equipment [36, 37]	9,150	14,115	2,538	2,019	2,724	2,485	804	4,833
Base metals and articles of base metals [31, 32, 33]	6,944	3,367	9,256	5,186	4,767	19,182	14,963	9,095
Food [05, 06, 07, 08, 09]	35,719	66,430	33,932	21,159	35,076	23,146	14,401	32,838
Forest products [25, 26, 27, 28, 29]	8,116	10,164	11,554	38,682	18,164	10,379	935	13,999
Fuel oils and crude petroleum [16, 17, 18, 19]	98	14,795	510	62	12	737	904	2,445
Minerals [10, 11, 12, 13, 14]	9	114	31	2	16	7	1	26
Miscellaneous products [42]	992	15,194	5,778	37,530	4,595	1,021	1,721	9,547
Other manufactured goods [30, 34, 35, 38, 39, 40]	7,979	4,487	6,222	3,967	10,683	3,487	10,698	6,789
Plastic and chemical products [20, 21, 22, 23, 24]	3,894	1,222	260	2,509	4,105	4,726	3,845	2,937
Waste and scrap [41]	25	58	0	0	3	0	1	12
Grand Total	75,254	133,426	71,152	111,224	80,614	73,837	56,799	86,044

Table 15 Halifax Inbound Truck Volumes By commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Originating in Halifax

The average inbound freight volume from the Rest of Ontario was 86,044 Mt. which equates to 2868 trucks and 956 railcars. This is broken down by commodity group in Table 17 below.

	Halifax	
Agricultural products [01, 02, 03, 04]	Trucks	Railcars
Automobiles and other transportation equipment [36, 37]	117	39
Base metals and articles of base metals [31, 32, 33]	161	54
Coal [15]	303	101
Food [05, 06, 07, 08, 09]	1,095	365
Forest products [25, 26, 27, 28, 29]	467	156
Fuel oils and crude petroleum [16, 17, 18, 19]	82	27
Minerals [10, 11, 12, 13, 14]	1	0
Miscellaneous products [42]	318	106
Other manufactured goods [30, 34, 35, 38, 39, 40]	226	75
Plastic and chemical products [20, 21, 22, 23, 24]	98	33
Waste and scrap [41]	0	0
Grand Total	**2,868**	**956**

Table 16 Halifax Truck and Railcar Volumes at 100%

Inbound from USA & Mexico

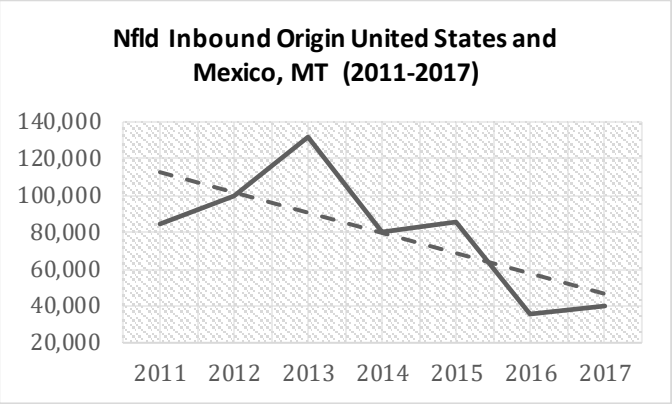


Figure 8 Nfld Inbound USA & Mexico

USA truck shipments to NEWFOUNDLAND at over 79,662 Mt. Figure 8 above indicates that freight volumes from the USA and Mexico are trending downwards. Table 18 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Other Manufactured Goods at 23,845; Base Metals at 13,623 Mt; Food at 11,271 Mt.

United States and Mexico, origin of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity								Average
Agricultural products [01, 02, 03, 04]	3,225	2,973	34,872	3,500	7,434	3,185	1,236	8,061
Automobiles and other transportation equipment [36, 37]	2,378	3,332	4,463	3,954	1,910	908	931	2,554
Base metals and articles of base metals [31, 32, 33]	17,170	15,605	28,399	19,432	4,554	4,383	5,817	13,623
Coal [15]	6	0	6	117	0	0	14	21
Food [05, 06, 07, 08, 09]	11,546	27,170	15,541	8,021	10,558	3,547	2,516	11,271
Forest products [25, 26, 27, 28, 29]	7,019	5,536	6,228	7,331	1,398	2,320	3,060	4,699
Fuel oils and crude petroleum [16, 17, 18, 19]	395	343	508	311	159	279	1,117	444
Minerals [10, 11, 12, 13, 14]	2,442	1,224	428	352	365	154	157	732
Miscellaneous products [42]	4,947	9,486	10,224	10,933	13,189	2,579	14,026	9,341
Other manufactured goods [30, 34, 35, 38, 39, 40]	29,710	26,325	24,485	22,605	42,678	13,480	7,633	23,845
Plastic and chemical products [20, 21, 22, 23, 24]	5,620	7,539	6,335	3,192	3,573	4,617	3,201	4,868
Waste and scrap [41]	144	296	322	222	115	168	160	204
Grand Total	84,602	99,829	131,810	79,971	85,933	35,621	39,867	79,662

Table 17 USA Inbound Truck Volumes By commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Originating in USA & Mexico

The average inbound freight volume from the USA & Mexico was 79,662 Mt. which equates to 2,655 trucks and 885 railcars. This is broken down by commodity group in Table 19 below.

	USA & Mexico	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	269	90
Automobiles and other transportation equipment [36, 37]	85	28
Base metals and articles of base metals [31, 32, 33]	454	151
Coal [15]	1	0
Food [05, 06, 07, 08, 09]	376	125
Forest products [25, 26, 27, 28, 29]	157	52
Fuel oils and crude petroleum [16, 17, 18, 19]	15	5
Minerals [10, 11, 12, 13, 14]	24	8
Miscellaneous products [42]	311	104
Other manufactured goods [30, 34, 35, 38, 39, 40]	795	265
Plastic and chemical products [20, 21, 22, 23, 24]	162	54
Waste and scrap [41]	7	2
Grand Total	**2,655**	**885**

Table 18 USA & Mexico Truck & Railcar Volumes at 100%

Inbound from Quebec City

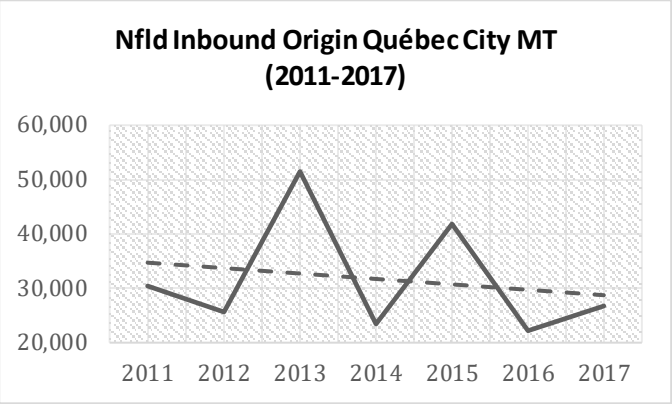


Figure 9 Nfld Inbound Quebec City

Quebec City was the sixth largest origin of truck shipments to Newfoundland, averaging over 31,722 Mt. which is equivalent to 1,057 truckloads or 352 railcars per year (assuming 100% of each commodity was shipped by this mode type). As Figure 9 indicates freight volumes are declining. Table 20 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 11,071 Mt; Misc. Products at 6,611 Mt and Fuel Oils at 5,200 Mt.

Québec, Quebec, origin of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	1,153	1,016	630	379	294	489	359	617
Automobiles and other transportation equipment [36, 37]	1,751	259	387	331	1,517	307	260	687
Base metals and articles of base metals [31, 32, 33]	245	9,554	2,867	775	2,740	3,202	7,060	3,778
Coal [15]	0	0	0	0	0	0	0	0
Food [05, 06, 07, 08, 09]	4,074	4,793	39,444	14,059	8,702	5,734	692	11,071
Forest products [25, 26, 27, 28, 29]	147	664	625	415	203	6,831	70	1,279
Fuel oils and crude petroleum [16, 17, 18, 19]	20,905	1,291	666	4,972	8,934	521	512	5,400
Minerals [10, 11, 12, 13, 14]	2	7	423	45	0	4	2,318	400
Miscellaneous products [42]	438	4,999	5,030	1,457	17,963	2,115	14,275	6,611
Other manufactured goods [30, 34, 35, 38, 39, 40]	756	1,042	545	918	359	208	806	662
Plastic and chemical products [20, 21, 22, 23, 24]	1,096	2,027	864	150	1,217	2,779	289	1,203
Waste and scrap [41]	0	0	1	1	0	0	96	14
Grand Total	**30,565**	**25,652**	**51,481**	**23,501**	**41,930**	**22,191**	**26,738**	**31,722**

Table 19 Quebec City Inbound Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Originating in Quebec City

The average inbound freight volume from Quebec City was 31,722 Mt. which equates to 1036 trucks and 344 railcars. This is broken down by commodity group in Table 21 below.

	Quebec City	
Agricultural products [01, 02, 03, 04]	21	7
Automobiles and other transportation equipment [36, 37]	23	8
Base metals and articles of base metals [31, 32, 33]	126	42
Coal [15]	0	0
Food [05, 06, 07, 08, 09]	369	123
Forest products [25, 26, 27, 28, 29]	43	14
Fuel oils and crude petroleum [16, 17, 18, 19]	180	60
Minerals [10, 11, 12, 13, 14]	13	4
Miscellaneous products [42]	220	73
Other manufactured goods [30, 34, 35, 38, 39, 40]	22	7
Plastic and chemical products [20, 21, 22, 23, 24]	40	13
Waste and scrap [41]	0	0
Grand Total	**1,036**	**344**

Table 20 Quebec City Truck & Railcar Volumes at 100%

Newfoundland's Outbound Commodity Mix 2011-2017

Outbound to Halifax

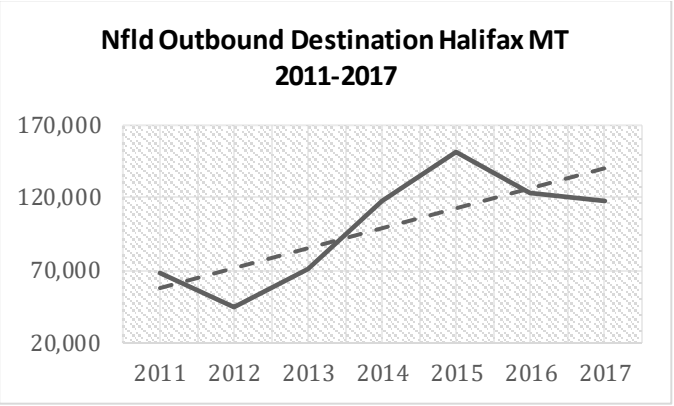


Figure 10 Nfld Outbound to Halifax

Halifax was the largest destination of truck shipments from Newfoundland at over 99,000 Mt. As indicated in Figure 10 overall freight volumes are trending upwards. Table 22 below provides Newfoundland's outbound commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 54,000 Mt; Forest Products at 31,000 Mt and Other Manufactured Goods at 3,500 Mt.

Halifax, Nova Scotia, destination of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity								Average
Agricultural products [01, 02, 03, 04]	41	26	37	332	1,496	796	53	397
Automobiles and other transportation equipment [36, 37]	4,831	8,177	1,143	447	5,339	2,436	2,044	3,488
Base metals and articles of base metals [31, 32, 33]	232	238	968	139	2,578	436	3,354	1,135
Food [05, 06, 07, 08, 09]	23,004	24,968	52,539	29,464	70,315	107,630	74,539	54,637
Forest products [25, 26, 27, 28, 29]	34,925	3,936	10,995	76,511	58,636	6,473	29,284	31,537
Fuel oils and crude petroleum [16, 17, 18, 19]	1	5	0	0	3	2	1	2
Minerals [10, 11, 12, 13, 14]	3	3	1	4	38	1	839	127
Miscellaneous products [42]	2,061	4,380	3,229	3,599	1,201	17	959	2,207
Other manufactured goods [30, 34, 35, 38, 39, 40]	968	711	503	6,729	8,915	1,712	4,980	3,503
Plastic and chemical products [20, 21, 22, 23, 24]	200	71	222	121	3,061	1,788	202	809
Waste and scrap [41]	2,128	2,188	1,489	0	0	1,515	1,725	1,292
Grand Total	68,394	44,702	71,125	117,348	151,581	122,806	117,979	99,134

Table 21 Halifax Destination Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Destined for Halifax

The average outbound freight volume to Toronto was 99,134 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 3,304 truckloads or 2,480 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 23 below.

	Halifax	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	13	4
Automobiles and other transportation equipment [36, 37]	116	39
Base metals and articles of base metals [31, 32, 33]	38	13
Food [05, 06, 07, 08, 09]	1,821	607
Forest products [25, 26, 27, 28, 29]	1,051	350
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0
Minerals [10, 11, 12, 13, 14]	4	1
Miscellaneous products [42]	74	25
Other manufactured goods [30, 34, 35, 38, 39, 40]	117	39
Plastic and chemical products [20, 21, 22, 23, 24]	27	9
Waste and scrap [41]	43	14
Grand Total	**3,304**	**1,101**

Table 22 Halifax Truck & Railcar Volumes at 100%

Outbound to New Brunswick

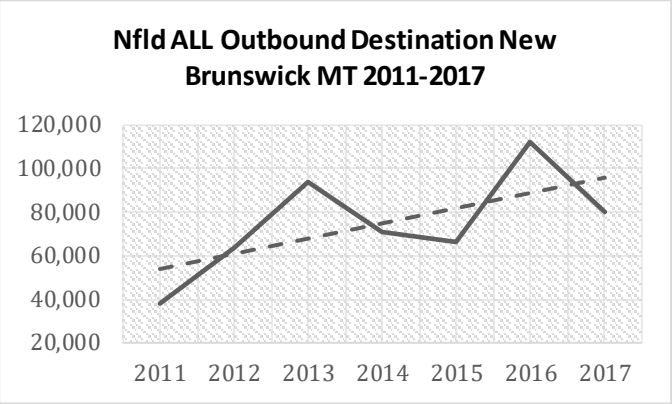


Figure 11 Nfld Outbound to New Brunswick

New Brunswick was the second largest destination of truck shipments from Newfoundland with over 74,900 Mt. As indicated in Figure 11 overall outbound freight volumes to New Brunswick are trending positive. Table 24 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 30,000 Mt; Misc. Products at 22,000 Mt and Waste and Scrap at 4,400 Mt.

New Brunswick, destination of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	221	35	691	551	18	137	283	277
Automobiles and other transportation equipment [36, 37]	4,241	1,505	1,255	504	226	872	1,950	1,507
Base metals and articles of base metals [31, 32, 33]	1,071	1,048	1,244	1,519	3,040	184	1,419	1,361
Food [05, 06, 07, 08, 09]	6,072	12,016	40,336	54,025	41,899	39,945	16,498	30,113
Forest products [25, 26, 27, 28, 29]	15,003	453	401	2,366	664	42,818	2,642	9,193
Fuel oils and crude petroleum [16, 17, 18, 19]	32	0	0	1	6,794	6,813	6,794	2,919
Minerals [10, 11, 12, 13, 14]	6	0	0	11	0	6	1	3
Miscellaneous products [42]	4,368	43,137	48,254	7,723	9,832	19,274	23,039	22,232
Other manufactured goods [30, 34, 35, 38, 39, 40]	6,762	735	1,211	2,520	3,196	1,936	1,196	2,508
Plastic and chemical products [20, 21, 22, 23, 24]	231	129	123	111	222	276	1,516	373
Waste and scrap [41]	26	4,586	11	1,511	4	0	24,788	4,418
Grand Total	**38,032**	**63,644**	**93,527**	**70,842**	**65,894**	**112,261**	**80,126**	**74,904**

Table 23 New Brunswick Destination Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Destined for New Brunswick

The average outbound freight volume to New Brunswick was 74,904 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 2,497 truckloads or 832 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 25 below.

	New Brunswick	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	9	3
Automobiles and other transportation equipment [36, 37]	50	17
Base metals and articles of base metals [31, 32, 33]	45	15
Food [05, 06, 07, 08, 09]	1,004	335
Forest products [25, 26, 27, 28, 29]	306	102
Fuel oils and crude petroleum [16, 17, 18, 19]	97	32
Minerals [10, 11, 12, 13, 14]	0	0
Miscellaneous products [42]	741	247
Other manufactured goods [30, 34, 35, 38, 39, 40]	84	28
Plastic and chemical products [20, 21, 22, 23, 24]	12	4
Waste and scrap [41]	147	49
Grand Total	2,497	832

Table 24 New Brunswick Truck & Railcar Volumes at 100%

Outbound to the Rest of Nova Scotia

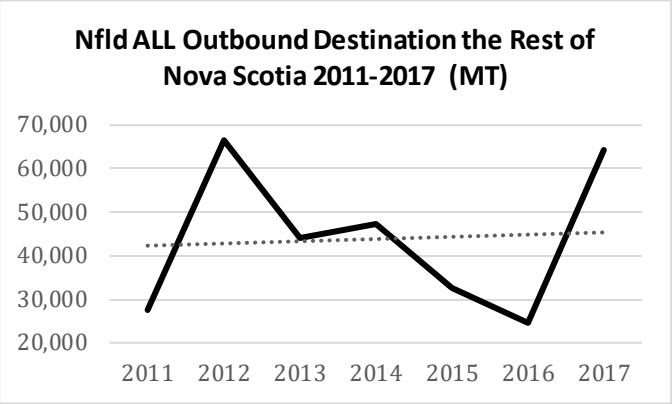


Figure 12 Nfld Outbound to Rest of Nova Scotia

The Rest of Nova Scotia (other than Halifax) was the third largest destination of truck shipments from Newfoundland, averaging 43,838 Mt. Table 26 below provides the commodity mix and volumes from 2011 to 2017 and the averages. Figure 12 above provides a trend chart that indicates a positive trend, albeit with significant year to year fluctuations. The top three products include: Forest Products at 16,100 Mt; Food at 15,600 Mt and Automobiles and other transportation equipment at 3,800 Mt.

Rest of Nova Scotia, destination of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity								Average
Agricultural products [01, 02, 03, 04]	29	5	392	316	651	4	4	200
Automobiles and other transportation equipment [36, 37]	8,744	7,532	2,987	2,555	3,225	1,733	229	3,858
Base metals and articles of base metals [31, 32, 33]	969	263	182	778	2,954	2,539	1,777	1,352
Food [05, 06, 07, 08, 09]	13,019	33,882	16,548	11,641	12,651	9,703	12,213	15,665
Forest products [25, 26, 27, 28, 29]	2,513	3,054	17,753	30,134	10,645	4,715	44,548	16,195
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0	1	1	0	0	0	0
Minerals [10, 11, 12, 13, 14]	0	1	0	0	0	1	1	0
Miscellaneous products [42]	297	18,837	415	370	185	1,543	2,969	3,517
Other manufactured goods [30, 34, 35, 38, 39, 40]	472	875	744	1,404	921	2,711	2,211	1,334
Plastic and chemical products [20, 21, 22, 23, 24]	146	257	2,859	106	1,133	90	230	689
Waste and scrap [41]	1,548	1,835	2,123	0	1	1,536	160	1,029
Grand Total	27,737	66,540	44,003	47,305	32,365	24,575	64,343	43,838

Table 25 Rest of Nova Scotia Destination Truck Volumes by Commodity

Truck and Rail Requirements for 100% of Commodity Volumes Destined for the Rest of Nova Scotia

The average outbound freight volume to the Rest of Nova Scotia was 48,838 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 1,461 truckloads or 487 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 27 below.

	Rest of Nova Scotia	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	7	2
Automobiles and other transportation equipment [36, 37]	129	43
Base metals and articles of base metals [31, 32, 33]	45	15
Food [05, 06, 07, 08, 09]	522	174
Forest products [25, 26, 27, 28, 29]	540	180
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0
Minerals [10, 11, 12, 13, 14]	0	0
Miscellaneous products [42]	117	39
Other manufactured goods [30, 34, 35, 38, 39, 40]	44	15
Plastic and chemical products [20, 21, 22, 23, 24]	23	8
Waste and scrap [41]	34	11
Grand Total	**1,461**	**487**

Table 26 Rest of Nova Scotia Truck & Rail Volumes at 100%

Outbound to USA & Mexico

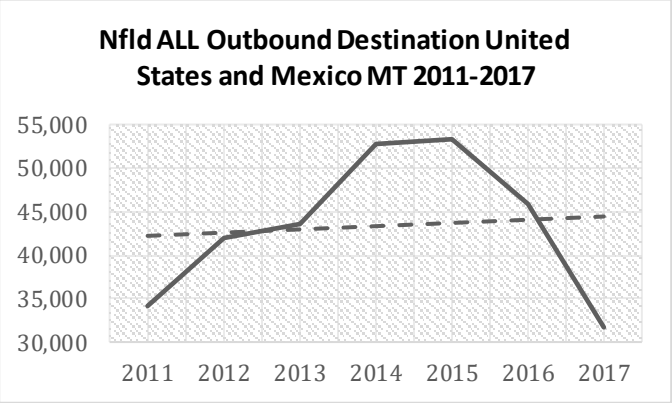


Figure 13 NFLD Outbound USA & Mexico

The United States & Mexico was the fourth largest destination of truck shipments from Newfoundland at over 43,300 Mt. This is equivalent to 1,444 truckloads or 481 railcars per year. As Figure 13 indicates freight volumes bound for the USA & Mexico face significant fluctuations. Table 28 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Food at 34,600 Mt; Base Metals at 2,207 Mt and Other Manufactured Goods at 1,900 Mt.

United States and Mexico, destination of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	148	53	357	2	46	937	25	224
Automobiles and other transportation equipment [36, 37]	1,843	64	48	68	101	51	675	407
Base metals and articles of base metals [31, 32, 33]	953	1,372	926	362	580	9,957	1,299	2,207
Coal [15]	0	0	2	0	0	0	0	0
Food [05, 06, 07, 08, 09]	23,409	33,483	36,261	49,723	47,743	28,779	23,347	34,678
Forest products [25, 26, 27, 28, 29]	5,427	3,710	1,121	168	655	471	1,084	1,805
Fuel oils and crude petroleum [16, 17, 18, 19]	1	1	1	0	1	7	2	2
Minerals [10, 11, 12, 13, 14]	26	44	2,043	4	2	29	0	307
Miscellaneous products [42]	1,338	1,694	580	417	186	18	2,926	1,023
Other manufactured goods [30, 34, 35, 38, 39, 40]	816	492	1,990	1,611	2,373	4,191	2,219	1,956
Plastic and chemical products [20, 21, 22, 23, 24]	174	1,013	176	57	236	58	119	262
Waste and scrap [41]	0	33	0	302	1,386	1,400	5	447
Grand Total	34,135	41,957	43,507	52,713	53,310	45,898	31,700	43,317

Table 27 USA Destination Truck Volumes by Commodity 2011-2017

Truck and Rail Requirements for 100% of Commodity Volumes Destined for USA & Mexico

The average outbound freight volume to the USA & Mexico was 43,317 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 1,444 truckloads or 481 railcars per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 29 below.

United States and Mexico, destination of shipments		
	USA & Mexico	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	7	2
Automobiles and other transportation equipment [36, 37]	14	5
Base metals and articles of base metals [31, 32, 33]	74	25
Coal [15]	0	0
Food [05, 06, 07, 08, 09]	1,156	385
Forest products [25, 26, 27, 28, 29]	60	20
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0
Minerals [10, 11, 12, 13, 14]	10	3
Miscellaneous products [42]	34	11
Other manufactured goods [30, 34, 35, 38, 39, 40]	65	22
Plastic and chemical products [20, 21, 22, 23, 24]	9	3
Waste and scrap [41]	15	5
Grand Total	1,444	481

Table 28 USA & Mexico Truck & Railcar Volumes at 100%

Outbound to Montreal

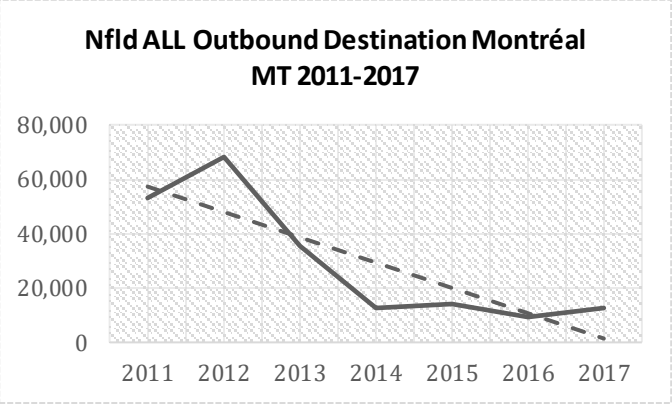


Figure 14 Nfld Outbound to Montreal

Montreal was the destination for truck shipments from Newfoundland at over 29,300 Mt. Figure 14 above indicates that outbound freight volumes are in significant decline during this period. Table 30 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Misc. Products at 10,000 Mt; Food at 4,000 Mt; and Other Manufactured Goods at 3,600 Mt.

Montréal, Quebec, destination of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity								Average
Agricultural products [01, 02, 03, 04]	759	698	450	28	6	4	98	292
Automobiles and other transportation equipment [36, 37]	322	632	376	2,514	230	408	853	762
Base metals and articles of base metals [31, 32, 33]	5,117	918	800	556	489	493	777	1,307
Food [05, 06, 07, 08, 09]	926	21,133	1,034	227	4,100	265	891	4,082
Forest products [25, 26, 27, 28, 29]	854	554	1,399	330	450	378	419	626
Fuel oils and crude petroleum [16, 17, 18, 19]	19	65	9	1,439	2	5	397	276
Minerals [10, 11, 12, 13, 14]	9	11	3	2	3	1	272	43
Miscellaneous products [42]	6,799	35,458	21,796	2,447	2,502	837	4,614	10,636
Other manufactured goods [30, 34, 35, 38, 39, 40]	16,011	950	1,429	2,684	1,539	561	2,351	3,646
Plastic and chemical products [20, 21, 22, 23, 24]	278	2,088	7,765	963	4,882	4,871	1,006	3,122
Waste and scrap [41]	22,067	5,668	56	1,721	17	1,479	804	4,545
Grand Total	53,162	68,175	35,116	12,911	14,219	9,303	12,482	29,338

Table 29 Montreal Destination Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Destined for Montreal

The average outbound freight volume to Montreal was 29,338 Mt. which is broken down by commodity in Table 31 below.

	Montreal	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	10	3
Automobiles and other transportation equipment [36, 37]	25	8
Base metals and articles of base metals [31, 32, 33]	44	15
Food [05, 06, 07, 08, 09]	136	45
Forest products [25, 26, 27, 28, 29]	21	7
Fuel oils and crude petroleum [16, 17, 18, 19]	9	3
Minerals [10, 11, 12, 13, 14]	1	0
Miscellaneous products [42]	355	118
Other manufactured goods [30, 34, 35, 38, 39, 40]	122	41
Plastic and chemical products [20, 21, 22, 23, 24]	104	35
Waste and scrap [41]	151	50
Grand Total	978	326

Table 30 Montreal Truck & Railcar Volumes at 100%

Outbound to Toronto

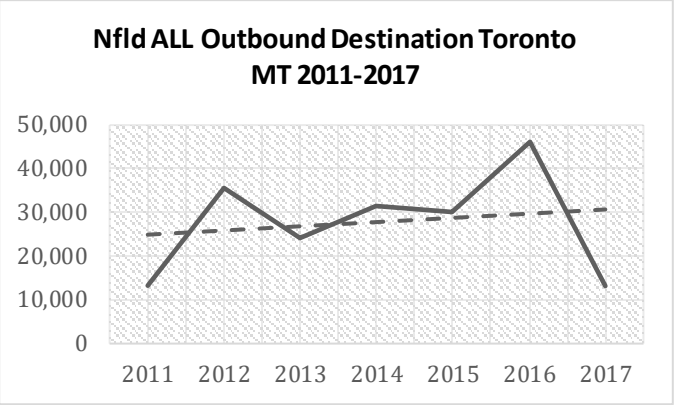


Figure 15 Nfld Outbound to Toronto

Toronto was the destination for truck shipments from Newfoundland at over 27,800 Mt. This is equivalent to 927 truckloads or 309 railcars per year. Table 32 below provides the commodity mix and volumes from 2011 to 2017 and the averages. Figure 15 above indicates a positive trend for outbound freight shipments to Toronto. The top three products include: Food at 10,000 Mt; Minerals at 6,900Mt and Misc. Products at 2,700 Mt.

Toronto, Ontario, destination of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity								Average
Agricultural products [01, 02, 03, 04]	16	65	38	4	960	2	7	156
Automobiles and other transportation equipment [36, 37]	1,845	231	808	661	477	638	1,155	831
Base metals and articles of base metals [31, 32, 33]	882	3,123	527	3,793	1,175	272	860	1,519
Food [05, 06, 07, 08, 09]	476	2,135	5,708	8,642	18,510	32,658	4,976	10,443
Forest products [25, 26, 27, 28, 29]	2,854	6,014	1,087	59	120	168	858	1,594
Fuel oils and crude petroleum [16, 17, 18, 19]	18	5	2	0	0	0	26	7
Minerals [10, 11, 12, 13, 14]	5,538	16,357	13,155	12,811	672	17	19	6,939
Miscellaneous products [42]	335	5,744	1,853	3,059	2,818	1,467	4,103	2,769
Other manufactured goods [30, 34, 35, 38, 39, 40]	1,117	428	1,057	2,594	5,274	7,590	858	2,703
Plastic and chemical products [20, 21, 22, 23, 24]	141	301	118	70	78	3,068	194	567
Waste and scrap [41]	37	1,283	3	5	33	281	266	273
Grand Total	13,260	35,685	24,355	31,699	30,117	46,161	13,324	27,800

Table 31 Toronto Destination Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Destined for Toronto

The average outbound freight volume to Toronto was 27,800 Mt. which is broken down by commodity in Table 33 below.

	Toronto	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	5	2
Automobiles and other transportation equipment [36, 37]	28	9
Base metals and articles of base metals [31, 32, 33]	51	17
Food [05, 06, 07, 08, 09]	348	116
Forest products [25, 26, 27, 28, 29]	53	18
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0
Minerals [10, 11, 12, 13, 14]	231	77
Miscellaneous products [42]	92	31
Other manufactured goods [30, 34, 35, 38, 39, 40]	90	30
Plastic and chemical products [20, 21, 22, 23, 24]	19	6
Waste and scrap [41]	9	3
Grand Total	927	309

Table 32 Toronto Truck & Railcar Volumes at 100%

Outbound to the Rest of Quebec

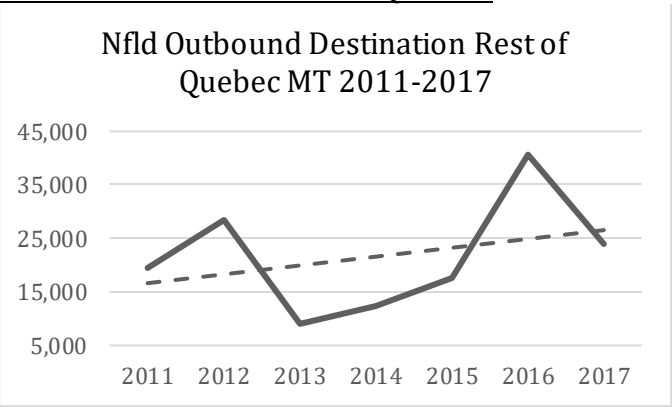


Figure 16 Nfld Outbound Rest of Quebec

The Province of Quebec (other than Montreal and Quebec City) was the destination for truck shipments from Newfoundland 21,570 Mt. Mt. This is equivalent to 720 truckloads or 240 railcars per year. Figure 16 above indicates that freight volumes are trending upward with some

year to year fluctuations. Table 34 below provides the commodity mix and volumes from 2011 to 2017 and the averages. The top three products include: Other Manufactured Goods at 3,275 Mt; Plastic and Chemical at 3,250 Mt; Forest Products at 2,490 Mt.

Rest of Quebec, destination of shipments								
YEAR	2011	2012	2013	2014	2015	2016	2017	
Commodity								Average
Agricultural products [01, 02, 03, 04]	26	7,876	249	337	241	163	173	1,295
Automobiles and other transportation equipment [36, 37]	25	899	8	1,425	938	87	138	503
Base metals and articles of base metals [31, 32, 33]	1,614	2,129	1,510	458	896	3,505	483	1,514
Food [05, 06, 07, 08, 09]	347	330	355	1,136	10	470	927	511
Forest products [25, 26, 27, 28, 29]	2,786	631	2,900	2,258	4,309	2,676	1,868	2,490
Fuel oils and crude petroleum [16, 17, 18, 19]	555	902	787	990	760	912	874	826
Minerals [10, 11, 12, 13, 14]	10	16	2	0	0	0	80	15
Miscellaneous products [42]	112	6,005	824	2,811	2,754	2,414	1,770	2,384
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,111	717	605	1,151	579	8,840	6,921	3,275
Plastic and chemical products [20, 21, 22, 23, 24]	4,147	986	772	444	401	14,964	1,033	3,250
Waste and scrap [41]	5,750	7,807	1,021	1,327	6,580	6,618	9,595	5,528
Grand Total	19,483	28,298	9,032	12,338	17,467	40,649	23,863	21,590

Table 33 Quebec Destination Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Commodity Volumes Destined for Rest of Quebec

The average outbound freight volume to the Rest of Quebec was 21,590 Mt. which is broken down by commodity in Table 35 below.

	Rest of Quebec	
Commodity	Trucks	Railcars

Agricultural products [01, 02, 03, 04]	43	14
Automobiles and other transportation equipment [36, 37]	17	6
Base metals and articles of base metals [31, 32, 33]	50	17
Food [05, 06, 07, 08, 09]	17	6
Forest products [25, 26, 27, 28, 29]	83	28
Fuel oils and crude petroleum [16, 17, 18, 19]	28	9
Minerals [10, 11, 12, 13, 14]	1	0
Miscellaneous products [42]	79	26
Other manufactured goods [30, 34, 35, 38, 39, 40]	109	36
Plastic and chemical products [20, 21, 22, 23, 24]	108	36
Waste and scrap [41]	184	61
Grand Total	**720**	**240**

Table 34 Rest of Quebec Truck and Railcar Volumes at 100%

Outbound to the Rest of Ontario

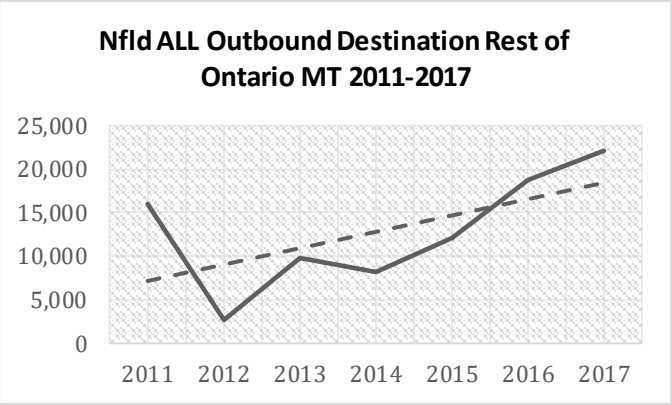


Figure 17 Outbound to the Rest of Ontario

Toronto was the largest origin of truck shipments to Newfoundland at over 223,000 Mt. Table 36 below provides the commodity mix and volumes from 2011 to 2017 and the averages. Figure 17 above indicates that the trend for all freight movement destined for Rest of Ontario is positive. The top three products include: Food at 69,000 Mt; Misc. Products at 82,000 Mt and Other Manufactured Goods at 33,900 Mt.

Rest of Ontario, destination of shipments								
YEAR	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	
Commodity	2011	2012	2013	2014	2015	2016	2017	Average

Agricultural products [01, 02, 03, 04]	693	58	1,908	1	3	3	17,189	2,836
Automobiles and other transportation equipment [36, 37]	419	51	288	178	465	68	924	342
Base metals and articles of base metals [31, 32, 33]	8,854	220	97	150	667	468	127	1,512
Food [05, 06, 07, 08, 09]	1,292	976	1,011	124	55	14,518	79	2,579
Forest products [25, 26, 27, 28, 29]	790	554	116	205	7,236	80	789	1,396
Fuel oils and crude petroleum [16, 17, 18, 19]	3	5	1	0	3	0	3	2
Minerals [10, 11, 12, 13, 14]	385	24	3,163	3,159	2	1	1,425	1,165
Miscellaneous products [42]	2,411	164	1,548	2,379	354	755	157	1,110
Other manufactured goods [30, 34, 35, 38, 39, 40]	1,097	465	1,460	1,932	3,167	2,721	1,320	1,737
Plastic and chemical products [20, 21, 22, 23, 24]	58	143	241	63	108	35	116	109
Waste and scrap [41]	0	27	0	0	81	9	0	17
Grand Total	16,002	2,686	9,834	8,191	12,140	18,657	22,129	12,806

Table 35 Toronto Inbound Truck Volumes by Commodity 2011-2017 Mt

Truck and Rail Requirements for 100% of Rest of Ontario Freight Volumes Originating in Newfoundland

The average outbound freight volume to the Rest of Quebec was 12,806 Mt. which at 30Mt for trucks and 90Mt for railcars is equivalent to 427 truckloads or 142 railcar per year (assuming 100% of each commodity was shipped by this mode type). This is broken down by commodity in Table 37 below.

	Rest of Ontario	
Commodity	Trucks	Railcars
Agricultural products [01, 02, 03, 04]	95	32
Automobiles and other transportation equipment [36, 37]	11	4

Base metals and articles of base metals [31, 32, 33]	50	17
Food [05, 06, 07, 08, 09]	86	29
Forest products [25, 26, 27, 28, 29]	47	16
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0
Minerals [10, 11, 12, 13, 14]	39	13
Miscellaneous products [42]	37	12
Other manufactured goods [30, 34, 35, 38, 39, 40]	58	19
Plastic and chemical products [20, 21, 22, 23, 24]	4	1
Waste and scrap [41]	1	0
Grand Total	**427**	**142**

Table 36 Rest of Ontario Truck & Railcar Volumes at 100%

Summary Tables and Charts

All Inbound Commodities

Table 38 below identifies Newfoundland inbound by truck commodity shipments by type (NAICS group) and provides seven-year average inbound freight volumes in metric tonnes (Mt). The top three products include: Food at 308,325 Mt representing 25%; Miscellaneous products at 239,670 Mt representing 20%, and; Base metals & articles of base metals at 211,680Mt representing 17%.

Inbound Commodity Group	2011	2012	2013	2014	2015	2016	2017	7-year average	%
Agricultural products [01, 02, 03, 04]	107,063	70,072	67,883	58,227	87,906	67,340	83,565	77,437	6%
Automobiles and other transportation equipment [36, 37]	48,186	33,326	22,163	18,511	16,672	16,863	15,437	24,451	2%
Base metals and articles of base metals [31, 32, 33]	228,153	142,968	152,156	119,828	163,252	408,684	266,716	211,680	17%

Coal [15]	7	1	6	117	2	5	19	23	0%
Food [05, 06, 07, 08, 09]	345,963	543,240	301,086	291,502	301,176	188,698	186,608	308,325	25%
Forest products [25, 26, 27, 28, 29]	87,935	67,016	89,538	122,114	169,066	149,714	93,558	111,277	9%
Fuel oils and crude petroleum [16, 17, 18, 19]	35,801	23,697	15,880	194,302	27,665	31,132	5,385	47,695	4%
Minerals [10, 11, 12, 13, 14]	18,648	25,426	18,368	10,370	37,923	6,281	5,655	17,524	1%
Miscellaneous products [42]	116,648	372,764	249,096	284,104	197,967	226,700	230,411	239,670	20%
Other manufactured goods [30, 34, 35, 38, 39, 40]	182,449	101,428	84,394	182,797	128,417	86,044	102,015	123,935	10%
Plastic and chemical products [20, 21, 22, 23, 24]	85,197	59,964	40,534	49,851	60,060	38,813	32,590	52,430	4%
Waste and scrap [41]	459	2,879	2,547	2,974	207	178	1,181	1,489	0%
Grand Total	1,256,510	1,442,782	1,043,653	1,334,698	1,190,314	1,220,452	1,023,141	1,215,936	100%

Table 37 Newfoundland All Inbound Commodities

All Outbound Commodities

Table 39 below identifies the outbound truck shipments, commodity mix, volumes from 2011 to 2017 and the averages for outbound commodities from Newfoundland to other regions of Canada and USA. As indicated in the table, the seven-year average for Outbound truck shipments was 380,017 Mt. The top three products include: Food at 158,814 Mt representing 42%; Forest Products at 66,408 Mt representing 17% and Misc. Products at 51,187 Mt representing 13%.

Outbound Commodity Group	2011	2012	2013	2014	2015	2016	2017	7-year average	%
Agricultural products [01, 02, 03, 04]	1,946	8,834	4,127	3,829	5,078	2,062	17,889	6,252	2%
Automobiles and other transportation equipment [36,37]	24,252	20,158	7,285	8,791	11,805	6,498	10,230	12,717	3%
Base metals and articles of base metals [31,32,33]	31,232	17,376	9,908	8,432	13,009	18,134	10,679	15,539	4%
Coal [15]	0	0	2	0	0	0	0	0	0%
Food [05, 06, 07, 08, 09]	70,037	131,548	155,828	170,351	197,411	251,837	134,687	158,814	42%
Forest products [25, 26, 27, 28, 29]	65,916	20,702	35,987	112,222	89,855	57,909	82,266	66,408	17%

Fuel oils and crude petroleum [16, 17, 18, 19]	631	985	803	2,434	7,564	7,740	8,149	4,044	1%
Minerals [10, 11, 12, 13, 14]	11,559	19,140	26,880	24,638	754	58	2,642	12,239	3%
Miscellaneous products [42]	18,784	116,287	82,295	40,194	30,262	27,050	43,434	51,187	13%
Other manufactured goods [30, 34, 35, 38, 39, 40]	34,886	7,627	14,724	24,820	29,320	31,279	27,692	24,335	6%
Plastic and chemical products [20, 21, 22, 23, 24]	5,659	6,313	14,814	2,440	10,261	27,561	4,941	10,284	3%
Waste and scrap [41]	32,548	23,649	4,704	4,917	10,011	14,754	37,411	18,285	5%
Grand Total	**297,449**	**372,621**	**357,357**	**403,069**	**405,329**	**444,883**	**380,017**	**380,104**	100%

Table 38 Nfld Outbound Truck Volumes By commodity 2011-2017 Mt

The outbound commodity group of Food would assume that the majority is all seafood products that would require refrigeration trailers. The Forest Sector products would include newsprint and some dimensional lumber.

Container, Railcar & Truck Requirements for 100% of Inbound Commodities

Table 40 below provides the commodity breakdown for both inbound and outbound based upon the averaged volumes. The modal equivalent was also estimated for containers at 21 Mt; rail at 90 Mt and truck at 30 Mt.

	Inbound				
All Traffic	Mt	Units Container	Units Rail	Units Truck	%
Sector	Seven Year Ave	21Mt	90 Mt	30 Mt	%
Agricultural products [01, 02, 03, 04]	77,437	3,687	860	2,581	6%
Automobiles and other transportation equipment [36, 37]	24,451	1,164	272	815	2%
Base metals and articles of base metals [31, 32, 33]	211,680	10,080	2,352	7,056	17%
Coal [15]	23	1	0	1	0%

Food [05, 06, 07, 08, 09]	308,325	14,682	3,426	10,277	25%
Forest products [25, 26, 27, 28, 29]	111,277	5,299	1,236	3,709	9%
Fuel oils and crude petroleum [16, 17, 18, 19]	47,695	2,271	530	1,590	4%
Minerals [10, 11, 12, 13, 14]	17,524	834	195	584	1%
Miscellaneous products [42]	239,670	11,413	2,663	7,989	20%
Other manufactured goods [30, 34, 35, 38, 39, 40]	123,935	5,902	1,377	4,131	10%
Plastic and chemical products [20, 21, 22, 23, 24]	52,430	2,497	583	1,748	4%
Waste and scrap [41]	1,489	71	17	50	0%
Total	**1,215,936**	**57,902**	**13,510**	**40,531**	**100%**

Table 39 Commodity Inbound Mt (average 2011-2017)

Container, Railcar & Truck Requirements for 100% of Outbound Commodities

Table 41 below provides the commodity breakdown for both inbound and outbound based upon the averaged volumes. The modal equivalent was also estimated for containers at 21 Mt; rail at 90 Mt and truck at 30 Mt.

	Outbound				
All Traffic	Mt	Units Container	Units Rail	Units Truck	
Sector	Seven Year Ave	21Mt	90 Mt	30 Mt	%
Agricultural products [01, 02, 03, 04]	6,252	298	69	208	2%
Automobiles and other transportation equipment [36, 37]	12,717	606	141	424	3%
Base metals and articles of base metals [31, 32, 33]	15,539	740	173	518	4%
Coal [15]	0	0	0	0	0%
Food [05, 06, 07, 08, 09]	158,814	7,563	1,765	5,294	42%

Forest products [25, 26, 27, 28, 29]	66,408	3,162	738	2,214	17%
Fuel oils and crude petroleum [16, 17, 18, 19]	4,044	193	45	135	1%
Minerals [10, 11, 12, 13, 14]	12,239	583	136	408	3%
Miscellaneous products [42]	51,186	2,437	569	1,706	13%
Other manufactured goods [30, 34, 35, 38, 39, 40]	24,336	1,159	270	811	6%
Plastic and chemical products [20, 21, 22, 23, 24]	10,284	490	114	343	3%
Waste and scrap [41]	18,285	871	203	609	5%
Total	**380,103**	**18,100**	**4,223**	**12,670**	**100%**

Table 40 Commodity Outbound MT (average 2011-2017)

Inbound Commodities by Origin

The origin and commodity volumes associated with Newfoundland's truck traffic can be found in Table 42 below. This includes shipments originating from within Newfoundland and from other provinces and the United States from 2011-2017. The origins of freight show intra Newfoundland shipments having the greatest flows as trucks are shipped inbound to Distribution Centers and then reloaded or shipped out to destination. This equated to 1.9 million Mt of truck activity. In addition, this would include any trucking from the local fuel/oil refiner for refined petroleum products. Thus, there is an estimated 1.2 million Mt of freight that was transported to Newfoundland from outside sources. Outside of Newfoundland, the top three points of origin are Toronto (223,233 Mt); Nova Scotia, excluding Halifax (180,939 Mt); New Brunswick (177,406 Mt); Montreal (151,640 Mt); Rest of Quebec (123,183 Mt); Rest of Ontario (100,541 Mt); Halifax (86,044 Mt) and USA (79,662 Mt).

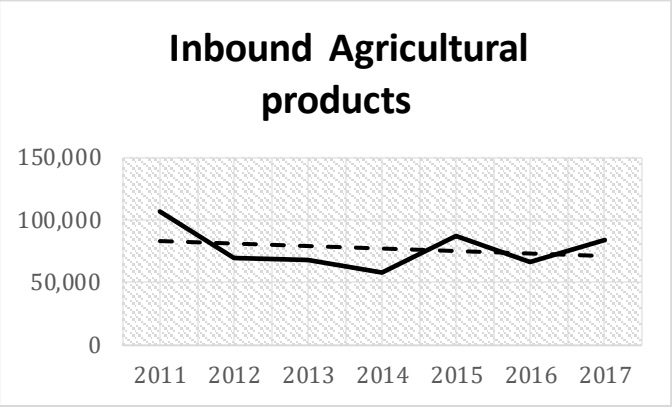
YEAR	2011	2012	2013	2014	2015	2016	2017	Average	% of total
Newfoundland and Labrador, origin of shipments	2,689,604	2,364,941	2,160,971	2,013,570	1,542,123	1,219,002	1,649,545	1,948,536	61.6%
Toronto, Ontario, origin of shipments	275,905	361,948	216,440	232,023	194,852	153,466	127,996	223,233	7.1%
Rest of Nova Scotia, origin of shipments	270,109	225,023	142,536	148,115	180,402	117,314	183,071	180,939	5.7%
New Brunswick, origin of shipments	231,489	140,773	161,636	194,548	199,337	213,731	100,326	177,406	5.6%
Montréal, Quebec, origin of shipments	96,224	190,248	108,478	136,767	181,712	172,169	175,884	151,640	4.8%
Rest of Quebec, origin of shipments	66,921	62,810	62,185	73,835	79,821	342,283	174,424	123,183	3.9%
Rest of Ontario, origin of shipments	73,437	86,744	57,478	281,915	54,657	51,738	97,819	100,541	3.2%
Halifax, Nova Scotia, origin of shipments	75,254	133,426	71,152	111,224	80,614	73,837	56,799	86,044	2.7%
United States and Mexico, origin of shipments	84,602	99,829	131,810	79,971	85,933	35,621	39,867	79,662	2.5%
Québec, Quebec, origin of shipments	30,565	25,652	51,481	23,501	41,930	22,191	26,738	31,722	1.0%
Hamilton, Ontario, origin of shipments	23,623	81,843	5,999	3,331	13,213	9,506	7,897	20,773	0.7%
Edmonton, Alberta, origin of shipments	3,680	6,961	4,583	9,948	8,674	7,019	1,888	6,108	0.2%

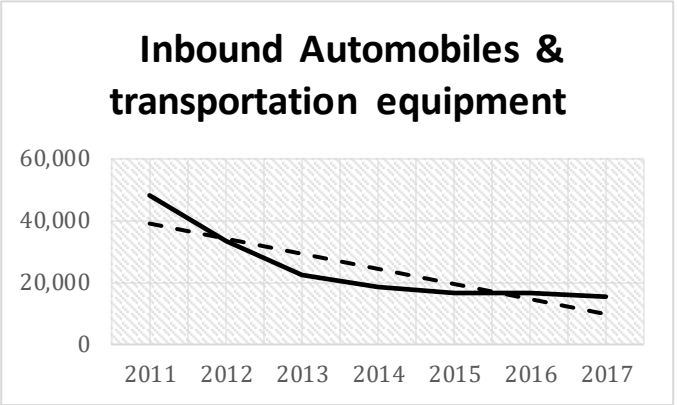
Vancouver, British Columbia, origin of shipments	5,465	6,664	6,432	11,193	2,309	3,545	1,949	5,366	0.2%
Oshawa, Ontario, origin of shipments	3,510	1,538	1,261	5,792	23,773	39	1,175	5,298	0.2%
Prince Edward Island, origin of shipments	4,941	3,673	7,283	2,979	2,213	3,969	4,102	4,166	0.1%
Winnipeg, Manitoba, origin of shipments	708	1,552	1,334	2,181	2,215	5,562	15,139	4,099	0.1%
Calgary, Alberta, origin of shipments	3,016	4,864	4,590	3,831	1,458	3,806	3,667	3,605	0.1%
Rest of Alberta, origin of shipments	3,586	2,034	497	1,400	4,895	3,350	3,321	2,726	0.1%
Windsor, Ontario, origin of shipments	594	3,201	4,653	4,471	5,598	30	90	2,662	0.1%
Rest of Saskatchewan, origin of shipments	994	50	1,462	2,677	11,549	245	65	2,434	0.1%
Saskatoon, Saskatchewan, origin of shipments	35	1,408	206	85	11,810	28	63	1,948	0.1%
Rest of Manitoba, origin of shipments	1,499	1,906	1,639	1,297	2,785	71	118	1,331	0.0%
Rest of British Columbia, origin of shipments	339	608	509	3,605	540	913	738	1,036	0.0%
Yukon, origin of shipments	0	0	0	0	0	0	3		0.0%
Northwest Territories, origin of shipments	14	23	9	8	25	22	1	15	0.0%
Nunavut, origin of shipments	0	2	0	0	0	0	0	0	0.0%
Grand Total	**3,946,113**	**3,807,723**	**3,204,624**	**3,348,268**	**2,732,437**	**2,439,455**	**2,672,686**	**3,164,472**	**100%**

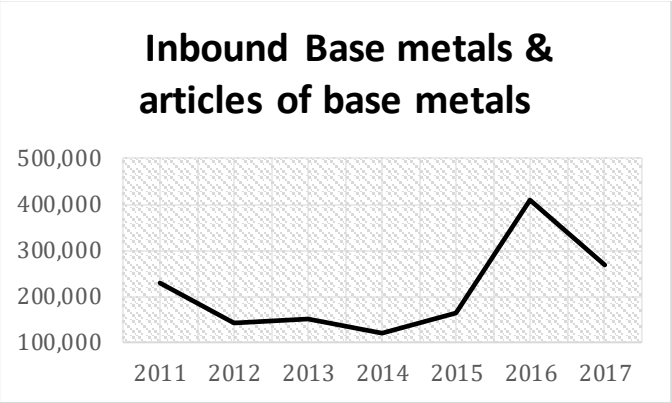
Table 41 Inbound freight volumes by point of origin

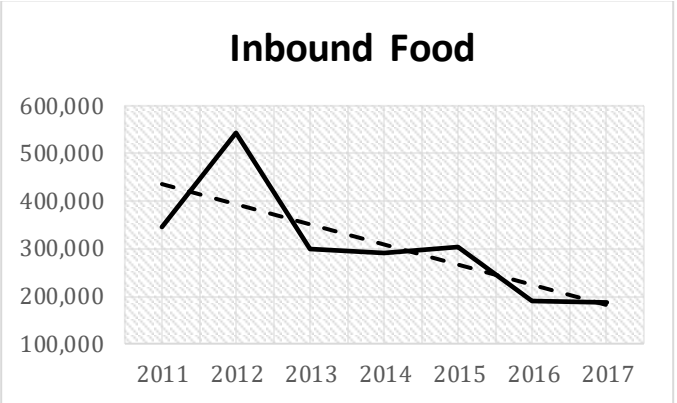
Inbound Commodity Shipment Trends

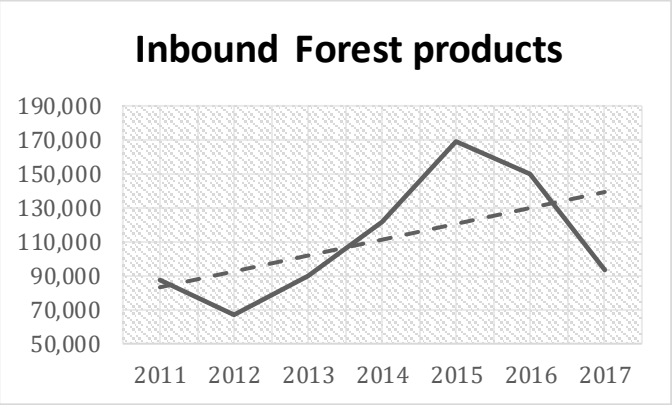
In-depth commodity trend analysis is beyond the scope of this study however the following charts are provided to illustrate the dynamic nature of freight logistics.

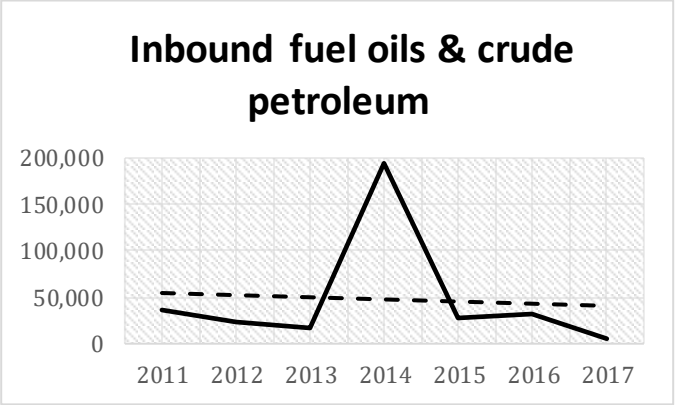

Inbound Agricultural products
150,000
100,000
50,000
0
2011 2012 2013 2014 2015 2016 2017

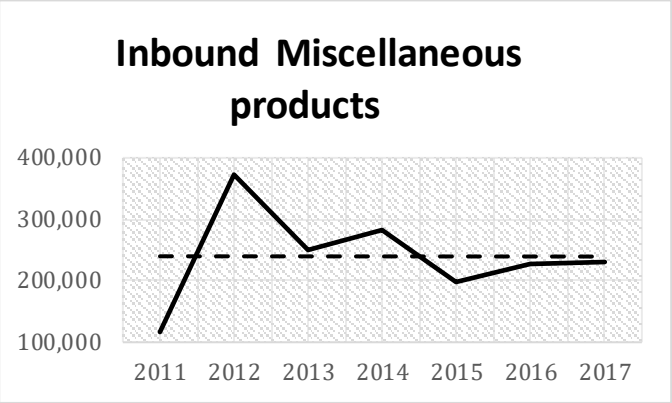

Inbound Automobiles & transportation equipment
60,000
40,000
20,000
0
2011 2012 2013 2014 2015 2016 2017

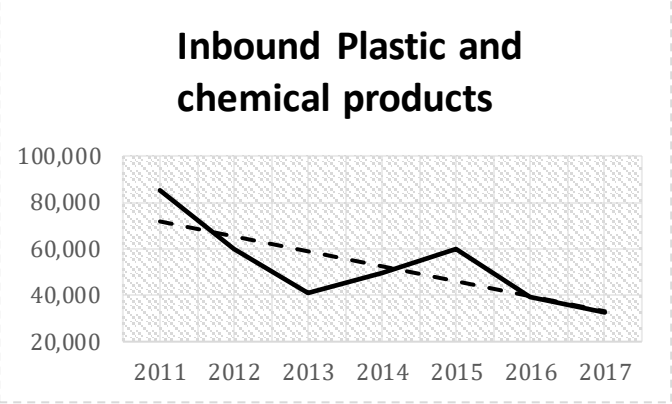

Inbound Base metals & articles of base metals
500,000
400,000
300,000
200,000
100,000
2011 2012 2013 2014 2015 2016 2017


Inbound Food
600,000
500,000
400,000
300,000
200,000
100,000
2011 2012 2013 2014 2015 2016 2017


Inbound Forest products
190,000
170,000
150,000
130,000
110,000
90,000
70,000
50,000
2011 2012 2013 2014 2015 2016 2017


Inbound fuel oils & crude petroleum
200,000
150,000
100,000
50,000
0
2011 2012 2013 2014 2015 2016 2017





Outbound Commodities by Destination

Table 43 below identifies the outbound truck shipments, commodity mix, annual volumes from 2011 to 2017 and the averages for outbound commodities from Newfoundland to other regions of Canada and USA. As indicated in the table, the seven-year average for Outbound truck shipments was 380,000 Mt, which would equate to 12,670 truck loads at 30Mt or an estimated 4,000 rail cars per year using 90 Mt per car. The top three products include: Food at 158,000 Mt representing 42%; Forest Products at 66,480 Mt representing 17% and Misc. Products at 51,100 Mt representing 13%.

Destination	2011	2012	2013	2014	2015	2016	2017	Average
Calgary, Alberta, destination of shipments	370	128	151	282	91	88	2,237	478
Edmonton, Alberta, destination of shipments	487	1,184	4,489	13,077	583	759	117	2,957
Halifax, Nova Scotia, destination of shipments	68,394	44,702	71,125	117,348	151,581	122,806	117,979	99,134
Hamilton, Ontario, destination of shipments	72	775	58	17,452	854	154	790	2,879
Montréal, Quebec, destination of shipments	53,162	68,175	35,116	12,911	14,219	9,303	12,482	29,338

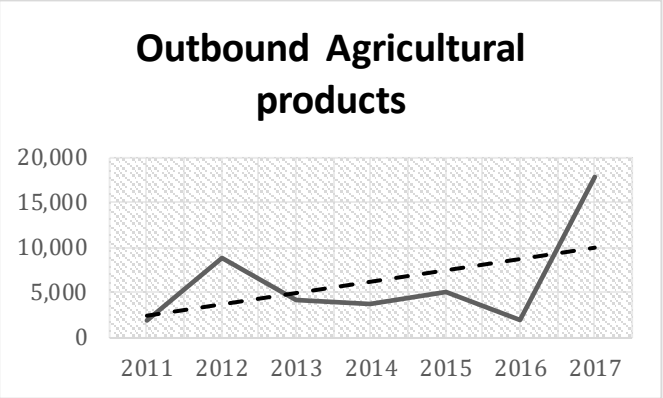
New Brunswick, destination of shipments	38,032	63,644	93,527	70,842	65,894	112,261	80,126	74,904
Northwest Territories, destination of shipments	217	5	11	12	9	8	10	39
Nunavut, destination of shipments	0	21	6	26	0	0	0	8
Oshawa, Ontario, destination of shipments	8	16	224	169	9,005	1,805	21	1,607
Prince Edward Island, destination of shipments	2,905	2,418	863	1,311	2,328	262	383	1,496
Québec, Quebec, destination of shipments	14,708	9,912	6,528	3,408	3,592	484	3,840	6,067
Rest of Alberta, destination of shipments	146	507	124	210	2,422	47	447	558
Rest of British Columbia, destination of shipments	1,926	1,655	1,409	68	154	72	214	785
Rest of Manitoba, destination of shipments	20	66	287	33	14	20	4,773	745
Rest of Nova Scotia, destination of shipments	27,737	66,540	44,003	47,305	32,365	24,575	64,343	43,838
Rest of Ontario, destination of shipments	16,002	2,686	9,834	8,191	12,140	18,657	22,129	12,806
Rest of Quebec, destination of shipments	19,483	28,298	9,032	12,338	17,467	40,649	23,863	21,590
Rest of Saskatchewan, destination of shipments	5,967	24	21	4,155	390	2,318	133	1,858
Saskatoon, Saskatchewan, destination of shipments	23	67	20	20	6	15	160	44
Toronto, Ontario, destination of shipments	13,260	35,685	24,355	31,699	30,117	46,161	13,324	27,800
United States and Mexico, destination of shipments	34,135	41,957	43,507	52,713	53,310	45,898	31,700	43,317
Vancouver, British Columbia, destination of shipments	246	1,385	3,514	96	7,209	17,739	214	4,343
Windsor, Ontario, destination of shipments	2	2,622	5,253	5,396	136	182	140	1,961
Winnipeg, Manitoba, destination of shipments	135	146	3,898	4,010	1,441	615	590	1,548
Yukon, destination of shipments	9	3	3	1	1	5	0	3
Grand Total	297,449	372,621	357,357	403,069	405,329	444,883	380,017	380,103

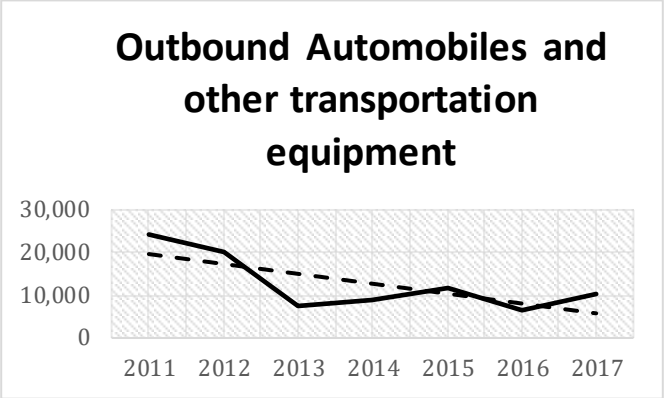
Table 42 Nfld Outbound Truck Volumes by Commodity 2011-2017 Mt

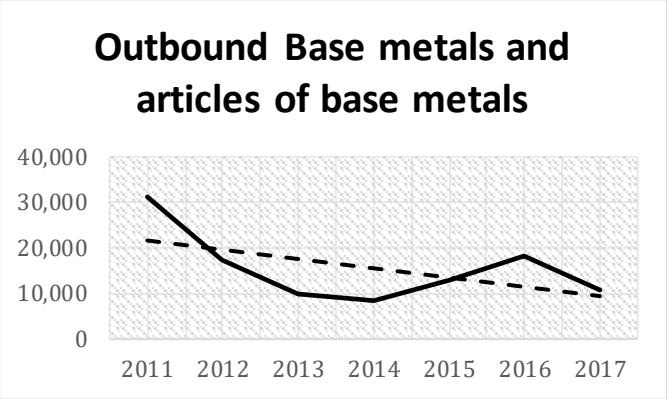
The outbound commodity group of Food would assume that the majority is all seafood products that would require refrigeration trailers. The Forest Sector products would include newsprint and some dimensional lumber.

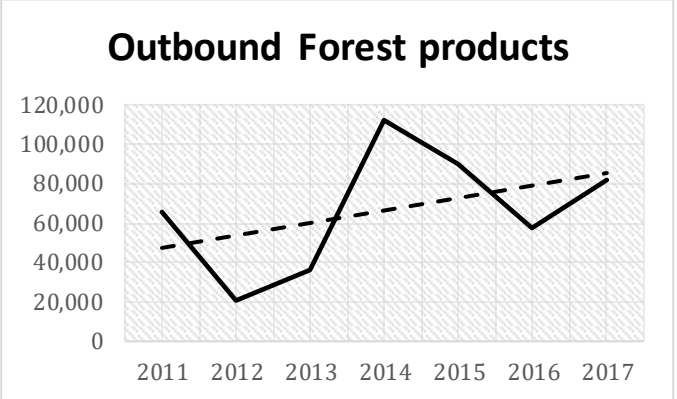
Outbound Commodity Trends

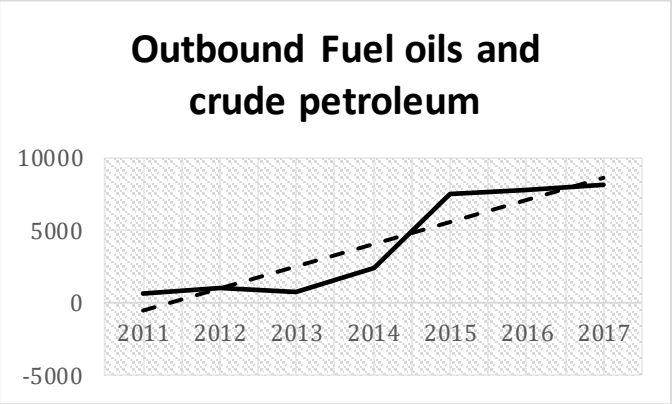
Commodity trend analysis is beyond the scope of this study however the following charts are provided to illustrate the dynamic nature of freight logistics.

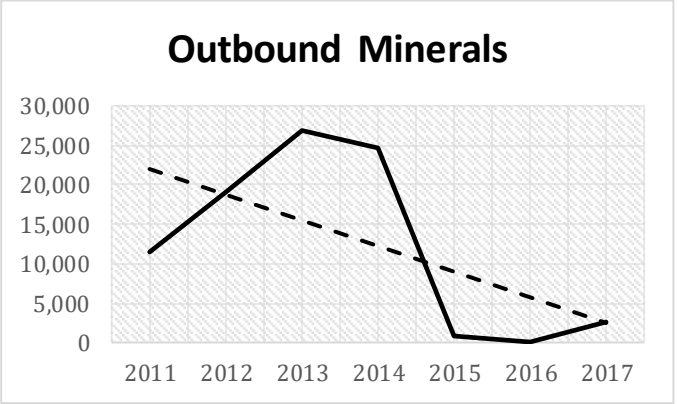

Outbound Agricultural products
20,000
15,000
10,000
5,000
0
2011 2012 2013 2014 2015 2016 2017

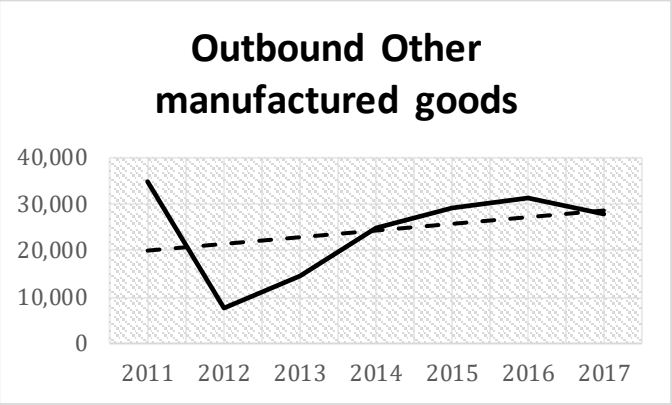

Outbound Automobiles and other transportation equipment
30,000
20,000
10,000
0
2011 2012 2013 2014 2015 2016 2017

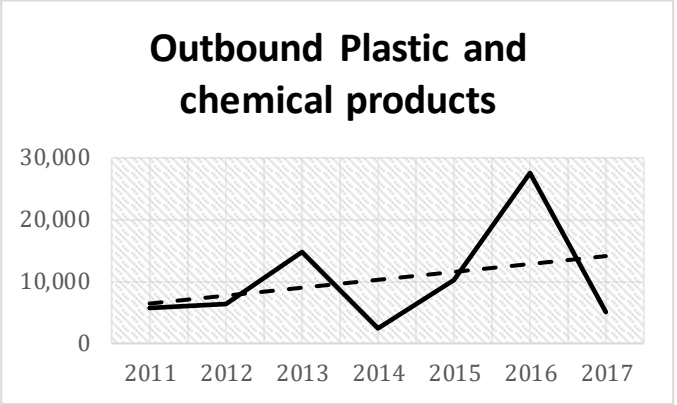

Outbound Base metals and articles of base metals
40,000
30,000
20,000
10,000
0
2011 2012 2013 2014 2015 2016 2017

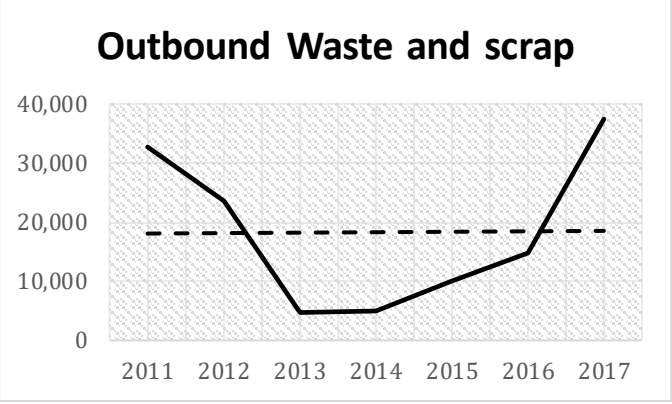

Outbound Forest products
120,000
100,000
80,000
60,000
40,000
20,000
0
2011 2012 2013 2014 2015 2016 2017


Outbound Fuel oils and crude petroleum
10000
5000
0
-5000
2011 2012 2013 2014 2015 2016 2017


Outbound Minerals
30,000
25,000
20,000
15,000
10,000
5,000
0
2011 2012 2013 2014 2015 2016 2017







Destination of Newfoundland Outbound Truck Shipments

As indicated in Table 44 below, the largest destination for truck shipments from Newfoundland was Halifax at 99,134 Mt representing 26% of all shipments. The next largest destination was New Brunswick at 74,904 Mt representing 20%. The third largest destination was Nova Scotia at 43,838 Mt representing 12%; followed by the United States at 43,315 Mt representing 11%. Toronto was the next largest urban destination ay 27,000 Mt per year representing 7%.

Destination	2011	2012	2013	2014	2015	2016	2017	Average	%
Calgary, Alberta, destination of shipments	370	128	151	282	91	88	2,237	478	0%
Edmonton, Alberta, destination of shipments	487	1,184	4,489	13,077	583	759	117	2,957	1%
Halifax, Nova Scotia, destination of shipments	68,394	44,702	71,125	117,348	151,581	122,806	117,979	99,134	26%
Hamilton, Ontario, destination of shipments	72	775	58	17,452	854	154	790	2,879	1%
Montréal, Quebec, destination of shipments	53,162	68,175	35,116	12,911	14,219	9,303	12,482	29,338	8%

New Brunswick, destination of shipments	38,032	63,644	93,527	70,842	65,894	112,261	80,126	74,904	20%
Northwest Territories, destination of shipments	217	5	11	12	9	8	10	39	0%
Nunavut, destination of shipments	0	21	6	26	0	0	0	8	0%
Oshawa, Ontario, destination of shipments	8	16	224	169	9,005	1,805	21	1,607	0%
Prince Edward Island, destination of shipments	2,905	2,418	863	1,311	2,328	262	383	1,496	0%
Québec, Quebec, destination of shipments	14,708	9,912	6,528	3,408	3,592	484	3,840	6,067	2%
Rest of Alberta, destination of shipments	146	507	124	210	2,422	47	447	558	0%
Rest of British Columbia, destination of shipments	1,926	1,655	1,409	68	154	72	214	785	0%
Rest of Manitoba, destination of shipments	20	66	287	33	14	20	4,773	745	0%
Rest of Nova Scotia, destination of shipments	27,737	66,540	44,003	47,305	32,365	24,575	64,343	43,838	12%
Rest of Ontario, destination of shipments	16,002	2,686	9,834	8,191	12,140	18,657	22,129	12,806	3%
Rest of Quebec, destination of shipments	19,483	28,298	9,032	12,338	17,467	40,649	23,863	21,590	6%
Rest of Saskatchewan, destination of shipments	5,967	24	21	4,155	390	2,318	133	1,858	0%
Saskatoon, Saskatchewan, destination of shipments	23	67	20	20	6	15	160	44	0%
Toronto, Ontario, destination of shipments	13,260	35,685	24,355	31,699	30,117	46,161	13,324	27,800	7%
United States and Mexico, destination of shipments	34,135	41,957	43,507	52,713	53,310	45,898	31,700	43,317	11%
Vancouver, British Columbia, destination of shipments	246	1,385	3,514	96	7,209	17,739	214	4,343	1%
Windsor, Ontario, destination of shipments	2	2,622	5,253	5,396	136	182	140	1,961	1%
Winnipeg, Manitoba, destination of shipments	135	146	3,898	4,010	1,441	615	590	1,548	0%
Yukon, destination of shipments	9	3	3	1	1	5	0	3	0%
Grand Total	**297,449**	**372,621**	**357,357**	**403,069**	**405,329**	**444,883**	**380,017**	**380,103**	**100%**

Table 43 Nfld Outbound Truck Volumes by Destination 2011-2017

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 2

CURRENT MODAL ASSESSMENT CAPE BRETON /NORTHERN NOVA SCOTIA

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Introduction

Contents

Purpose of Technical Appendix 2

The purpose of the overall study is to determine whether a potential exists to restart rail service on the Sydney Subdivision. Within this context, the purpose of Technical Appendix II is to evaluate the movement of inbound and outbound trucked commodities to and from a) Halifax, and; b) the Rest of Nova Scotia from jurisdictions in Canada and the United States and Mexico. The importance of this data lies in the fact that it is conceivable that a percentage of this freight could be shipped by rail through the Port of Sydney.

To contextualize commodity freight volumes the total inbound and outbound freight is presented in modal equivalencies based on the load capacities for (30Mt in Canada and 21 Mt in the United States & Mexico) and railcars (90Mt) that would be required to convey 100% of the freight volume. This also helps to create a baseline for our analysis. The underlying data was acquired from Statistics Canada's Canadian Centre on Transportation Data, Origin and destination of transported commodities, Canadian Freight Analysis Framework which can be accessed online. Truck survey data for Nova Scotia was evaluated over a seven-year period of data from 2011 to 2017 and is presented in the tables in this document. This data identifies Newfoundland's 7-year average annual inbound and outbound freight tonnage data for each commodity grouping.

Statistics Canada Canadian Freight Analysis Framework

Statistics Canada's "Canadian Freight Analysis Framework" integrates data from several sources to create a comprehensive picture of freight flows across the country by geography, commodity, and mode of transport. The framework database estimates tonnage, value, and tonne-kilometres by origin and destination , by commodity type, and by mode. Readers interested in learning more should refer to **Canadian Freight Analysis Framework (CFAF)**, which is available online for important information on survey methods and data use. This data is reported for 25 Canadian jurisdictions and combines data for the United States & Mexico. "Halifax" and "the Rest of Nova Scotia" represent two of the jurisdictions used by Statistics Canada and this is reflected throughout this report.

North American Industry Classification System (NAICS) Commodity Groupings

The industrial sectors associated with Newfoundland's inbound trucked commodities groups are indicated in Table 2 below along with some examples of the products that are included in the commodity classifications that are used in this survey. Statistics Canada's sector/product classification framework illustrated in the table below uses the North American Industry Classification System (NAICS). Note that there are over 200 products with NAICS identifiers in some of the industry groupings presented here.

Agricultural products [01, 02, 03, 04]	Automobiles and other transportation equipment [36, 37]	Base metals and articles of base metals [31, 32, 33]	Coal [15]	Food [05, 06, 07, 08, 09]	Forest products [25, 26, 27, 28, 29]	Fuel oils and crude petroleum [16, 17, 18, 19]	Minerals [10, 11, 12, 13, 14]	Miscellaneous products [42]	Other manufactured goods [30, 34, 35, 38, 39, 40]	Plastic and chemical products [20, 21, 22, 23, 24]	Waste and scrap [41]
Animals	Vehicles	Steel, structural		Seafood	Logs	Crude Oil	Iron Ore	Dry goods	Clothing	Fertilizers	Scrap Metals
Grains	Parts	Base Nonferrous Metals		Meats	Wood	Asphalt	Concentrates Copper Lead Zinc Nickel		Metal Products	Potash	Waste Products
Feed				Milled Grains	Lumber	Fuels	Dolomite		Wind Turbines	Frac Sands	
				Dairy	Chips	Coke	Rocks		Electrical Equipment	Polystyrene	
				Beverages	Paper	Refined gas	Sand		Furniture	Propyl Alcohol	
					Pulp		Aggregates		Ammunition		
							Salt				
							Clay				

Table 1 NAICS Commodity Group examples

Halifax & Rest of Nova Scotia All Inbound Commodities

Halifax & Rest of Nova Scotia ALL Inbound 2011-2017 MT by Origin										
Originating Jurisdiction	2011	2012	2013	2014	2015	2016	2017	7-year Average	%	Rank
Newfoundland and Labrador, origin of shipments	96,132	111,243	115,128	164,652	183,946	147,381	182,322	142,972	4%	8
Prince Edward Island, origin of shipments	246,971	139,561	154,691	140,076	154,149	36,804	379,845	178,871	5%	7
New Brunswick, origin of shipments	2,099,797	1,911,068	1,334,370	1,175,680	1,174,750	1,105,444	1,592,772	1,484,840	39%	1
Québec, Quebec, origin of shipments	14,084	12,797	24,974	27,051	46,065	134,216	212,745	67,419	2%	9
Montréal, Quebec, origin of shipments	515,397	447,927	472,222	402,197	480,037	457,846	307,746	440,482	12%	3
Rest of Quebec, origin of shipments	206,228	208,348	224,379	208,550	645,570	169,299	162,169	260,649	7%	5
Oshawa, Ontario, origin of shipments	10,148	5,072	4,793	2,911	3,648	4,861	11,702	6,162	0%	
Toronto, Ontario, origin of shipments	498,511	502,219	512,049	490,924	349,660	355,393	515,255	460,573	12%	2
Hamilton, Ontario, origin of shipments	97,026	33,315	24,999	41,994	25,077	113,277	32,993	52,669	1%	10
Windsor, Ontario, origin of shipments	3,546	2,185	16,567	6,448	60	59	597	4,209	0%	
Rest of Ontario, origin of shipments	190,735	282,804	329,530	243,485	157,860	246,401	99,824	221,520	6%	6
Winnipeg, Manitoba, origin of shipments	4,763	8,639	4,294	2,605	1,772	5,335	13,216	5,803	0%	
Rest of Manitoba, origin of shipments	1,092	657	1,595	1,273	2,178	1,235	1,828	1,408	0%	
Saskatoon, Saskatchewan, origin of shipments	1,945	1,185	53	78	202	72	2,365	843	0%	
Rest of Saskatchewan, origin of shipments	1,851	428	1,221	311	664	908	369	822	0%	
Calgary, Alberta, origin of shipments	3,734	1,104	1,415	5,856	3,985	14,812	1,900	4,687	0%	
Edmonton, Alberta, origin of shipments	3,946	1,474	5,049	28,068	8,253	22,812	852	10,065	0%	
Rest of Alberta, origin of shipments	25,229	11,880	4,696	12,871	7,362	3,993	23,525	12,794	0%	
Vancouver, British Columbia, origin of shipments	3,793	5,156	21,032	7,106	7,222	4,864	3,513	7,527	0%	
Rest of British Columbia, origin of shipments	1,451	2,886	11,342	3,595	6,611	2,087	2,104	4,296	0%	
Yukon, origin of shipments	0	148	7	0	0	5	16	25	0%	
Northwest Territories, origin of shipments	19	19	223	24	9	14	4,063	624	0%	
Nunavut, origin of shipments	1	4	1	2	0	0	0	1	0%	
United States and Mexico, origin of shipments	240,853	427,966	496,503	397,799	422,170	385,670	457,343	404,043	11%	4
Grand total	4,267,250	4,118,083	3,761,134	3,363,556	3,681,250	3,212,788	4,009,065	3,773,304	100%	

Table 2 Halifax and Rest of Nova Scotia Inbound by Origin

Halifax & Rest of Nova Scotia All Outbound Commodities

Halifax & Rest of Nova Scotia ALL Outbound 2011-2017 MT by Destination										
Destination Jurisdiction	2011	2012	2013	2014	2015	2016	2017	7-year-average	%	Rank
Newfoundland, destination of shipments	345,363	358,450	213,688	259,340	261,016	191,151	239,871	266,982.47	8%	4
Prince Edward Island, destination of shipments	152,406	173,518	250,538	115,364	160,047	96,531	100,593	149,856.81	5%	8
New Brunswick, destination of shipments	1,222,886	1,466,749	776,183	777,745	978,836	558,862	653,895	919,308.02	37%	1
Québec, Quebec, destination of shipments	12,045	67,723	56,377	84,619	17,064	18,767	9,694	38,041.15	1%	11
Montréal, Quebec, destination of shipments	163,367	197,013	219,458	204,084	177,738	89,177	156,023	172,408.60	6%	6
Rest of Quebec, destination of shipments	113,399	146,234	145,829	181,312	184,647	97,093	56,294	132,115.40	6%	7
Oshawa, Ontario, destination of shipments	2,334	21,112	1,410	1,604	34,704	40,339	35,210	19,530.22	1%	10
Toronto, Ontario, destination of shipments	128,496	239,242	209,950	241,255	533,765	581,700	512,532	349,562.88	19%	2
Hamilton, Ontario, destination of shipments	29,411	25,296	35,791	22,964	46,936	26,387	55,470	34,607.74	2%	9
Windsor, Ontario, destination of shipments	28	168	476	1,468	2,591	577	4,329	1,376.77	0%	
Rest of Ontario, destination of shipments	121,503	176,851	92,105	121,516	182,717	165,399	213,250	153,334.12	7%	5
Winnipeg, Manitoba, destination of shipments	6,375	8,403	9,332	11,454	3,435	994	876	5,838.45	0%	
Rest of Manitoba, destination of shipments	2,656	279	986	628	1,192	131	5,361	1,604.52	0%	
Saskatoon, destination of shipments	102	949	3,338	425	653	1,714	664	1,120.62	0%	
Rest of Saskatchewan, destination of shipments	626	137	279	222	2,832	720	677	784.69	0%	
Calgary, Alberta, destination of shipments	3,733	8,611	11,657	16,990	5,716	14,652	4,191	9,364.27	0%	
Edmonton, Alberta, destination of shipments	12,947	21,026	14,105	16,246	5,569	5,227	3,432	11,221.84	1%	12
Rest of Alberta, destination of shipments	381	4,335	1,756	16,974	4,973	1,732	1,283	4,490.61	0%	
Vancouver, destination of shipments	2,408	7,681	5,324	7,110	5,426	17,878	4,940	7,252.35	0%	
Rest of British Columbia, destination of shipments	2,621	4,801	4,719	3,139	2,583	3,152	1,900	3,273.44	0%	
Yukon, destination of shipments	36	224	1	15	28	4	3	44.34	0%	
Northwest Territories, destination of shipments	20	185	15	26	60	34	40	54.37	0%	
Nunavut, destination of shipments	-	5	26	1	1	-	-	4.61	0%	
United States and Mexico, destination	503,631	601,196	715,259	536,406	479,187	443,698	916,856	599,461.70	7%	3
Grand total	2,826,775	3,530,187	2,768,600	2,620,906	3,091,712	2,355,918	2,977,382	2,881,640.02	100%	

Table 3 Halifax and Rest of Nova Scotia Outbound by Destination

Nova Scotia 2011-2017 Average Inbound & Outbound Commodity Mix

Table 4 below presents a high-level summary of the data provided in this Appendix. In the later sections of this Appendix the data is broken down by commodity and jurisdiction of origin or destination for the inbound and outbound truck commodities associated with both the Halifax and the Rest of Nova Scotia jurisdictions.

Commodity	Inbound	Outbound	Total
Agricultural products 4	167,134	265,331	**432,465**
Food 5	1,098,938	670,064	**1,769,002**
Minerals 6	111,901	97,210	**209,111**
Coal	39	11	**50**
Fuel oils and crude petroleum 7	80,942	267,091	**348,033**
Plastic and chemical products 8	169,031	288,008	**457,039**
Forest products 9	642,282	409,892	**1,052,175**
Base metals and articles of base metals 10	349,750	268,381	**618,132**
Automobiles and other transportation equipment 11	59,514	46,781	**106,295**
Other manufactured goods 12	207,745	118,742	**326,488**
Waste and scrap	55,049	50,244	**105,292**
Miscellaneous products	831,017	399,896	**1,230,913**
Grand total Mt	**3,773,342**	**2,881,651**	**6,654,994**
Truck equivalents at 30 Mt	**125,778**	**96,055**	**221,833**
Average Annual Daily Traffic	**345**	**263**	**608**
Railcar equivalents at 30 Mt	**41,926**	**32,018**	**73,944**

Table 4 Average Inbound/Outbound Truck Commodities to & from Halifax & the Rest of Nova Scotia

As Table 4 above indicates, Nova Scotia experienced average inbound truck traffic of 3,773,342 Mt which would be equivalent to 125,778 trucks (345 per day) travelling inbound to the province, assuming they were loaded to their 30 Mt capacity, and 2,881,651 Mt of outbound truck freight which would be equivalent to 96,055 trucks (263 per day), assuming they were loaded to capacity.

All Inbound Commodities to Halifax & the Rest of Nova Scotia

All Inbound Commodities to Halifax & the Rest of Nova Scotia 2011-2017 by Originating Jurisdiction MT										
Originating Jurisdiction	2011	2012	2013	2014	2015	2016	2017	7-year Average	%	Rank
Newfoundland and Labrador, origin of shipments	96,132	111,243	115,128	164,652	183,946	147,381	182,322	142,972	4%	8
Prince Edward Island, origin of shipments	246,971	139,561	154,691	140,076	154,149	36,804	379,845	178,871	5%	7
New Brunswick, origin of shipments	2,099,797	1,911,068	1,334,370	1,175,680	1,174,750	1,105,444	1,592,772	1,484,840	39%	1
Québec, Quebec, origin of shipments	14,084	12,797	24,974	27,051	46,065	134,216	212,745	67,419	2%	9
Montréal, Quebec, origin of shipments	515,397	447,927	472,222	402,197	480,037	457,846	307,746	440,482	12%	3
Rest of Quebec, origin of shipments	206,228	208,348	224,379	208,550	645,570	169,299	162,169	260,649	7%	5
Oshawa, Ontario, origin of shipments	10,148	5,072	4,793	2,911	3,648	4,861	11,702	6,162	0%	
Toronto, Ontario, origin of shipments	498,511	502,219	512,049	490,924	349,660	355,393	515,255	460,573	12%	2
Hamilton, Ontario, origin of shipments	97,026	33,315	24,999	41,994	25,077	113,277	32,993	52,669	1%	10
Windsor, Ontario, origin of shipments	3,546	2,185	16,567	6,448	60	59	597	4,209	0%	
Rest of Ontario, origin of shipments	190,735	282,804	329,530	243,485	157,860	246,401	99,824	221,520	6%	6
Winnipeg, Manitoba, origin of shipments	4,763	8,639	4,294	2,605	1,772	5,335	13,216	5,803	0%	
Rest of Manitoba, origin of shipments	1,092	657	1,595	1,273	2,178	1,235	1,828	1,408	0%	
Saskatoon, Saskatchewan, origin of shipments	1,945	1,185	53	78	202	72	2,365	843	0%	
Rest of Saskatchewan, origin of shipments	1,851	428	1,221	311	664	908	369	822	0%	
Calgary, Alberta, origin of shipments	3,734	1,104	1,415	5,856	3,985	14,812	1,900	4,687	0%	
Edmonton, Alberta, origin of shipments	3,946	1,474	5,049	28,068	8,253	22,812	852	10,065	0%	
Rest of Alberta, origin of shipments	25,229	11,880	4,696	12,871	7,362	3,993	23,525	12,794	0%	
Vancouver, British Columbia, origin of shipments	3,793	5,156	21,032	7,106	7,222	4,864	3,513	7,527	0%	
Rest of British Columbia, origin of shipments	1,451	2,886	11,342	3,595	6,611	2,087	2,104	4,296	0%	
Yukon, origin of shipments	0	148	7	0	0	5	16	25	0%	
Northwest Territories, origin of shipments	19	19	223	24	9	14	4,063	624	0%	
Nunavut, origin of shipments	1	4	1	2	0	0	0	1	0%	
United States and Mexico, origin of shipments	240,853	427,966	496,503	397,799	422,170	385,670	457,343	404,043	11%	4
Grand total	4,267,250	4,118,083	3,761,134	3,363,556	3,681,250	3,212,788	4,009,065	3,773,304	100%	

Table 5 Inbound Shipments to Halifax & Rest of Nova Scotia by Origin

All Outbound Commodities from Halifax & the Rest of Nova Scotia

Destination Jurisdiction	2011	2012	2013	2014	2015	2016	2017	7-year-average	%	Rank
Newfoundland, destination of shipments	345,363	358,450	213,688	259,340	261,016	191,151	239,871	266,982.47	8%	4
Prince Edward Island, destination of shipments	152,406	173,518	250,538	115,364	160,047	96,531	100,593	149,856.81	5%	8
New Brunswick, destination of shipments	1,222,886	1,466,749	776,183	777,745	978,836	558,862	653,895	919,308.02	37%	1
Québec, Quebec, destination of shipments	12,045	67,723	56,377	84,619	17,064	18,767	9,694	38,041.15	1%	11
Montréal, Quebec, destination of shipments	163,367	197,013	219,458	204,084	177,738	89,177	156,023	172,408.60	6%	6
Rest of Quebec, destination of shipments	113,399	146,234	145,829	181,312	184,647	97,093	56,294	132,115.40	6%	7
Oshawa, Ontario, destination of shipments	2,334	21,112	1,410	1,604	34,704	40,339	35,210	19,530.22	1%	10
Toronto, Ontario, destination of shipments	128,496	239,242	209,950	241,255	533,765	581,700	512,532	349,562.88	19%	2
Hamilton, Ontario, destination of shipments	29,411	25,296	35,791	22,964	46,936	26,387	55,470	34,607.74	2%	9
Windsor, Ontario, destination of shipments	28	168	476	1,468	2,591	577	4,329	1,376.77	0%	
Rest of Ontario, destination of shipments	121,503	176,851	92,105	121,516	182,717	165,399	213,250	153,334.12	7%	5
Winnipeg, Manitoba, destination of shipments	6,375	8,403	9,332	11,454	3,435	994	876	5,838.45	0%	
Rest of Manitoba, destination of shipments	2,656	279	986	628	1,192	131	5,361	1,604.52	0%	
Saskatoon, destination of shipments	102	949	3,338	425	653	1,714	664	1,120.62	0%	
Rest of Saskatchewan, destination of shipments	626	137	279	222	2,832	720	677	784.69	0%	
Calgary, Alberta, destination of shipments	3,733	8,611	11,657	16,990	5,716	14,652	4,191	9,364.27	0%	
Edmonton, Alberta, destination of shipments	12,947	21,026	14,105	16,246	5,569	5,227	3,432	11,221.84	1%	12
Rest of Alberta, destination of shipments	381	4,335	1,756	16,974	4,973	1,732	1,283	4,490.61	0%	
Vancouver, destination of shipments	2,408	7,681	5,324	7,110	5,426	17,878	4,940	7,252.35	0%	
Rest of British Columbia, destination	2,621	4,801	4,719	3,139	2,583	3,152	1,900	3,273.44	0%	
Yukon, destination of shipments	36	224	1	15	28	4	3	44.34	0%	
Northwest Territories, destination of shipments	20	185	15	26	60	34	40	54.37	0%	
Nunavut, destination of shipments	-	5	26	1	1	-	-	4.61	0%	
United States and Mexico, destination	503,631	601,196	715,259	536,406	479,187	443,698	916,856	599,461.70	7%	3
Grand total	2,826,775	3,530,187	2,768,600	2,620,906	3,091,712	2,355,918	2,977,382	2,881,640.02	100%	

Table 6 Outbound Shipments from Halifax & the Rest of Nova Scotia by Destination

Rest of Nova Scotia Inbound Commodity Mix 2011-2017

Origin of ALL Inbound Commodities to the Rest of Nova Scotia

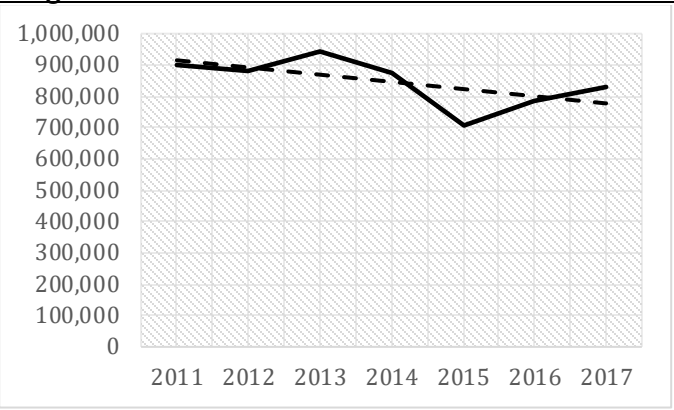


Figure 1 Rest of NS ALL Inbound Freight Volumes Mt from ALL Jurisdictions

From 2011-2017 inbound truck freight volumes from the jurisdictions noted in Table 3 below to the Rest of Nova Scotia averaged 846,068 Mt annually. As indicated in Figure 1 above overall freight shipments have ranged from 700K Mt to 900K Mt and are moderately trending downward. Table 3 below provides the points of origin and freight volumes from 2011 to 2017 and the averages and Table 4 provides the modal equivalents and Average Annual Daily Traffic (AADT).

	2011	2012	2013	2014	2015	2016	2017	7-year average	%	Rank
Halifax, Nova Scotia, origin of shipments	1,128,002	1,424,003	1,363,823	979,978	902,498	841,589	679,787	**1,045,669**	37%	1
New Brunswick, origin of shipments	915,485	786,144	600,870	695,535	603,074	572,326	631,288	**686,389**	24%	2
United States and Mexico, origin of shipments	132,800	268,324	286,846	254,217	292,503	319,334	361,813	**273,691**	10%	3
Toronto, Ontario, origin of shipments	242,966	252,494	190,447	246,446	164,179	148,936	230,656	**210,875**	7%	4
Montréal, Quebec, origin of shipments	245,852	176,291	257,373	165,742	219,923	251,171	136,707	**207,580**	7%	5
Rest of Quebec, origin of shipments	99,769	126,074	96,246	127,517	94,216	130,624	59,555	**104,857**	4%	6
Rest of Ontario, origin of shipments	135,817	134,312	249,730	160,065	106,222	39,074	69,154	**127,768**	4%	7
Québec, Quebec, origin of shipments	10,934	10,616	21,888	17,482	31,435	129,234	174,146	**56,533**	2%	8
Newfoundland and Labrador, origin of shipments	27,737	66,540	44,003	47,305	32,365	24,575	64,343	**43,838**	2%	9
Prince Edward Island, origin of shipments	30,081	65,965	44,773	46,258	28,570	34,131	43,711	**41,927**	1%	10
Hamilton, Ontario, origin of shipments	64,271	19,365	12,723	12,205	9,070	5,902	21,246	**20,683**	1%	11
Rest of Alberta, origin of shipments	25,034	9,650	4,372	12,435	6,858	3,472	21,837	**11,951**	0%	12
Edmonton, Alberta, origin of shipments	913	1,202	4,088	25,087	3,575	828	376	**5,153**	0%	13
Vancouver, British Columbia, origin of shipments	3,120	901	9,192	3,420	5,185	1,437	741	**3,428**	0%	14
Calgary, Alberta, origin of shipments	3,279	269	487	2,311	629	13,578	699	**3,036**	0%	15
Winnipeg, Manitoba, origin of shipments	2,725	7,300	678	1,677	1,031	282	2,277	**2,281**	0%	16
Windsor, Ontario, origin of shipments	1,677	2,029	3,322	4,485	51	18	4	**1,655**	0%	17
Oshawa, Ontario, origin of shipments	4,250	2,939	1,476	66	522	1,263	78	**1,514**	0%	18
Rest of British Columbia, origin of shipments	554	1,027	909	1,519	2,175	652	1,807	**1,235**	0%	19
Rest of Manitoba, origin of shipments	834	486	409	751	444	1,201	1,743	**838**	0%	20
Saskatoon, Saskatchewan, origin of shipments	1,925	1,162	26	50	173	35	24	**485**	0%	21
Rest of Saskatchewan, origin of shipments	1,311	54	754	114	203	75	51	**366**	0%	22
Northwest Territories, origin of shipments	17	12	223	13	1	14	9	**41**	0%	23
Yukon, origin of shipments	0	148	7	0	0	5	0	**23**	0%	24
Nunavut, origin of shipments	0	1	1	2	0	0	0	**1**	0%	25
Grand total	**903,065**	**878,834**	**943,127**	**874,950**	**706,827**	**786,507**	**829,164**	**846,068**	**100%**	

Table 7 Inbound to Rest of NS by Origin

Rest of Nova Scotia Inbound Truck/Rail Equivalents and Average Annual Daily Traffic

Originating Jurisdiction	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Rest of Nova Scotia, origin of shipments	71,870	197	23,957
Halifax, Nova Scotia, origin of shipments	34,856	95	11,619
New Brunswick, origin of shipments	22,880	63	7,627
United States and Mexico, origin of shipments	9,123	25	3,041
Toronto, Ontario, origin of shipments	7,029	19	2,343
Montréal, Quebec, origin of shipments	6,919	19	2,306
Rest of Ontario, origin of shipments	4,259	12	1,420
Rest of Quebec, origin of shipments	3,495	10	1,165
Québec, Quebec, origin of shipments	1,884	5	628
Newfoundland and Labrador, origin of shipments	1,461	4	487
Prince Edward Island, origin of shipments	1,398	4	466
Hamilton, Ontario, origin of shipments	689	2	230
Rest of Alberta, origin of shipments	398	1	133
Edmonton, Alberta, origin of shipments	172	0	57
Vancouver, British Columbia, origin of shipments	114	0	38
Calgary, Alberta, origin of shipments	101	0	34
Winnipeg, Manitoba, origin of shipments	76	0	25
Windsor, Ontario, origin of shipments	55	0	18
Oshawa, Ontario, origin of shipments	50	0	17
Rest of British Columbia, origin of shipments	41	0	14
Rest of Manitoba, origin of shipments	28	0	9
Saskatoon, Saskatchewan, origin of shipments	16	0	5
Rest of Saskatchewan, origin of shipments	12	0	4
Northwest Territories, origin of shipments	1	0	0
Yukon, origin of shipments	1	0	0
Nunavut, origin of shipments	0	0	0
Totals	166,931	457	55,644

Table 8 Inbound from ALL Jurisdictions truck & Railcar Equivalents & Truck AADT at 100%

Rest of Nova Scotia Inbound Commodity Mix from Selected Jurisdictions 2011-2017

The following sections summarize the commodity mix for each jurisdiction from which commodities destined to the Rest of Nova Scotia originate. The annual volumes from 2011-2017 were averaged over the seven-year period and this is expressed in both tonnage and modal unit equivalents for trucks based on a 30 Mt capacity and railcars with a capacity of 90 Mt. Bearing in mind that the data is based on freight shipped by truck the tables also include a calculation of the Annual Average Daily Traffic (AADT).

Rest of Nova Scotia Inbound from Halifax

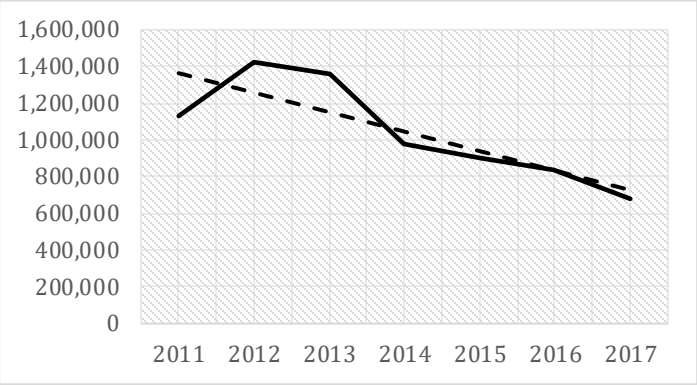


Figure 2 Rest of NS Inbound from Halifax

Halifax was the largest origin of truck shipments to the Rest of Nova Scotia from outside of the jurisdiction from 2011-2017, averaging 21% of overall freight deliveries by truck for a total of 1,045,669 Mt. Table 9 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 2 above, overall shipments are trending downward from a high of ~1.4M Mt in 2012 to ~680K Mt in 2017 and this is primarily associated with a decline in the Fuel oils & crude petroleum commodity group.

2011-2017 Average Inbound to the Rest of Nova Scotia from Halifax									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Fuel oils and crude petroleum [16, 17, 18, 19]	675,127	895,512	608,544	217,355	160,661	179,927	171,452	415,511	40%
Forest products [25, 26, 27, 28, 29]	95,404	114,766	401,914	377,527	345,647	330,805	112,035	254,014	24%
Food [05, 06, 07, 08, 09]	139,706	103,212	103,746	128,887	152,208	87,355	142,707	122,546	12%
Plastic and chemical products [20, 21, 22, 23, 24]	68,132	67,037	66,638	77,025	72,992	11,996	105,649	67,067	6%
Miscellaneous products [42]	52,544	86,857	52,741	41,293	26,438	108,238	19,705	55,402	5%
Base metals and articles of base metals [31, 32, 33]	26,329	89,884	38,877	60,721	54,079	75,857	36,681	54,633	5%
Other manufactured goods [30, 34, 35, 38, 39, 40]	24,249	22,912	30,079	34,754	36,338	17,294	12,493	25,445	2%
Agricultural products [01, 02, 03, 04]	2,733	30,118	40,811	15,824	35,870	6,734	7,995	20,012	2%
Automobiles and other transportation equipment [36, 37]	18,740	4,729	13,619	10,043	7,941	8,543	68,284	18,843	2%
Waste and scrap [41]	23,935	4,314	4,827	16,543	10,258	574	103	8,651	1%
Minerals [10, 11, 12, 13, 14]	1,102	4,662	2,028	5	66	14,265	2,682	3,544	0%
Coal [15]	0	0	0	0	1	0	0	0	0%
Grand Total	1,128,002	1,424,003	1,363,823	979,978	902,498	841,589	679,787	1,045,669	100%

Table 9 Inbound from Halifax to the Rest of Nova Scotia

Truck/Railcar Equivalents & AADT for Commodity Shipments Originating in Halifax

The average inbound freight volume from Halifax was 1,045,669 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt this freight volume is the equivalent of 34,855 trucks or 11,619 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to the Rest of Nova Scotia from Halifax Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30 Mt	AADT	Railcar Equivalents 90 Mt
Fuel oils and crude petroleum [16,17,18,19]	415,511	13,850	38	4617
Forest products [25, 26, 27, 28, 29]	254,014	8,467	23	2822
Food [05, 06, 07, 08, 09]	122,546	4,085	11	1362
Plastic and chemical products [20,21,22,23,24]	67,067	2,236	6	745
Miscellaneous products [42]	55,402	1,847	5	616
Base metals and articles of base metals [31, 32, 33]	54,633	1,821	5	607
Other manufactured goods [30,34,35,38,39,40]	25,445	848	2	283
Agricultural products [01, 02, 03, 04]	20,012	667	2	222
Automobiles and other transportation equipment [36, 37]	18,843	628	2	209
Waste and scrap [41]	8,651	288	1	96
Minerals [10,11,12,13,14]	3,544	118	0	39
Coal [15]	0	0	0	0
Grand Total	**1,045,669**	**34,855**	**95**	**11,619**

Table 10 Inbound from Halifax truck & Railcar Equivalents & Truck AADT at 100%

Rest of Nova Scotia Inbound from New Brunswick

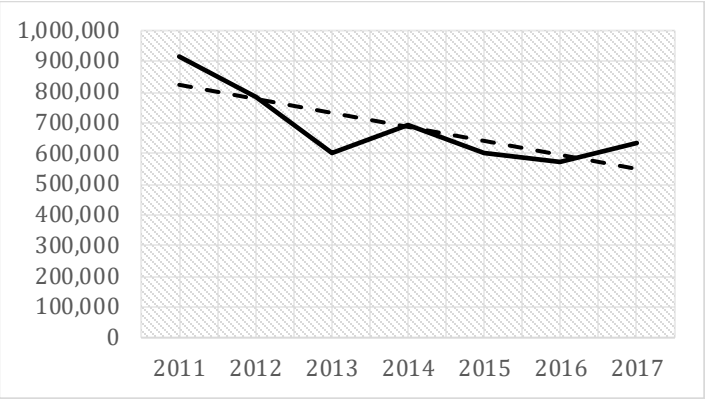


Figure 3 Rest of NS Inbound from New Brunswick

New Brunswick was the largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 14% of overall freight deliveries by truck for a total of 686,389 Mt. Table 11 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 3 above freight volumes from New Brunswick were trending downward over the period with the decline being primarily in the Food commodity group.

2011-2017 Average Inbound to the Rest of Nova Scotia from New Brunswick									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	13,341	10,657	9,440	98,838	26,774	49,241	49,338	36,804	5.4%
Automobiles and other transportation equipment [36, 37]	7,016	8,407	5,346	9,053	19,339	3,390	12,541	9,299	1.4%
Base metals and articles of base metals [31, 32, 33]	19,656	23,501	40,423	40,749	89,145	17,143	1,351	33,138	4.8%
Coal [15]	0	0	0	0	0	1	0	0	0.0%
Food [05, 06, 07, 08, 09]	558,375	535,445	328,902	301,272	177,717	212,252	206,006	331,424	48.3%
Forest products [25, 26, 27, 28, 29]	212,745	73,791	122,051	95,753	200,182	145,520	224,557	153,514	22.4%
Fuel oils and crude petroleum [16, 17, 18, 19]	7,454	6,042	1,871	25,431	25,808	29,182	25,974	17,395	2.5%
Minerals [10, 11, 12, 13, 14]	11,711	10,840	6,538	33,668	3,102	41,104	9,725	16,670	2.4%
Miscellaneous products [42]	41,129	83,872	41,928	35,565	30,447	30,806	52,769	45,217	6.6%
Other manufactured goods [30, 34, 35, 38, 39, 40]	11,336	11,841	12,901	9,074	10,751	31,509	30,680	16,870	2.5%
Plastic and chemical products [20, 21, 22, 23, 24]	28,602	8,576	31,408	33,225	16,608	12,175	18,166	21,252	3.1%
Waste and scrap [41]	4,120	13,171	61	12,907	3,201	2	180	4,806	0.7%
Grand Total	**915,485**	**786,144**	**600,870**	**695,535**	**603,074**	**572,326**	**631,288**	**686,389**	**100.0%**

Table 11 Inbound from New Brunswick

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in New Brunswick

The average inbound freight volume from New Brunswick was 686,389 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 22,880 trucks or 7,627 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from New Brunswick to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30 Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	36,804	1,227	3.4	409
Automobiles and other transportation equipment [36, 37]	9,299	310	0.8	103
Base metals and articles of base metals [31, 32, 33]	33,138	1,105	3.0	368
Coal [15]	0	0	0.0	0
Food [05, 06, 07, 08, 09]	331,424	11,047	30.3	3682
Forest products [25, 26, 27, 28, 29]	153,514	5,117	14.0	1706
Fuel oils and crude petroleum [16, 17, 18, 19]	17,395	580	1.6	193
Minerals [10, 11, 12, 13, 14]	16,670	556	1.5	185
Miscellaneous products [42]	45,217	1,507	4.1	502
Other manufactured goods [30, 34, 35, 38, 39, 40]	16,870	562	1.5	187
Plastic and chemical products [20, 21, 22, 23, 24]	21,252	708	1.9	236
Waste and scrap [41]	4,806	160	0.4	53
Grand Total	**686,389**	**22,880**	**63**	**7,627**

Table 12 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Rest of Nova Scotia Inbound from USA & Mexico

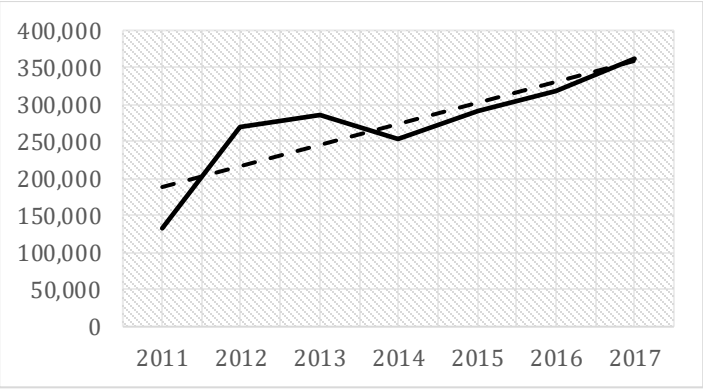


Figure 4 Rest of NS Inbound from USA & Mexico

The USA & Mexico was the second largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 5% of overall freight deliveries by truck for a total of 273,693 Mt. Table 13 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 4 above freight volumes from USA & Mexico were trending upward over the period.

2011-2017 Average Inbound from USA & Mexico to the Rest of Nova Scotia									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	10,609	8,364	15,512	6,544	3,554	3,850	12,472	8,701	3%
Automobiles and other transportation equipment [36, 37]	3,383	6,970	9,616	4,933	1,947	1,366	6,225	4,920	2%
Base metals and articles of base metals [31, 32, 33]	9,174	10,932	24,358	20,149	6,456	5,709	10,349	12,447	5%
Coal [15]	1	0	1	0	0	2	0	1	0%
Food [05, 06, 07, 08, 09]	21,385	57,176	17,631	33,428	62,173	16,115	20,873	32,683	12%
Forest products [25, 26, 27, 28, 29]	11,077	57,419	7,438	28,190	61,260	80,841	46,031	41,751	15%
Fuel oils and crude petroleum [16, 17, 18, 19]	35	360	243	467	574	39	4,515	890	0%
Minerals [10, 11, 12, 13, 14]	113	956	1,030	90	19	11	11	319	0%
Miscellaneous products [42]	23,829	63,999	85,414	117,115	114,597	98,134	106,755	87,120	32%
Other manufactured goods [30, 34, 35, 38, 39, 40]	21,372	27,481	29,623	28,556	15,836	17,156	22,794	23,260	8%
Plastic and chemical products [20, 21, 22, 23, 24]	21,966	16,574	73,371	11,505	20,200	96,068	114,584	50,610	18%
Waste and scrap [41]	9,856	18,094	22,610	3,241	5,887	43	17,204	10,991	4%
Grand Total	132,800	268,324	286,846	254,217	292,503	319,334	361,813	273,693	100%

Table 13 Inbound Shipments from USA to the Rest of Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in USA & Mexico

The average inbound freight volume from the USA & Mexico was 273,693 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 13,032 trucks or 3,041 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from USA & Mexico to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 21Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	8,701	414	1	96.7
Automobiles and other transportation equipment [36, 37]	4,920	234	1	54.7
Base metals and articles of base metals [31, 32, 33]	12,447	593	2	138.3
Coal [15]	1	0	0	0.0
Food [05, 06, 07, 08, 09]	32,683	1,556	4	363.1
Forest products [25, 26, 27, 28, 29]	41,751	1,988	5	463.9
Fuel oils and crude petroleum [16, 17, 18, 19]	890	42	0	9.9
Minerals [10, 11, 12, 13, 14]	319	15	0	3.5
Miscellaneous products [42]	87,120	4,149	11	968.0
Other manufactured goods [30, 34, 35, 38, 39, 40]	23,260	1,108	3	258.4
Plastic and chemical products [20, 21, 22, 23, 24]	50,610	2,410	7	562.3
Waste and scrap [41]	10,991	523	1	122.1
Grand Total	**273,693**	**13,032**	**35**	**3,041**

Table 14 Truck & Railcar Equivalents & Truck AADT AT 100%

Rest of Nova Scotia Inbound from Toronto

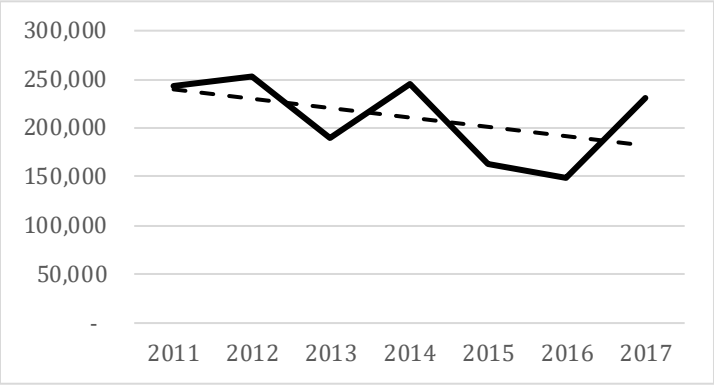


Figure 5 Rest of NS Inbound from Toronto

Toronto was the third largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 4% of overall freight deliveries by truck for a total of 210,913 Mt. Table 15 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 5 above freight volumes from Toronto were in a slight decline over the period.

2011-2017 Average Inbound from Toronto to the Rest of Nova Scotia

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	12,108	7,909	7,051	1,475	1,566	1,613	6,705	5,490	2.6%
Automobiles and other transportation equipment [36, 37]	3,092	1,757	894	1,073	1,016	1,424	20,112	4,196	2.0%
Base metals and articles of base metals [31, 32, 33]	30,344	5,200	8,712	6,611	6,180	9,066	6,565	10,383	4.9%
Food [05, 06, 07, 08, 09]	116,000	107,000	93,153	73,381	59,884	45,973	44,587	77,140	36.6%
Forest products [25, 26, 27, 28, 29]	10,919	7,978	8,254	11,938	1,171	9,598	3,726	7,655	3.6%
Fuel oils and crude petroleum [16, 17, 18, 19]	2,019	305	1,043	5,944	1,509	37,972	53	6,978	3.3%
Minerals [10, 11, 12, 13, 14]	20	5	7	12	60	46	386	77	0.0%
Miscellaneous products [42]	43,842	99,252	51,402	115,000	69,787	23,162	116,000	74,064	35.1%
Other manufactured goods [30, 34, 35, 38, 39, 40]	14,190	16,305	14,636	26,792	19,802	19,168	26,578	19,639	9.3%
Plastic and chemical products [20, 21, 22, 23, 24]	10,172	7,242	5,293	3,751	3,172	905	6,400	5,276	2.5%
Waste and scrap [41]	22	10	2	29	31	11	15	17	0.0%
Grand Total	**242,727**	**252,964**	**190,447**	**246,007**	**164,179**	**148,936**	**231,128**	**210,913**	**100%**

Table 15 Inbound from Toronto

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in Toronto

As indicated in Table 8 above, the average inbound freight volume from Toronto was 210,913 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 7,030 trucks or 2,343 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

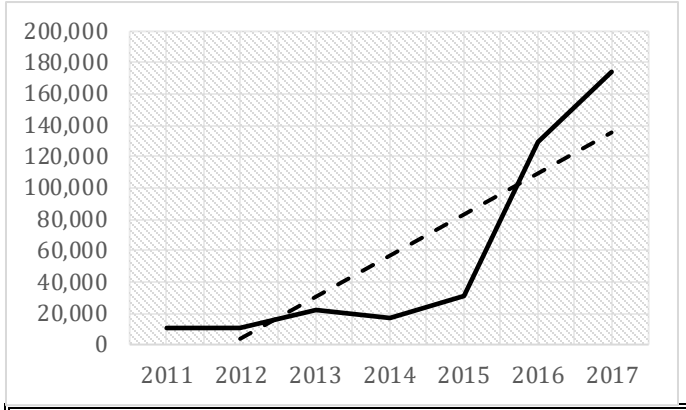
2011-2017 Average Inbound from Toronto to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%

COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	5,490	183	0.50	61
Automobiles and other transportation equipment [36, 37]	4,196	140	0.38	47
Base metals and articles of base metals [31, 32, 33]	10,383	346	0.95	115
Food [05, 06, 07, 08, 09]	77,140	2,571	7.04	857
Forest products [25, 26, 27, 28, 29]	7,655	255	0.70	85
Fuel oils and crude petroleum [16, 17, 18, 19]	6,978	233	0.64	78
Minerals [10, 11, 12, 13, 14]	77	3	0.01	1
Miscellaneous products [42]	74,064	2,469	6.76	823
Other manufactured goods [30, 34, 35, 38, 39, 40]	19,639	655	1.79	218
Plastic and chemical products [20, 21, 22, 23, 24]	5,276	176	0.48	59
Waste and scrap [41]	17	1	0.00	0
Grand Total	**210,913**	**7,030**	**19**	**2,343**

Table 16 Truck & Railcar Equivalents & Truck AADT at 100%

Rest of Nova Scotia Inbound from Montreal

Figure 6 Rest of NS Inbound from Montreal



Montreal was the fourth largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 4% of overall freight deliveries by truck for a total of 216,366 Mt. Freight volumes have risen sharply since 2015. Table 17 below provides the commodity mix and volumes from 2011 to 2017 and the averages.

2011-2017 Average Inbound from Rest of Ontario to the Rest of Nova Scotia									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	8,001	7,688	5,552	23,651	13,187	13,391	14,471	12,258	6%
Automobiles and other transportation equipment [36, 37]	1,587	2,466	3,192	4,791	280	878	882	1,921	1%
Base metals and articles of base metals [31, 32, 33]	25,236	12,586	11,723	8,628	61,168	14,306	6,963	19,265	9%
Food [05, 06, 07, 08, 09]	62,778	44,920	134,781	60,659	48,463	62,144	52,887	64,143	30%
Forest products [25, 26, 27, 28, 29]	58,017	26,938	40,149	13,189	39,478	25,471	14,339	29,665	14%
Fuel oils and crude petroleum [16, 17, 18, 19]	163	244	139	97	316	6,211	253	1,858	1%
Minerals [10, 11, 12, 13, 14]	4,011	3,928	4,147	6,431	2	3	1,212	2,673	1%
Miscellaneous products [42]	38,665	63,374	46,903	37,155	38,722	102,701	35,258	66,318	31%
Other manufactured goods [30, 34, 35, 38, 39, 40]	41,010	6,646	7,884	5,875	9,850	10,217	4,415	11,640	5%
Plastic and chemical products [20, 21, 22, 23, 24]	6,336	7,501	2,896	4,241	8,456	14,637	5,837	6,295	3%
Waste and scrap [41]	48	1	5	1,027	2	1,212	190	328	0%
Grand Total	245,852	176,291	257,373	165,742	219,923	251,171	136,707	216,366	100%

Table 17 Inbound from Montreal

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in Montreal

As indicated in Table 12 above, the average inbound freight volume from Montreal was 216,366 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 7,212 trucks or 2,404 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from Montreal to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	12,258	6%	409	1.12	136
Automobiles and other transportation equipment [36, 37]	1,921	1%	64	0.18	21
Base metals and articles of base metals [31, 32, 33]	19,265	9%	642	1.76	214
Food [05, 06, 07, 08, 09]	64,143	30%	2,138	5.86	713
Forest products [25, 26, 27, 28, 29]	29,665	14%	989	2.71	330
Fuel oils and crude petroleum [16, 17, 18, 19]	1,858	1%	62	0.17	21
Minerals [10, 11, 12, 13, 14]	2,673	1%	89	0.24	30
Miscellaneous products [42]	66,318	31%	2,211	6.06	737
Other manufactured goods [30, 34, 35, 38, 39, 40]	11,640	5%	388	1.06	129
Plastic and chemical products [20, 21, 22, 23, 24]	6,295	3%	210	0.57	70
Waste and scrap [41]	328	0%	11	0.03	4
Grand Total	216,366	100%	7,212	20	2,404

Table 18 Truck & Railcar Equivalents & Truck AADT AT 100%

Rest of Nova Scotia Inbound from Rest of Ontario

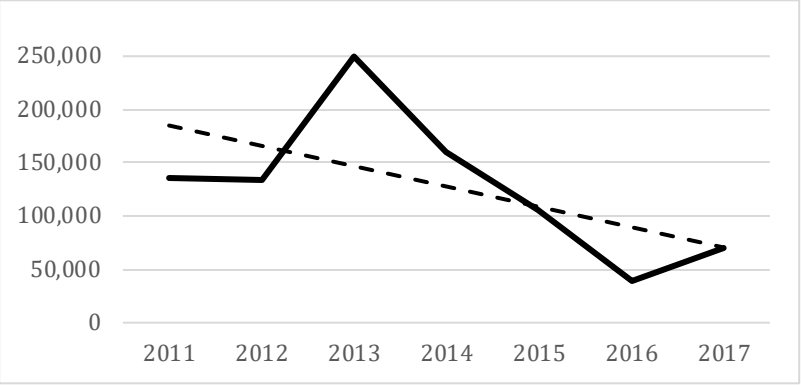


Figure 7 Rest of NS Inbound from Rest of Ontario

The Rest of Ontario was the fifth largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 2.6% of overall freight deliveries by truck for a total of 127,823 Mt. Table 19 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 7 above freight volumes from the Rest of Ontario were in decline over the period, from a high of 249,730 Mt. in 2013 to a low of 39,074 Mt. in 2016 before rebounding slightly in 2017. The commodity group responsible for the fluctuation was Miscellaneous products, which had very large increases in 2013 & 2014 before falling back.

2011-2017 Average Inbound from Rest of Ontario to the Rest of Nova Scotia

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	10,887	19,470	13,923	4,883	13,766	13,213	6,458	11,800	9%
Automobiles and other transportation equipment [36, 37]	1,253	1,681	374	371	1,073	225	419	771	1%
Base metals and articles of base metals [31, 32, 33]	27,859	4,881	8,363	10,771	1,551	2,613	2,401	8,348	7%
Coal [15]	0	0	0	0	0	0	0	0	0%
Food [05, 06, 07, 08, 09]	57,791	29,373	37,136	36,973	40,909	7,442	36,655	35,183	28%
Forest products [25, 26, 27, 28, 29]	5,494	22,740	4,005	6,675	8,426	1,483	1,391	7,174	6%
Fuel oils and crude petroleum [16, 17, 18, 19]	1,833	3,093	61	688	609	5	5	899	1%
Minerals [10, 11, 12, 13, 14]	23	49	3,578	6,662	7,739	774	1,158	2,855	2%
Miscellaneous products [42]	12,192	34,118	160,445	78,688	16,375	6,087	15,404	46,187	36%

Other manufactured goods [30, 34, 35, 38, 39, 40]	3,582	8,449	5,034	3,607	12,859	6,473	3,590	6,228	5%
Plastic and chemical products [20, 21, 22, 23, 24]	14,884	10,458	16,065	10,487	1,677	741	1,669	7,997	6%
Waste and scrap [41]	19	0	748	259	1,239	18	4	381	0%
Grand Total	135,817	134,312	249,730	160,065	106,222	39,074	69,154	127,823	100%

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in the Rest of Ontario

As indicated in Table 8 above, the average inbound freight volume from the Rest of Ontario was 127,823 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 7,212 trucks or 2,404 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from Rest of Ontario to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	11,800	9%	393	1	131
Automobiles and other transportation equipment [36, 37]	771	1%	26	0	9
Base metals and articles of base metals [31, 32, 33]	8,348	7%	278	1	93
Coal [15]	0	0%	0	0	-
Food [05, 06, 07, 08, 09]	35,183	28%	1173	3	391
Forest products [25, 26, 27, 28, 29]	7,174	6%	239	1	80
Fuel oils and crude petroleum [16, 17, 18, 19]	899	1%	30	0	10
Minerals [10, 11, 12, 13, 14]	2,855	2%	95	0	32
Miscellaneous products [42]	46,187	36%	1540	4	513

Other manufactured goods [30, 34, 35, 38, 39, 40]	6,228	5%	208	1	69
Plastic and chemical products [20, 21, 22, 23, 24]	7,997	6%	267	1	89
Waste and scrap [41]	381	0%	13	0	4
Grand Total	127,823	100%	4,261	12	1,420

Table 19 Truck & Railcar Equivalents & Truck AADT AT 100%

Rest of Nova Scotia Inbound from Rest of Quebec

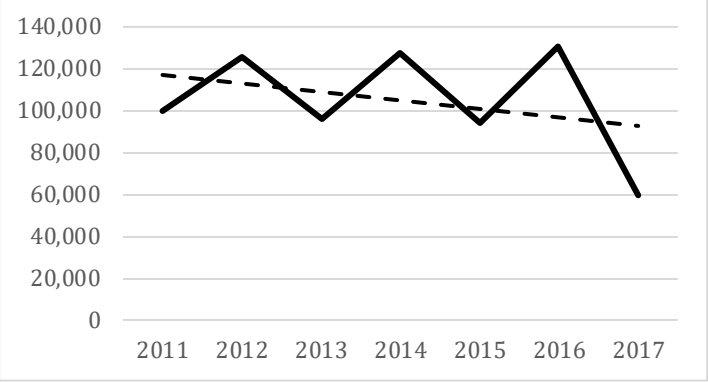


Figure 8 Rest of NS Inbound from Rest of Quebec

The Rest of Quebec was the sixth largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging 1.1% of overall freight deliveries by truck for a total of 104,857 Mt. Table 21 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 8 above freight volumes from the Rest of Quebec were in modest decline over the period with fluctuations in freight volumes.

2011-2017 Average Inbound from the Rest of Quebec to the Rest of Nova Scotia									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	10,282	8,667	3,841	4,986	6,748	2,129	1,000	**5,379**	5%
Automobiles and other transportation equipment [36, 37]	646	84	86	31	23	11	2,276	**451**	0%
Base metals and articles of base metals [31, 32, 33]	3,114	7,263	7,435	5,754	2,542	876	5,595	**4,654**	4%
Coal [15]	0	0	0	0	0	0	0	**0**	0%
Food [05, 06, 07, 08, 09]	8,688	18,309	8,088	19,098	17,898	25,529	804	**14,059**	13%
Forest products [25, 26, 27, 28, 29]	46,883	47,747	45,673	56,162	27,326	6,056	5,552	**33,628**	32%
Fuel oils and crude petroleum [16, 17, 18, 19]	0	4	1	2	42	1	3	**8**	0%
Minerals [10, 11, 12, 13, 14]	6	8,288	8,603	7,820	6,049	16,824	167	**6,822**	7%
Miscellaneous products [42]	7,370	12,078	10,086	24,179	24,873	68,303	39,512	**26,629**	25%
Other manufactured goods [30, 34, 35, 38, 39, 40]	3,125	5,273	3,190	4,906	7,975	4,022	3,590	**4,583**	4%
Plastic and chemical products [20, 21, 22, 23, 24]	19,241	17,367	8,197	4,400	737	2,341	476	**7,537**	7%
Waste and scrap [41]	414	992	1,047	179	3	4,532	580	**1,107**	1%
Grand Total	**99,769**	**126,074**	**96,246**	**127,517**	**94,216**	**130,624**	**59,555**	**104,857**	**100%**

Table 20 Inbound Commodities and Volumes from the Rest of Quebec to the Rest of Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) Commodity Shipments Originating in the Rest of Quebec

As indicated in Table 17 above, the average inbound freight volume from the Rest of Quebec was 104,857 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 3,495 trucks or 1,165 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from Rest of Quebec to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	5,379	5%	179	0.5	59.8
Automobiles and other transportation equipment [36, 37]	451	0%	15	0.0	5.0
Base metals and articles of base metals [31, 32, 33]	4,654	4%	155	0.4	51.7
Coal [15]	0	0%	0	0.0	0.0
Food [05, 06, 07, 08, 09]	14,059	13%	469	1.3	156.2
Forest products [25, 26, 27, 28, 29]	33,628	32%	1121	3.1	373.6
Fuel oils and crude petroleum [16, 17, 18, 19]	8	0%	0	0.0	0.1
Minerals [10, 11, 12, 13, 14]	6,822	7%	227	0.6	75.8
Miscellaneous products [42]	26,629	25%	888	2.4	295.9
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,583	4%	153	0.4	50.9
Plastic and chemical products [20, 21, 22, 23, 24]	7,537	7%	251	0.7	83.7
Waste and scrap [41]	1,107	1%	37	0.1	12.3

Grand Total	104,857	100%	3,495	10	1,165

Table 21 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Rest of Nova Scotia Inbound from Newfoundland

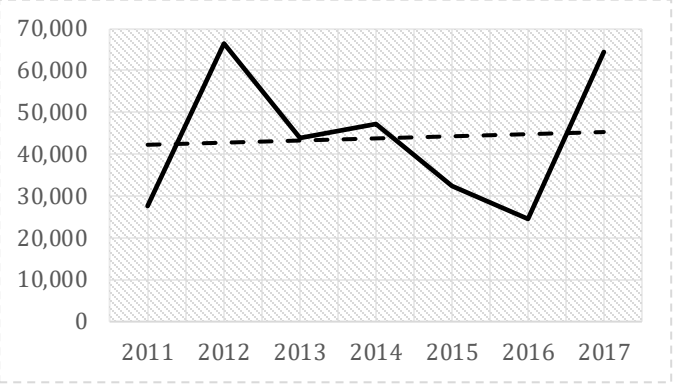


Figure 9 Rest of NS Inbound from Newfoundland

Newfoundland was the seventh largest inbound origin of truck shipments from outside the province to the Rest of Nova Scotia during this period, averaging .9% of overall freight deliveries by truck for a total of 43,868 Mt. Table 23 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 9 above freight volumes from the Newfoundland were in modest ascent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound from Newfoundland to the Rest of Nova Scotia

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	29	5	392	316	651	4	4	200	0%
Automobiles and other transportation equipment [36, 37]	8,744	7,532	2,987	2,555	3,225	1,733	229	3,858	9%
Base metals and articles of base metals [31, 32, 33]	969	263	182	778	2,954	2,539	1,777	1,352	3%
Food [05, 06, 07, 08, 09]	13,019	33,882	16,548	11,641	12,651	9,703	12,213	15,665	36%
Forest products [25, 26, 27, 28, 29]	2,513	3,054	17,753	30,134	10,645	4,715	44,548	16,195	37%
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0	0	0	0	0	0	0	0%
Minerals [10, 11, 12, 13, 14]	1	0	0	0	1	1	1	1	0%
Miscellaneous products [42]	297	18,837	415	370	185	1,543	2,969	3,517	8%
Other manufactured goods [30, 34, 35, 38, 39, 40]	472	875	744	1,404	921	2,711	2,211	1,334	3%
Plastic and chemical products [20, 21, 22, 23, 24]	146	257	2,859	106	1,133	90	230	689	2%

Waste and scrap [41]	1,548	1,835	2,123	0	1	1,536	160	1,029	2%
Grand Total	**27,738**	**66,539**	**44,002**	**47,304**	**32,366**	**24,575**	**64,343**	**43,838**	**1**

Table 22 Inbound Commodities and Volumes from Newfoundland to the Rest of Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Originating in Newfoundland

As indicated in Table 21 above, the average inbound freight volume from Newfoundland was 43,838 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 1,461 trucks or 487 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound from Newfoundland to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	**Mt Average**	%	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	200	0%	7	0	2
Automobiles and other transportation equipment [36, 37]	3,858	9%	129	0	43
Base metals and articles of base metals [31, 32, 33]	1,352	3%	45	0	15
Food [05, 06, 07, 08, 09]	15,665	36%	522	1	174
Forest products [25, 26, 27, 28, 29]	16,195	37%	540	1	180
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0%	0	0	0
Minerals [10, 11, 12, 13, 14]	1	0%	0	0	0
Miscellaneous products [42]	3,517	8%	117	0	39
Other manufactured goods [30, 34, 35, 38, 39, 40]	1,334	3%	44	0	15
Plastic and chemical products [20, 21, 22, 23, 24]	689	2%	23	0	8
Waste and scrap [41]	1,029	2%	34	0	11
Grand Total	**43,838**	**1**	**1,461**	**4**	**487**

Table 23 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound Commodity Mix 2011-2017

Origin of ALL Inbound Commodities to Halifax

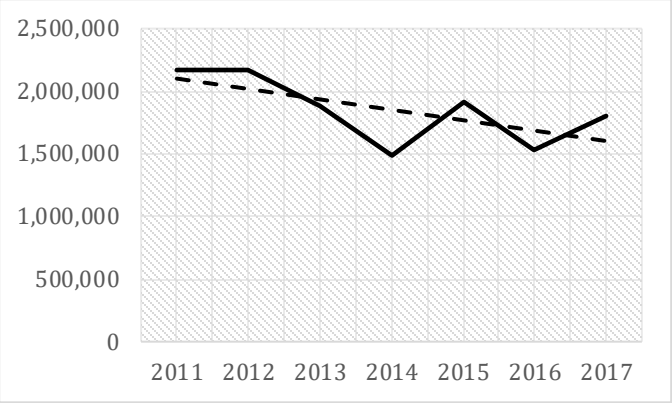


Figure 10 Halifax Inbound from ALL jurisdictions

Halifax was the destination for an average of 1,851,578 Mt of truck freight during the period of 2011-2017 from the jurisdictions noted in Table 23 below. As indicated in Figure 10 above truck freight volumes to Halifax have fluctuated between 1.5-2.2 million Mt and have been trending modestly downward. Table 25 provides the points of origin and freight volumes from 2011 to 2017 and the averages.

Inbound to Halifax from All Jurisdictions 2011-2017										
	2011	2012	2013	2014	2015	2016	2017	7-year average	% of total	Rank
New Brunswick	1,184,312	1,124,924	733,500	480,145	571,676	533,120	961,484	**798,452**	43%	1
Toronto	255,544	249,725	321,602	244,477	185,481	206,456	284,599	**249,698**	13%	2
Montreal	269,546	271,636	214,849	236,455	260,114	206,675	171,039	**232,902**	13%	3
Rest of Quebec	106,459	82,275	128,133	81,033	551,354	38,675	102,614	**155,792**	8%	4
USA & Mexico	108,054	159,642	209,659	143,582	129,667	66,337	95,530	**130,353**	7%	5
Rest of Ontario	54,918	148,492	79,800	83,421	51,638	207,327	30,670	**93,752**	5%	6
Newfoundland	42,083	18,261	66,425	80,054	80,019	67,624	40,821	**56,470**	3%	7
Hamilton	32,755	13,950	12,276	29,788	16,007	107,375	11,748	**31,986**	2%	8
Prince Edward Island	54,800	76,794	41,952	32	31	1,101	814	**25,075**	1%	9
Rest of NS	40,679	7,797	21,975	3,986	19,646	41,037	12,215	**21,048**	1%	10
Halifax	31	14	171	74,712	18,359	16,889	15,166	**17,906**	1%	11
Quebec City	3,151	2,181	3,086	9,570	14,630	4,982	38,600	**10,886**	1%	12
Edmonton	3,032	273	960	2,981	4,679	21,983	476	**4,912**	0%	13
Oshawa	5,898	2,133	3,316	2,845	3,126	3,598	11,624	**4,649**	0%	14
Vancouver	673	4,255	11,840	3,686	2,037	3,427	2,772	**4,099**	0%	15
Winnipeg	2,038	1,339	3,615	928	741	5,053	10,939	**3,522**	0%	16
Rest of British Columbia	897	1,858	10,433	2,076	4,436	1,434	297	**3,062**	0%	17
Windsor	1,870	156	13,246	1,963	8	41	593	**2,554**	0%	18
Calgary	456	835	929	3,545	3,357	1,235	1,201	**1,651**	0%	19
Rest of Alberta	196	2,230	324	436	504	522	1,688	**843**	0%	20
NWT	2	8	-	11	8	-	4,054	**583**	0%	21
Rest of Manitoba	257	171	1,186	522	1,734	34	85	**570**	0%	22
Rest of Saskatchewan	540	373	467	197	461	834	317	**456**	0%	23
Saskatoon	19	24	27	28	29	38	2,341	**358**	0%	24
Yukon	-	-	-	-	0	-	16	**2**	0%	25
Nunavut	1	3	-	-	-	-	-	**1**	0%	26
Grand total	**2,168,212**	**2,169,349**	**1,879,772**	**1,486,472**	**1,919,741**	**1,535,796**	**1,801,703**	**1,851,578**	100%	

Table 24 Halifax Inbound from ALL Jurisdictions

Halifax Inbound from ALL Jurisdictions Truck/Rail Equivalents and Average Annual Daily Traffic

	7-year average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
New Brunswick	798,452	26,615	73	296
Toronto	249,698	8,323	23	92
Montreal	232,902	7,763	21	86
Rest of Quebec	155,792	5,193	14	58
USA & Mexico	130,353	4,345	12	48
Rest of Ontario	93,752	3,125	9	35
Newfoundland	56,470	1,882	5	21
Hamilton	31,986	1,066	3	12
Prince Edward Island	25,075	836	2	9
Rest of NS	21,048	702	2	8
Halifax	17,906	597	2	7
Quebec City	10,886	363	1	4
Edmonton	4,912	164	0	2
Oshawa	4,649	155	0	2
Vancouver	4,099	137	0	2
Winnipeg	3,522	117	0	1
Rest of British Columbia	3,062	102	0	1
Windsor	2,554	85	0	1
Calgary	1,651	55	0	1
Rest of Alberta	843	28	0	0
NWT	583	19	0	0
Rest of Manitoba	570	19	0	0
Rest of Saskatchewan	456	15	0	0
Saskatoon	358	12	0	0
Yukon	2	0	0	0
Nunavut	1	0	0	0
Grand total	**1,851,578**	**61,719**	**169**	**686**

Table 25 Truck & Railcar Equivalents and Truck AADT at 100%

Halifax Inbound from Newfoundland

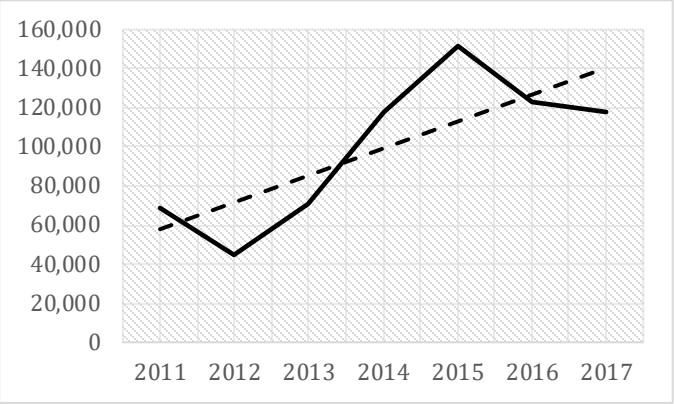


Figure 11 Halifax Inbound from Nfld

Newfoundland was the origin of truck shipments Halifax averaging a total of 43,868 Mt. during this period, Table 27 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 11 above freight volumes from Newfoundland were in ascent over the period with some fluctuation in freight volumes.

	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	41	26	37	332	1,496	796	53	397	0.4%
Food 5	23,004	24,968	52,539	29,464	70,315	107,630	74,539	54637	55.1%
Minerals 6	3	3	1	4	38	1	839	127	0.1%
Coal								0	0.0%
Fuel oils and crude petroleum 7	1	5	0	0	3	2	1	2	0.0%
Plastic and chemical products 8	200	71	222	121	3,061	1,788	202	809	0.8%
Forest products 9	34,925	3,936	10,995	76,511	58,636	6,473	29,284	31537	31.8%
Base metals and articles of base metals 10	232	238	968	139	2,578	436	3,354	1135	1.1%
Automobiles and other transportation equipment 11	4,831	8,177	1,143	447	5,339	2,436	2,044	3488	3.5%
Other manufactured goods 12	968	711	503	6,729	8,915	1,712	4,980	3503	3.5%
Waste and scrap	2,128	2,188	1,489	1.49	0	1,515	1,725	1292	1.3%
Miscellaneous products	2,061	4,380	3,229	3,599	1,201	17	959	2207	2.2%
Grand total	**68,394**	**44,702**	**71,125**	**117,349**	**151,581**	**122,806**	**117,979**	**99,134**	**100%**

Table 26 Inbound Commodities and Volumes from Newfoundland to Halifax

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Newfoundland

The average inbound freight volume from Newfoundland to Halifax was 99,134 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 3,304 trucks or 1,101 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Newfoundland					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	397	0.4%	13.2	0.0	4.4
Food 5	54637	55.1%	1821.2	5.0	607.1
Minerals 6	127	0.1%	4.2	0.0	1.4
Coal	0	0.0%	0.0	0.0	0.0
Fuel oils and crude petroleum 7	2	0.0%	0.1	0.0	0.0
Plastic and chemical products 8	809	0.8%	27.0	0.1	9.0
Forest products 9	31537	31.8%	1051.2	2.9	350.4
Base metals and articles of base metals 10	1135	1.1%	37.8	0.1	12.6
Automobiles and other transportation equipment 11	3488	3.5%	116.3	0.3	38.8
Other manufactured goods 12	3503	3.5%	116.8	0.3	38.9
Waste and scrap	1292	1.3%	43.1	0.1	14.4
Miscellaneous products	2207	2.2%	73.6	0.2	24.5
Grand total	**99,134**	**100%**	**3,304**	**9**	**1,101**

Table 27 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Prince Edward Island

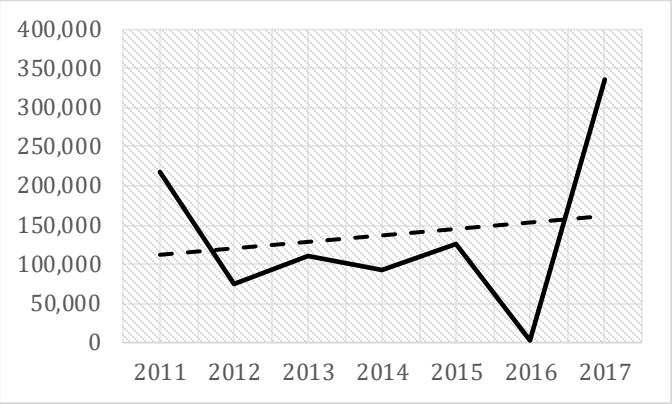


Figure 12 Halifax Inbound from PEI

Prince Edward Island was the origin of truck shipments Halifax averaging a total of 136,944 Mt. during this period, Table 29 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 12 above freight volumes from PEI were in modest ascent over the period with some fluctuation in freight volumes.

	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	40,593	49,387	62,456	53,241	51,241	0	89,755	49525	36.2%
Food 5	76,038	21,575	43,030	16,494	69,709	792	225,431	64724	47.3%
Minerals 6	626	306	425	0	2,373	0	0	533	0.4%
Fuel oils and crude petroleum 7	0	0	0	0	0	0	0	0	0.0%
Plastic and chemical products 8	252	7	1,434	1	187	5	4	270	0.2%
Forest products 9	133	77	948	4	173	3	184	218	0.2%
Base metals and articles of base metals 10	95,540	24	147	56	123	0	65	13708	10.0%
Automobiles and other transportation equipment 11	19	87	0	0	41	0	1	21	0.0%
Other manufactured goods 12	478	984	127	20	266	680	227	397	0.3%
Waste and scrap	2,089	0	1,350	22,937	0	0	19,457	6548	4.8%
Miscellaneous products	1,122	1,149	0	1,064	1,465	1,193	1,010	1001	0.7%
Grand total	**216,890**	**73,596**	**109,918**	**93,818**	**125,579**	**2,672**	**336,134**	**136,944**	**1**

Table 28 Halifax inbound from PEI

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Newfoundland

The average inbound freight volume from Prince Edward Island to Halifax was 136,944 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 4,565 trucks or 1,522 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Prince Edward Island					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	49525	36.2%	1650.8	4.5	550.3
Food 5	64724	47.3%	2157.5	5.9	719.2
Minerals 6	533	0.4%	17.8	0.0	5.9
Fuel oils and crude petroleum 7	0	0.0%	0.0	0.0	0.0
Plastic and chemical products 8	270	0.2%	9.0	0.0	3.0
Forest products 9	218	0.2%	7.3	0.0	2.4
Base metals and articles of base metals 10	13708	10.0%	456.9	1.3	152.3
Automobiles and other transportation equipment 11	21	0.0%	0.7	0.0	0.2
Other manufactured goods 12	397	0.3%	13.2	0.0	4.4
Waste and scrap	6548	4.8%	218.3	0.6	72.8
Miscellaneous products	1001	0.7%	33.4	0.1	11.1
Grand total	**136,944**	**1**	**4,565**	**13**	**1,522**

Table 29 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Halifax

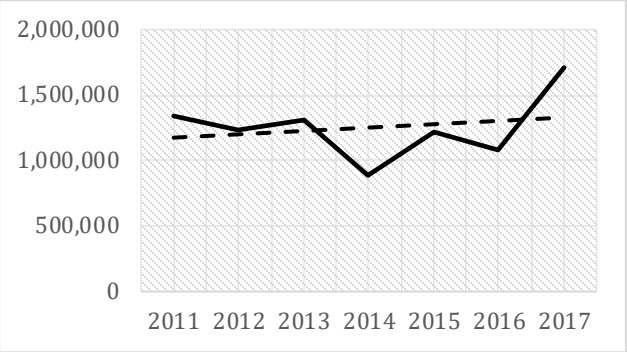


Figure 13 Halifax Inbound from Halifax

Halifax was the origin of truck shipments to Halifax averaging a total of 136,944 Mt. during this period, Table 31 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 13 above freight volumes from Halifax were in modest ascent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from Halifax									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	10,305	42,945	1,101	16,204	5,370	500	761	**11027**	0.9%
Food 5	165,340	172,462	209,926	158,465	328,562	161,436	303,509	**214243**	17.1%
Minerals 6	205,713	7,593	18,801	4,980	1,785	37,670	203,419	**68566**	5.5%
Fuel oils and crude petroleum 7	402,277	396,904	273,038	90,506	136,989	372,647	776,555	**349845**	27.9%
Plastic and chemical products 8	55,807	105,277	188,810	119,794	97,333	35,286	92,396	**99243**	7.9%
Forest products 9	207,067	102,860	137,680	83,358	221,144	99,820	40,035	**127424**	10.2%
Base metals and articles of base metals 10	94,623	105,941	145,126	60,947	64,207	182,234	26,741	**97117**	7.8%
Automobiles and other transportation equipment 11	35,084	3,328	20,355	17,407	19,610	27,564	76,766	**28588**	2.3%
Other manufactured goods 12	47,421	65,066	108,827	20,690	55,814	49,809	58,586	**58030**	4.6%
Waste and scrap	21,170	15,235	21,574	71,191	277,814	31,300	1,308	**62799**	5.0%
Miscellaneous products	92,735	208,700	185,646	243,469	8,215	76,347	129,434	**134935**	10.8%
Grand total	**1,337,543**	**1,226,311**	**1,310,885**	**887,011**	**1,216,842**	**1,074,612**	**1,709,510**	**1,251,816**	**100%**

Table 30 Halifax inbound from Halifax

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Halifax

The average inbound freight volume from Halifax to Halifax was 1,251,816 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 41,727 trucks or 13,909 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Halifax					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	11027	0.9%	367.6	1.0	122.5
Food 5	214243	17.1%	7141.4	19.6	2380.5
Minerals 6	68566	5.5%	2285.5	6.3	761.8
	0	0.0%			
Fuel oils and crude petroleum 7	349845	27.9%	11661.5	31.9	3887.2
Plastic and chemical products 8	99243	7.9%	3308.1	9.1	1102.7
Forest products 9	127424	10.2%	4247.5	11.6	1415.8
Base metals and articles of base metals 10	97117	7.8%	3237.2	8.9	1079.1
Automobiles and other transportation equipment 11	28588	2.3%	952.9	2.6	317.6
Other manufactured goods 12	58030	4.6%	1934.3	5.3	644.8
Waste and scrap	62799	5.0%	2093.3	5.7	697.8
Miscellaneous products	134935	10.8%	4497.8	12.3	1499.3
Grand total	**1,251,816**	**100%**	**41,727**	**114**	**13,909**

Table 31 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Rest of Nova Scotia

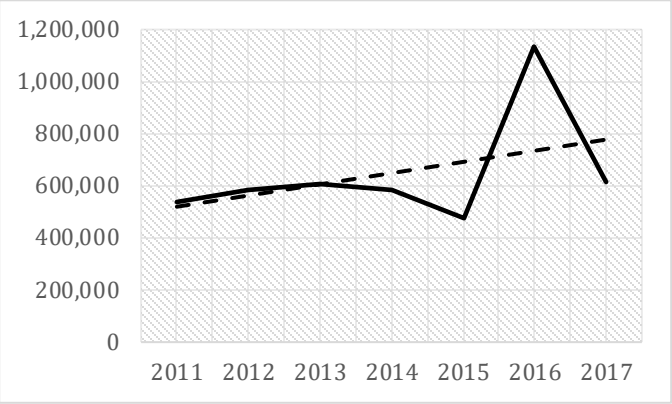


Figure 14 Halifax Inbound from Rest of NS

The Rest of Nova Scotia was the origin of truck shipments to Halifax averaging a total of 648,799 Mt. during this period, Table 33 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 14 above freight volumes from Halifax were in modest ascent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from Rest of Nova Scotia									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	7,752	3,533	37,907	9,781	3,684	2,291	14,716	11,381	1.8%
Food 5	96,931	69,044	103,999	81,200	124,522	148,591	104,832	104,160	16.1%
Minerals 6	28,898	19,895	45,915	241,598	20,050	569,996	319,651	178,000	27.4%
Fuel oils and crude petroleum 7	1,965	432	120	0	0	3,888	1	915	0.1%
Plastic and chemical products 8	76,119	62,497	35,695	17,267	38,981	3,052	5,771	34,197	5.3%
Forest products 9	227,060	219,281	243,727	105,223	218,597	341,769	78,153	204,830	31.6%
Base metals and articles of base metals 10	59,300	83,610	74,567	54,899	42,083	18,261	66,425	57,021	8.8%
Automobiles and other transportation equipment 11	329	344	1,354	175	309	432	4,533	1,068	0.2%
Other manufactured goods 12	4,367	9,697	14,406	6,455	11,193	17,925	7,433	10,211	1.6%
Waste and scrap	19,990	11,422	12,832	15,197	13,471	27,048	7,263	15,318	2.4%
Miscellaneous products	17,228	102,547	39,990	48,886	2,978	1,280	8,977	31,698	4.9%
Grand total	539,940	582,303	610,513	580,682	475,868	1,134,533	617,755	648,799	1

Table 32 Halifax Inbound from Rest of Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in the Rest of Nova Scotia

The average inbound freight volume from THE Rest of Nova Scotia to Halifax was 648,799 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 21,627 trucks or 7,209 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Rest of Nova Scotia					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	11,381	1.8%	379.4	1.0	126.5
Food 5	104,160	16.1%	3472.0	9.5	1157.3
Minerals 6	178,000	27.4%	5933.3	16.3	1977.8
Fuel oils and crude petroleum 7	915	0.1%	30.5	0.1	10.2
Plastic and chemical products 8	34,197	5.3%	1139.9	3.1	380.0
Forest products 9	204,830	31.6%	6827.7	18.7	2275.9
Base metals and articles of base metals 10	57,021	8.8%	1900.7	5.2	633.6
Automobiles and other transportation equipment 11	1,068	0.2%	35.6	0.1	11.9
Other manufactured goods 12	10,211	1.6%	340.4	0.9	113.5
Waste and scrap	15,318	2.4%	510.6	1.4	170.2
Miscellaneous products	31,698	4.9%	1056.6	2.9	352.2
Grand total	**648,799**	**1**	**21,627**	**59**	**7,209**

Table 33 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from New Brunswick

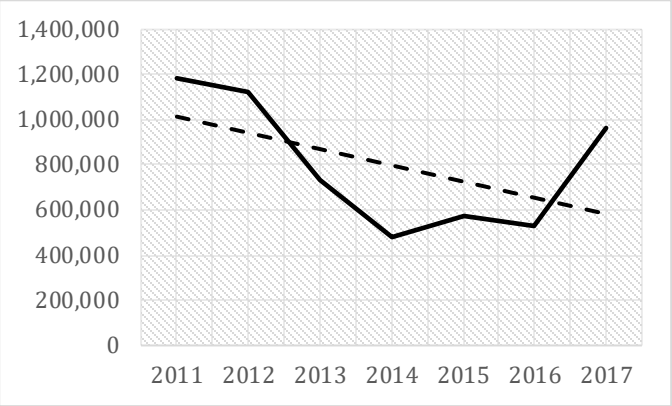


Figure 15 Halifax Inbound from New Brunswick

New Brunswick was the origin of truck shipments to Halifax averaging a total of 798,452 Mt. during this period, Table 35 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 15 above freight volumes from Halifax were in descent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from New Brunswick									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	6,422	1,528	1,037	862	18,054	1,900	5,416	5031	0.6%
Food 5	436,765	408,824	165,674	116,796	153,887	139,061	221,480	234641	29.4%
Minerals 6	138,884	85,468	88,802	47,752	46,764	19,572	110,671	76845	9.6%
Fuel oils and crude petroleum 7	5,931	21,382	247	2,632	27,073	30,216	30,787	16895	2.1%
Plastic and chemical products 8	9,432	20,698	11,999	4,957	38,046	23,878	36,203	20745	2.6%
Forest products 9	426,614	315,670	280,395	126,888	150,123	85,188	197,847	226104	28.3%
Base metals and articles of base metals 10	80,054	80,019	67,624	40,821	54,800	76,794	41,952	63152	7.9%
Automobiles and other transportation equipment 11	4,964	9,492	3,026	3,414	8,403	2,993	3,380	5096	0.6%
Other manufactured goods 12	20,948	10,083	12,251	5,195	6,974	12,814	10,623	11270	1.4%
Waste and scrap	777	8,406	6,137	10,666	36,086	55,788	37,058	22131	2.8%
Miscellaneous products	53,521	163,356	96,306	120,162	31,466	84,916	266,067	116542	14.6%
Grand total	**1,184,312**	**1,124,924**	**733,500**	**480,145**	**571,676**	**533,120**	**961,484**	**798,452**	**1**

Table 34 Halifax Inbound from New Brunswick

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in New Brunswick

The average inbound freight volume from New Brunswick to Halifax was 798,452 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 26,615 trucks or 8,872 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from New Brunswick					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	5031	0.6%	167.7	0.5	55.9
Food 5	234641	29.4%	7821.4	21.4	2607.1
Minerals 6	76845	9.6%	2561.5	7.0	853.8
Fuel oils and crude petroleum 7	16895	2.1%	563.2	1.5	187.7
Plastic and chemical products 8	20745	2.6%	691.5	1.9	230.5
Forest products 9	226104	28.3%	7536.8	20.6	2512.3
Base metals and articles of base metals 10	63152	7.9%	2105.1	5.8	701.7
Automobiles and other transportation equipment 11	5096	0.6%	169.9	0.5	56.6
Other manufactured goods 12	11270	1.4%	375.7	1.0	125.2
Waste and scrap	22131	2.8%	737.7	2.0	245.9
Miscellaneous products	116542	14.6%	3884.7	10.6	1294.9
Grand total	**798,452**	**1**	**26,615**	**73**	**8,872**

Table 35 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Quebec City

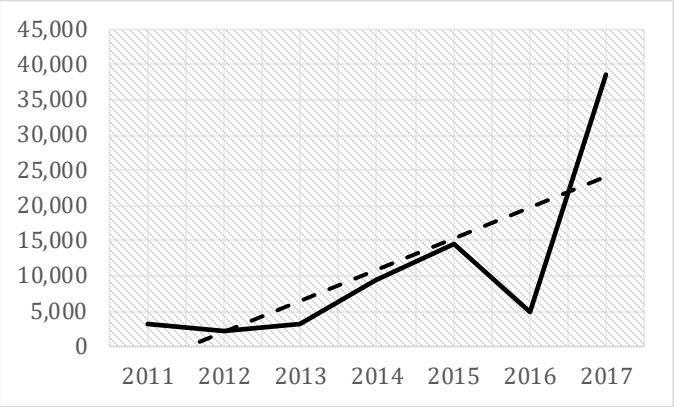


Figure 16 Halifax Inbound from Quebec City

Quebec City was the origin of truck shipments to Halifax averaging a total of 10,886 Mt. during this period, Table 37 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 16 above freight volumes from Halifax were in descent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from Québec, Quebec, origin of shipments									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	3	2	1	92	157	0	4	37	0.3%
Food 5	134	213	6	288	84	4	29,566	4328	39.8%
Minerals 6	0	0	148	0	0	0	0	21	0.2%
Fuel oils and crude petroleum 7	1	0	0	2,758	5,452	0	0	1173	10.8%
Plastic and chemical products 8	51	22	1,098	806	977	18	39	430	4.0%
Forest products 9	1,151	987	104	3,754	2,343	39	116	1213	11.1%
Base metals and articles of base metals 10	32	31	1,101	814	31	14	171	313	2.9%
Automobiles and other transportation equipment 11	117	354	58	235	184	3,077	27	579	5.3%
Other manufactured goods 12	1,592	347	298	622	205	56	200	474	4.4%
Waste and scrap	0	0	0	0	0	0	0	0	0.0%
Miscellaneous products	70	226	272	200	5,196	1,773	8,477	2316	21.3%
Grand total	**3,151**	**2,181**	**3,086**	**9,570**	**14,630**	**4,982**	**38,600**	**10,886**	**1**

Table 36 Halifax Inbound from Quebec city

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Quebec City

The average inbound freight volume from Quebec City to Halifax was 10,886 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 363 trucks or 121 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Québec City					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	37	0.3%	1.2	0.0	0.4
Food 5	4328	39.8%	144.3	0.4	48.1
Minerals 6	21	0.2%	0.7	0.0	0.2
Fuel oils and crude petroleum 7	1173	10.8%	39.1	0.1	13.0
Plastic and chemical products 8	430	4.0%	14.3	0.0	4.8
Forest products 9	1213	11.1%	40.4	0.1	13.5
Base metals and articles of base metals 10	313	2.9%	10.4	0.0	3.5
Automobiles and other transportation equipment 11	579	5.3%	19.3	0.1	6.4
Other manufactured goods 12	474	4.4%	15.8	0.0	5.3
Waste and scrap	0	0.0%	0.0	0.0	0.0
Miscellaneous products	2316	21.3%	77.2	0.2	25.7
Grand total	10,886	1	363	1	121

Table 37 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Montreal

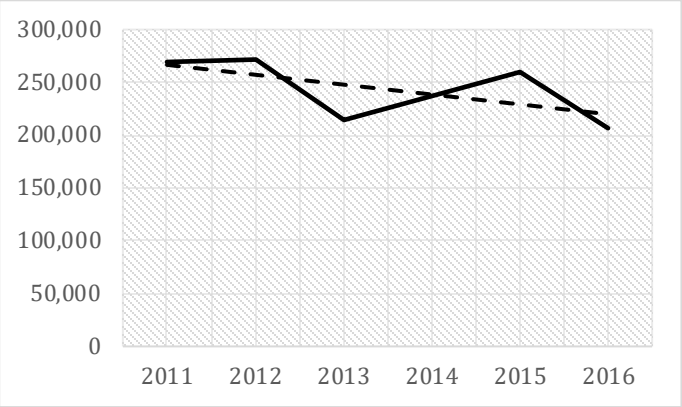


Figure 17 Halifax Inbound from Montreal

Montreal was the origin of truck shipments to Halifax averaging a total of 232,902 Mt. during this period, Table 39 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 17 above freight volumes from Halifax were in descent over the period with some fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from Montréal

	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	2,167	2,150	2,558	9,874	6,614	4,657	1,174	4171	1.8%
Food 5	37,061	57,645	47,930	77,400	39,043	83,678	22,255	52145	22.4%
Minerals 6	4	172	301	398	28	4	1,827	390	0.2%
Fuel oils and crude petroleum 7	162	288	21,160	3	374	10,692	161	4691	2.0%
Plastic and chemical products 8	8,928	7,254	5,020	7,654	3,428	9,585	8,809	7240	3.1%
Forest products 9	13,849	9,734	12,285	13,366	4,007	15,466	6,999	10815	4.6%
Base metals and articles of base metals 10	74,712	18,359	16,889	15,166	40,679	7,797	21,975	27940	12.0%
Automobiles and other transportation equipment 11	5,024	7,114	3,012	2,152	444	1,042	1,375	2880	1.2%
Other manufactured goods 12	17,828	19,177	12,797	15,485	10,357	7,285	20,762	14813	6.4%
Waste and scrap	207	4	4	1	2	44	118	54	0.0%
Miscellaneous products	109,603	149,740	92,894	94,954	155,139	66,424	85,585	107763	46.3%
Grand total	**269,546**	**271,636**	**214,849**	**236,455**	**260,114**	**206,675**	**171,039**	**232,902**	**1**

Table 38 Halifax Inbound from Montreal

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Montreal

The average inbound freight volume from Montreal to Halifax was 232,902 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 7,763 trucks or 2,588 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Montréal					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	4171	1.8%	139.0	0.4	46.3
Food 5	52145	22.4%	1738.2	4.8	579.4
Minerals 6	390	0.2%	13.0	0.0	4.3
Fuel oils and crude petroleum 7	4691	2.0%	156.4	0.4	52.1
Plastic and chemical products 8	7240	3.1%	241.3	0.7	80.4
Forest products 9	10815	4.6%	360.5	1.0	120.2
Base metals and articles of base metals 10	27940	12.0%	931.3	2.6	310.4
Automobiles and other transportation equipment 11	2880	1.2%	96.0	0.3	32.0
Other manufactured goods 12	14813	6.4%	493.8	1.4	164.6
Waste and scrap	54	0.0%	1.8	0.0	0.6
Miscellaneous products	107763	46.3%	3592.1	9.8	1197.4
Grand total	232,902	1	7,763	21	2,588

Table 39 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Inbound from Rest of Quebec

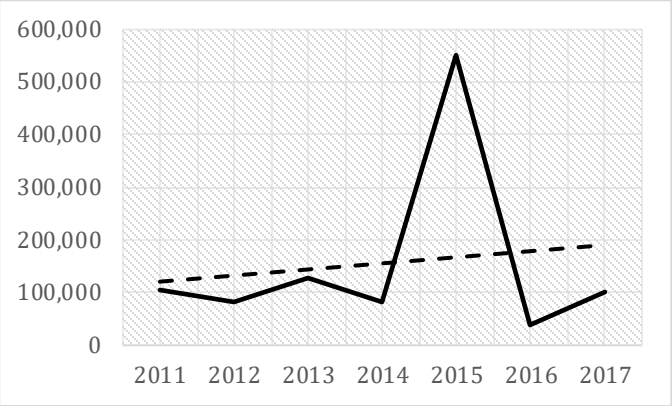


Figure 18 Halifax inbound from the Rest of Quebec

The Rest of Quebec was the origin of truck shipments to Halifax averaging a total of 155,793 Mt. during this period, Table 41 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 18 above freight volumes from Halifax were in modest ascent over the period with very significant fluctuation in freight volumes, particularly in the Base metals category, which in 2015 experienced a ~4000% increase in truck freight volumes from the previous year that was equivalent to almost 16,000 truckloads.

2011-2017 Average Inbound to Halifax from Rest of Quebec									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	4	34	91	3	35	2	821	142	0.1%
Food 5	35,797	7,132	8,906	2,464	8,366	10,129	4,344	11020	7.1%
Minerals 6	0	2,504	446	460	311	0	145	552	0.4%
Coal				7				1	0.0%
Fuel oils and crude petroleum 7	1	8,811	1	0	2	1	15,769	3512	2.3%
Plastic and chemical products 8	2,519	2,493	7,820	5,557	4,771	4,010	15,447	6088	3.9%
Forest products 9	47,199	28,905	45,918	40,958	28,095	5,143	14,675	30128	19.3%
Base metals and articles of base metals 10	3,986	19,646	41,037	12,215	490,548	3,355	3,263	82007	52.6%
Automobiles and other transportation equipment 11	411	1,746	857	31	278	459	687	639	0.4%
Other manufactured goods 12	1,767	4,315	2,246	1,675	2,947	890	376	2031	1.3%
Waste and scrap				22	479	0	21,122	3089	2.0%
Miscellaneous products	14,775	6,688	20,812	17,648	15,522	14,684	25,963	16584	10.6%
Grand total	**106,459**	**82,275**	**128,133**	**81,040**	**551,354**	**38,675**	**102,614**	**155,793**	**1**

Table 40 Halifax Inbound from Rest of Quebec

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in the Rest of Quebec

The average inbound freight volume from the Rest of Quebec to Halifax was 155,793 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 5,193 trucks or 1,731 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Rest of Quebec					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	142	0.1%	4.7	0.0	1.6
Food 5	11020	7.1%	367.3	1.0	122.4
Minerals 6	552	0.4%	18.4	0.1	6.1
Coal	1	0.0%	0.0	0.0	0.0
Fuel oils and crude petroleum 7	3512	2.3%	117.1	0.3	39.0
Plastic and chemical products 8	6088	3.9%	202.9	0.6	67.6
Forest products 9	30128	19.3%	1004.3	2.8	334.8
Base metals and articles of base metals 10	82007	52.6%	2733.6	7.5	911.2
Automobiles and other transportation equipment 11	639	0.4%	21.3	0.1	7.1
Other manufactured goods 12	2031	1.3%	67.7	0.2	22.6
Waste and scrap	3089	2.0%	103.0	0.3	34.3
Miscellaneous products	16584	10.6%	552.8	1.5	184.3
Grand total	**155,793**	**1**	**5,193**	**14**	**1,731**

Table 41 Truck & Railcar Equivalents & Truck AADT at 100%

Halifax Inbound from Toronto

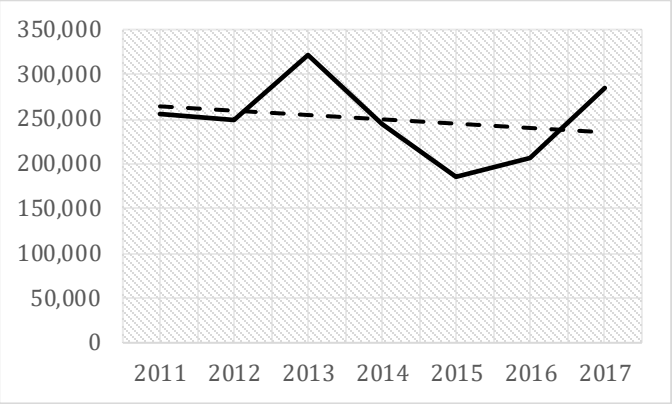


Figure 19 Halifax Inbound from Toronto

Toronto was the origin of truck shipments to Halifax averaging a total of 249,698 Mt. during this period, Table 43 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 19 above freight volumes from Halifax were in modest ascent over the period with very significant fluctuation in freight volumes,

2011-2017 Average Inbound to Halifax from Toronto, Ontario

	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	2,604	1,612	4,228	9,477	4,309	139	7,304	4239	1.7%
Food 5	63,929	57,146	31,340	49,380	45,851	29,453	53,416	47217	18.9%
Minerals 6	26	11	23	6	37	8	274	55	0.0%
Coal	2	0	0	0	0	0	0	0	0.0%
Fuel oils and crude petroleum 7	81	8,256	95	37	41	20	241	1253	0.5%
Plastic and chemical products 8	14,417	6,843	15,483	4,684	2,538	5,973	9,433	8482	3.4%
Forest products 9	12,019	9,470	25,354	9,928	2,680	3,897	6,583	9990	4.0%
Base metals and articles of base metals 10	36,954	19,560	17,413	16,949	12,939	14,003	7,279	17871	7.2%
Automobiles and other transportation equipment 11	5,415	6,917	2,210	4,016	4,095	13,115	68,936	14958	6.0%
Other manufactured goods 12	26,407	17,603	16,001	17,947	14,992	23,559	49,192	23671	9.5%
Waste and scrap	170	18	13	15	4	2,943	1	452	0.2%
Miscellaneous products	93,521	122,289	209,443	132,037	97,994	113,347	81,940	121510	48.7%
Grand total	**255,546**	**249,725**	**321,602**	**244,477**	**185,481**	**206,456**	**284,599**	**249,698**	**1**

Table 42 Halifax Inbound from Toronto

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in Toronto

The average inbound freight volume from Toronto to Halifax was 249,698 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 8,323 trucks or 2,774 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Toronto, Ontario					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	4239	1.7%	141.3	0.4	47.1
Food 5	47217	18.9%	1573.9	4.3	524.6
Minerals 6	55	0.0%	1.8	0.0	0.6
Coal	0	0.0%	0.0	0.0	0.0
Fuel oils and crude petroleum 7	1253	0.5%	41.8	0.1	13.9
Plastic and chemical products 8	8482	3.4%	282.7	0.8	94.2
Forest products 9	9990	4.0%	333.0	0.9	111.0
Base metals and articles of base metals 10	17871	7.2%	595.7	1.6	198.6
Automobiles and other transportation equipment 11	14958	6.0%	498.6	1.4	166.2
Other manufactured goods 12	23671	9.5%	789.0	2.2	263.0
Waste and scrap	452	0.2%	15.1	0.0	5.0
Miscellaneous products	121510	48.7%	4050.3	11.1	1350.1
Grand total	**249,698**	**1**	**8,323**	**23**	**2,774**

Table 43 Truck & Railcar Equivalents & Truck AADT at 100%

Halifax Inbound from Rest of Ontario

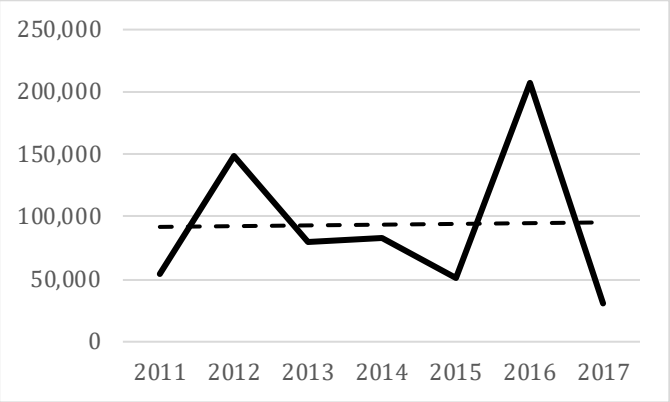


Figure 20 Halifax Inbound from Rest of Ontario

The Rest of Ontario was the origin of truck shipments to Halifax averaging a total of 95,753 Mt. during this period, Table 45 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 17 above freight volumes from Halifax were in modest ascent over the period with very significant fluctuation in freight volumes.

2011-2017 Average Inbound to Halifax from Rest of Ontario									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products 3	1,516	388	828	1,815	183	254	193	740	0.8%
Food 5	9,403	9,595	15,326	19,231	1,992	5,609	11,863	10431	11.1%
Minerals 6	1	2	1,047	551	772	0	65	348	0.4%
Coal	0	0	0	0	0	0	2	0	0.0%
Fuel oils and crude petroleum 7	2,818	10	784	975	1,478	7	14	869	0.9%
Plastic and chemical products 8	5,333	24,488	8,320	2,146	1,196	645	912	6149	6.6%
Forest products 9	1,060	5,633	8,401	14,437	20,103	21,782	6,705	11160	11.9%
Base metals and articles of base metals 10	5,353	22,227	23,077	13,630	6,737	2,999	2,630	10951	11.7%
Automobiles and other transportation equipment 11	512	3,593	398	430	712	101	1,639	1055	1.1%
Other manufactured goods 12	13,104	9,419	2,862	10,239	7,234	144,711	2,791	27194	29.0%
Waste and scrap	6,362	8,452	0	543	1	2	20	2197	2.3%
Miscellaneous products	9,459	64,683	18,756	19,424	11,231	31,216	3,837	22658	24.2%
Grand total	**54,918**	**148,492**	**79,800**	**83,421**	**51,638**	**207,327**	**30,672**	**93,753**	**1**

Table 44 Halifax Inbound from the Rest of Ontario

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in the Rest of Ontario

The average inbound freight volume from the Rest of Ontario to Halifax was 93,753 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 3,125 trucks or 1,042 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from Rest of Ontario					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	740	0.8%	24.7	0.1	8.2
Food 5	10431	11.1%	347.7	1.0	115.9
Minerals 6	348	0.4%	11.6	0.0	3.9
Coal	0	0.0%	0.0	0.0	0.0
Fuel oils and crude petroleum 7	869	0.9%	29.0	0.1	9.7
Plastic and chemical products 8	6149	6.6%	205.0	0.6	68.3
Forest products 9	11160	11.9%	372.0	1.0	124.0
Base metals and articles of base metals 10	10951	11.7%	365.0	1.0	121.7
Automobiles and other transportation equipment 11	1055	1.1%	35.2	0.1	11.7
Other manufactured goods 12	27194	29.0%	906.5	2.5	302.2
Waste and scrap	2197	2.3%	73.2	0.2	24.4
Miscellaneous products	22658	24.2%	755.3	2.1	251.8
Grand total	**93,753**	**1**	**3,125**	**9**	**1,042**

Table 45 Truck & Railcar Equivalents & Truck AADT at 100%

Halifax Inbound from USA & Mexico

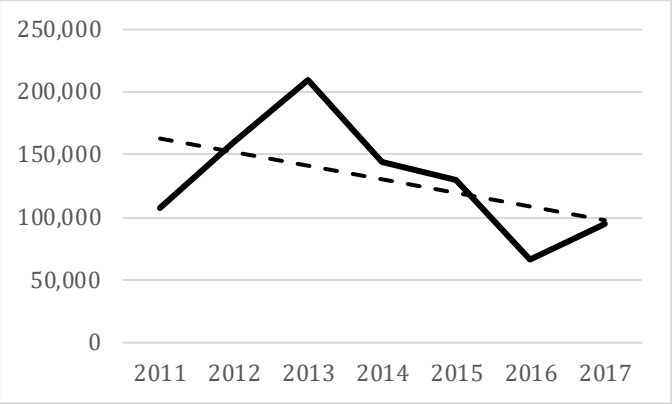


Figure 21 Halifax Inbound USA & Mexico

The USA & Mexico were the origin of truck shipments to Halifax averaging a total of 130,388 Mt. during this period, Table 47 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 21 above freight volumes from Halifax were in modest decline over the period with significant fluctuation in freight volumes.

USA & Mexico to Halifax, Nova Scotia, destination of shipments								
Commodity group	2011	2012	2013	2014	2015	2016	2017	7-year-average
Agricultural products 3%	4,533,244	2,840,383	13,240,667	3,085,105	3,345,211	472,718	697,447	4,030,682
Food 23%	9,101,987	9,980,951	10,019,020	13,922,697	12,604,635	5,838,261	1,597,630	9,009,312
Minerals 10%	1,839,298	5,096,542	3,007,611	2,968,055	1,214,596	3,918,946	746,419	2,684,495
Fuel oils and crude petroleum 1%	1,667,774	462,313	377,024	571,707	620,198	336,264	484,338	645,660
Plastic and chemical products 4%	13,439,876	9,913,943	9,989,081	10,164,228	10,729,843	4,214,636	4,773,331	9,032,134
Forest products 21%	12,706,751	42,268,548	14,307,225	14,160,346	8,630,542	7,347,207	21,508,691	17,275,616
Base metals and articles of base metals 12%	15,629,164	21,998,101	51,725,808	14,610,307	22,363,709	19,235,045	9,399,776	22,137,416
Automobiles and other transportation equipment 1%	2,139,567	4,031,562	1,717,114	2,115,752	1,559,349	2,826,915	1,873,517	2,323,397
Other manufactured goods 5%	25,732,491	23,290,641	40,337,665	16,853,006	25,578,265	17,257,868	12,544,827	23,084,966
Waste and scrap 2%	644,180	470,418	453,207	404,903	365,607	279,397	86,186	386,271
Miscellaneous products 19%	20,620,088	39,288,810	64,484,198	64,726,070	42,654,923	4,609,901	41,818,020	39,743,144
	108,054	**159,642**	**209,659**	**143,582**	**129,667**	**66,337**	**95,530**	**130,353**

Table 46 USA & Mexico to Halifax, Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) for Halifax Commodity Shipments Originating in the USA & Mexico

The average inbound freight volume from the USA & Mexico to Halifax was 130,388 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 4,346 trucks or 1,449 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Inbound to Halifax from United States and Mexico					
	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products 3	4031	3.1%	134.4	0.4	44.8
Food 5	9009	6.9%	300.3	0.8	100.1
Minerals 6	2684	2.1%	89.5	0.2	29.8
Coal	35	0.0%	1.2	0.0	0.4
Fuel oils and crude petroleum 7	646	0.5%	21.5	0.1	7.2
Plastic and chemical products 8	9032	6.9%	301.1	0.8	100.4
Forest products 9	17276	13.2%	575.9	1.6	192.0
Base metals and articles of base metals 10	22137	17.0%	737.9	2.0	246.0
Automobiles and other transportation equipment 11	2323	1.8%	77.4	0.2	25.8
Other manufactured goods 12	23085	17.7%	769.5	2.1	256.5
Waste and scrap	386	0.3%	12.9	0.0	4.3
Miscellaneous products	39743	30.5%	1324.8	3.6	441.6
Grand total	130,388	1	4,346	12	1,449

Table 47 Truck & Railcar Equivalents & Truck AADT at 100%

Rest of Nova Scotia Outbound Commodity Mix 2011-2017

Destination of ALL Outbound Commodities from the Rest of Nova Scotia

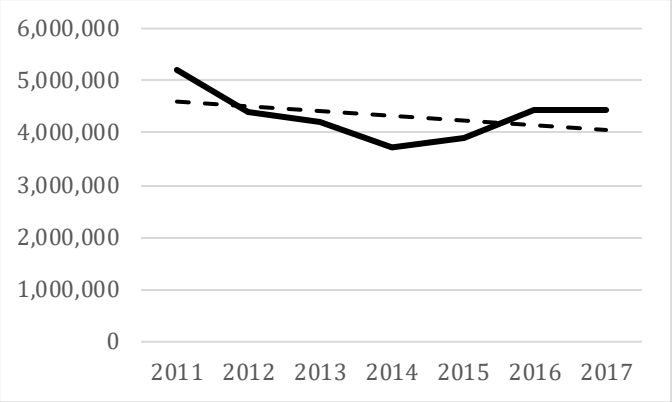


Figure 22 Rest of Nova Scotia Outbound Commodity Shipments

From 2011-2017 the Rest of Nova Scotia shipped an average of 4,328,352 Mt. to ALL jurisdictions as noted in Table 50 below. As indicated in Figure 22 above overall freight shipments are trending downward from a high of over 5M Mt in 2011 to just over 4M Mt. in 2017. Table 50 provides the points of origin and freight volumes from 2011 to 2017 and the averages.

Outbound from the Rest of Nova Scotia to All Jurisdictions 2011-2017

	2011	2012	2013	2014	2015	2016	2017	MT Average	%	Ranking
Rest of NS	2,835,332	1,747,416	2,238,381	1,783,976	1,787,407	2,137,577	2,266,512	**2,113,800**	49%	1
Halifax	522,711	479,756	570,523	531,795	472,889	1,133,253	608,778	**617,101**	14%	2
New Brunswick	771,161	855,924	228,114	366,952	531,572	266,710	351,242	**481,668**	11%	3
USA & Mexico	417,392	459,613	457,222	309,455	396,094	373,812	667,479	**440,152**	10%	4
Newfoundland	267,995	208,329	141,330	138,106	173,809	117,294	181,028	**175,413**	4%	5
Toronto	72,053	125,402	95,034	170,101	118,444	189,215	90,800	**123,007**	3%	6
Prince Edward Island	60,094	136,501	195,194	44,979	95,093	83,560	46,305	**94,532**	2%	7
Montreal	92,168	76,073	91,901	86,822	122,057	30,165	98,213	**85,343**	2%	8
Rest of Ontario	91,134	116,664	51,713	78,060	63,516	43,557	59,333	**71,997**	2%	9
Rest of Quebec	43,043	88,086	76,436	78,402	59,457	25,792	31,955	**57,596**	1%	10
Quebec City	8,381	47,160	40,539	80,088	10,205	16,506	6,048	**29,847**	1%	11
Hamilton	10,405	7,234	11,134	19,621	31,559	8,428	4,756	**13,305**	0%	12
Calgary	1,378	3,801	4,134	9,994	4,378	6,085	3,488	**4,751**	0%	13
Vancouver	1,893	7,319	5,083	4,701	4,070	4,689	4,755	**4,644**	0%	14
Oshawa	2,166	20,066	847	1,486	129	3,244	509	**4,064**	0%	15
Rest of Alberta	223	3,342	614	11,366	3,618	74	83	**2,760**	0%	16
Edmonton	1,945	1,685	2,629	2,090	3,249	4,955	1,337	**2,556**	0%	17
Rest of Manitoba	2,637	65	946	609	531	78	5,266	**1,447**	0%	18
Winnipeg	3,299	2,174	94	1,667	1,671	362	483	**1,393**	0%	19
Windsor	4	87	45	1,438	1,975	28	3,943	**1,074**	0%	20
Saskatoon	52	276	2,729	114	357	1,686	532	**821**	0%	21
Rest of British Columbia	1,627	480	2,145	172	597	258	238	**788**	0%	22
Rest of Saskatchewan	32	59	138	183	894	389	51	**249**	0%	23
NWT	5	164	4	9	17	22	14	**34**	0%	24
Yukon	14	17	1	1	24	-	3	**9**	0%	25
Nunavut	-	3	3	-	1	-	-	**1**	0%	26
Grand total	**5,207,144**	**4,387,696**	**4,216,933**	**3,722,187**	**3,883,613**	**4,447,739**	**4,433,151**	**4,328,352**	100%	

Table 48 Outbound from Rest of NS to ALL Jurisdictions

Rest of Nova Scotia Outbound to ALL Destinations Truck/Rail Equivalents and Average Annual Daily Traffic

	7-year average	% of total	Rank	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Rest of NS	2,113,800	49%	1	70,460	193	23,487
Halifax	617,101	14%	2	20,570	56	6,857
New Brunswick	481,668	11%	3	16,056	44	5,352
USA & Mexico	440,152	10%	4	14,672	40	4,891
Newfoundland	175,413	4%	5	5,847	16	1,949
Toronto	123,007	3%	6	4,100	11	1,367
Prince Edward Island	94,532	2%	7	3,151	9	1,050
Montreal	85,343	2%	8	2,845	8	948
Rest of Ontario	71,997	2%	9	2,400	7	800
Rest of Quebec	57,596	1%	10	1,920	5	640
Quebec City	29,847	1%	11	995	3	332
Hamilton	13,305	0%	12	444	1	148
Calgary	4,751	0%	13	158	0	53
Vancouver	4,644	0%	14	155	0	52
Oshawa	4,064	0%	15	135	0	45
Rest of Alberta	2,760	0%	16	92	0	31
Edmonton	2,556	0%	17	85	0	28
Rest of Manitoba	1,447	0%	18	48	0	16
Winnipeg	1,393	0%	19	46	0	15
Windsor	1,074	0%	20	36	0	12
Saskatoon	821	0%	21	27	0	9
Rest of British Columbia	788	0%	22	26	0	9
Rest of Saskatchewan	249	0%	23	8	0	3
NWT	34	0%	24	1	0	0
Yukon	9	0%	25	0	0	0
Nunavut	1	0%	26	0	0	0
Grand total	**4,328,352**	**100%**		**144,278**	**395**	**48,093**

Table 49 Truck & Railcar Equivalents & Truck AADT at 100%

Rest of Nova Scotia Outbound to Halifax

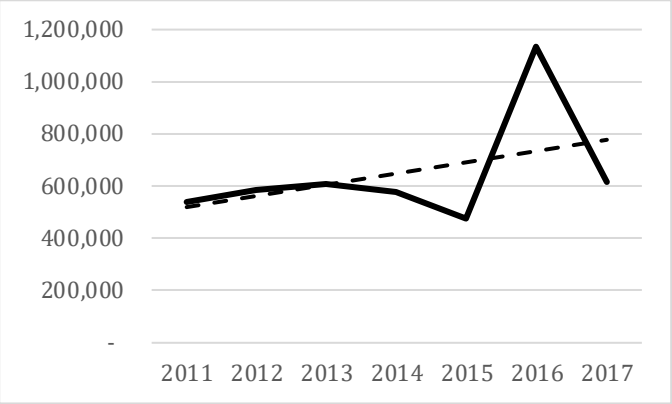


Figure 23 Outbound to Halifax from Rest of Nova Scotia

Halifax was the largest destination for outbound truck shipments from the Rest of Nova Scotia during this period, averaging 14% of overall freight deliveries by truck for a total of 648,799 Mt. Table 52 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 23 above freight volumes to Halifax are trending upward. In 2016 there were exceptional volumes shipped in Food, Forest Products and Minerals.

2011-2017 Average Outbound from the Rest of Nova Scotia to Halifax									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	7,752	3,533	37,907	9,781	3,684	2,291	14,716	11,381	1.8%
Automobiles and other transportation equipment [36, 37]	329	344	1,354	175	309	432	4,533	1,068	0.2%
Base metals and articles of base metals [31, 32, 33]	59,300	83,610	74,567	54,899	42,083	18,261	66,425	57,021	8.8%
Food [05, 06, 07, 08, 09]	96,931	69,044	103,999	81,200	124,522	148,591	104,832	104,160	16.1%
Forest products [25, 26, 27, 28, 29]	227,060	219,281	243,727	105,223	218,597	341,769	78,153	204,830	31.6%
Fuel oils and crude petroleum [16, 17, 18, 19]	1,965	432	120	0	0	3,888	1	915	0.1%
Minerals [10, 11, 12, 13, 14]	28,898	19,895	45,915	241,598	20,050	569,996	319,651	178,000	27.4%
Miscellaneous products [42]	17,228	102,547	39,990	48,886	2,978	1,280	8,977	31,698	4.9%
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,367	9,697	14,406	6,455	11,193	17,925	7,433	10,211	1.6%
Plastic and chemical products [20, 21, 22, 23, 24]	76,119	62,497	35,695	17,267	38,981	3,052	5,771	34,197	5.3%
Waste and scrap [41]	19,990	11,422	12,832	15,197	13,471	27,048	7,263	15,318	2.4%
Grand Total	**539,940**	**582,303**	**610,513**	**580,682**	**475,868**	**1,134,533**	**617,755**	**648,799**	**1**

Table 50 Outbound Commodities and Volumes from Rest of Nova Scotia to Halifax

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Halifax

The average outbound freight volume to Halifax was 648,799 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 21,627 trucks or 7,209 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from the Rest of Nova Scotia to Halifax Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	**Mt Average**	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	11,381	379	1.0	126
Automobiles and other transportation equipment [36, 37]	1,068	36	0.1	12
Base metals and articles of base metals [31, 32, 33]	57,021	1,901	5.2	634
Food [05, 06, 07, 08, 09]	104,160	3,472	9.5	1,157
Forest products [25, 26, 27, 28, 29]	204,830	6,828	18.7	2,276
Fuel oils and crude petroleum [16, 17, 18, 19]	915	31	0.1	10
Minerals [10, 11, 12, 13, 14]	178,000	5,933	16.3	1,978
Miscellaneous products [42]	31,698	1,057	2.9	352
Other manufactured goods [30, 34, 35, 38, 39, 40]	10,211	340	0.9	113
Plastic and chemical products [20, 21, 22, 23, 24]	34,197	1,140	3.1	380
Waste and scrap [41]	15,318	511	1.4	170
Grand Total	**648,799**	**21,627**	**59**	**7,209**

Table 51 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Rest of Nova Scotia Outbound to New Brunswick

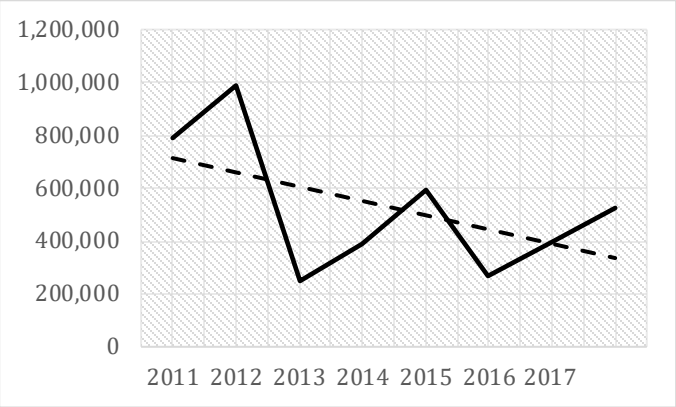


Figure 24 Outbound from Rest of Nova Scotia to New Brunswick

New Brunswick was the second largest destination for outbound truck shipments from the Rest of Nova Scotia during this period, averaging 11% of overall freight deliveries by truck for a total of 524,757 Mt. Table 54 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 24 above freight volumes to Halifax are trending downward with considerable year over year fluctuations led by changes in freight volumes for Food and Agricultural Products.

2011-2017 Average Outbound from the Rest of Nova Scotia to New Brunswick

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	352,485	305,683	43,253	144,492	192,735	100,534	19,890	165,582	32%
Automobiles and other transportation equipment [36, 37]	2,722	2,039	1,015	1,794	1,476	1,082	1,257	1,626	0.3%
Base metals and articles of base metals [31, 32, 33]	21,850	25,041	44,811	41,630	79,139	2,227	69,900	40,657	8%
Food [05, 06, 07, 08, 09]	304,610	370,833	24,708	76,068	115,546	35,492	105,010	147,467	28%
Forest products [25, 26, 27, 28, 29]	74,369	126,448	55,017	67,036	115,820	82,929	107,212	89,833	17%
Fuel oils and crude petroleum [16,17,18,19]	831	1,115	492	37	3	1	2	354	0.1%
Minerals [10,11,12,13,14]	7,974	10,428	6,733	2,448	7,911	18,771	22,088	10,907	2.1%
Miscellaneous products [42]	16,580	132,499	20,944	24,269	59,232	2,165	45,933	43,089	8.2%
Other manufactured goods [30,34,35,38,39,40]	4,980	6,285	5,452	5,437	12,672	16,170	12,817	9,116	1.7%
Plastic and chemical products [20,21,22,23,24]	919	2,591	15,774	6,831	4,261	8,977	2,732	6,012	1.1%
Waste and scrap [41]	420	5,460	30,858	21,178	2,011	526	10,333	10,112	1.9%
Grand Total	**787,741**	**988,423**	**249,058**	**391,221**	**590,805**	**268,876**	**397,175**	**524,757**	**1**

Table 52 Outbound Commodities and Volumes from the Rest of Nova Scotia to New Brunswick

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for New Brunswick

The average outbound freight volume to the USA & Mexico was 524,757 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 15,601 trucks or 5,200 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from the Rest of Nova Scotia to New Brunswick Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	**Mt Average**	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	162,741	5,425	14.9	1,808
Automobiles and other transportation equipment [36, 37]	1,448	48	0.1	16
Base metals and articles of base metals [31, 32, 33]	30,672	1,022	2.8	341
Food [05, 06, 07, 08, 09]	132,466	4,416	12.1	1,472
Forest products [25, 26, 27, 28, 29]	74,518	2,484	6.8	828
Fuel oils and crude petroleum [16, 17, 18, 19]	355	12	0.0	4
Minerals [10, 11, 12, 13, 14]	7,753	258	0.7	86
Miscellaneous products [42]	36,528	1,218	3.3	406
Other manufactured goods [30, 34, 35, 38, 39, 40]	7,286	243	0.7	81
Plastic and chemical products [20, 21, 22, 23, 24]	5,623	187	0.5	62
Waste and scrap [41]	8,637	288	0.8	96
Grand Total	**468,027**	**15,601**	**42.7**	**5,200**

Table 53 Truck & Railcar Equivalents & Truck AADT AT 100%

Rest of Nova Scotia Outbound to United States and Mexico

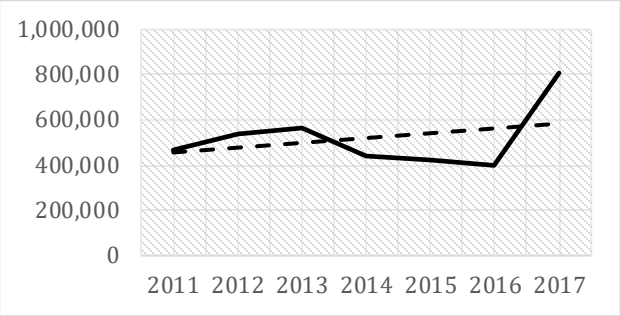


Figure 25 Outbound to USA & Mexico

The USA & Mexico were the third largest destination for outbound truck shipments from the Rest of Nova Scotia during this period, averaging 11% of overall freight deliveries by truck for a total of 520,158 Mt. Table 56 below provides the commodity mix and volumes from 2011 to 2017 and the averages. . As indicated in Figure 25 above freight volumes to USA & Mexico appear to be trending upward led by a sharp increase in Plastic & chemical products after a period of moderate decline.

2011-2017 Average Outbound from the Rest of Nova Scotia to United States & Mexico

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	12,294	16,067	18,738	29,365	26,370	13,013	5,986	**17,405**	3.3%
Automobiles and other transportation equipment [36, 37]	632	393	74	2,395	1,063	343	405	**758**	0.0%
Base metals and articles of base metals [31, 32, 33]	2,952	30,514	78,233	56,671	27,811	74,351	18,302	**41,262**	8.0%
Food [05, 06, 07, 08, 09]	75,610	101,594	70,957	86,511	95,213	32,877	118,001	**82,966**	16.0%
Forest products [25, 26, 27, 28, 29]	59,821	60,249	149,182	45,477	64,863	113,616	138,636	**90,263**	17.0%
Fuel oils and crude petroleum [16, 17, 18, 19]								**0**	
Minerals [10, 11, 12, 13, 14]	2,140	2,782	3,053	1,255	14,774	1,794	2	**3,686**	1.0%
Miscellaneous products [42]	51,228	78,539	106,258	134,848	24,137	25,220	140,310	**80,077**	15.0%
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,229	16,259	8,967	2,605	4,046	3,904	2,162	**6,025**	1.0%
Plastic and chemical products [20, 21, 22, 23, 24]	259,563	231,569	126,964	75,229	161,211	133,316	383,968	**195,974**	38.0%
Waste and scrap [41]	151	186	938	9,925	383	596	12	**1,742**	0.0%
Grand Total	**468,620**	**538,151**	**563,364**	**444,281**	**419,871**	**399,031**	**807,784**	**520,158**	**1**

Table 54 Outbound Commodities and Volumes from Rest of Nova Scotia to USA & Mexico

Rest of Nova Scotia Outbound to Newfoundland & Labrador

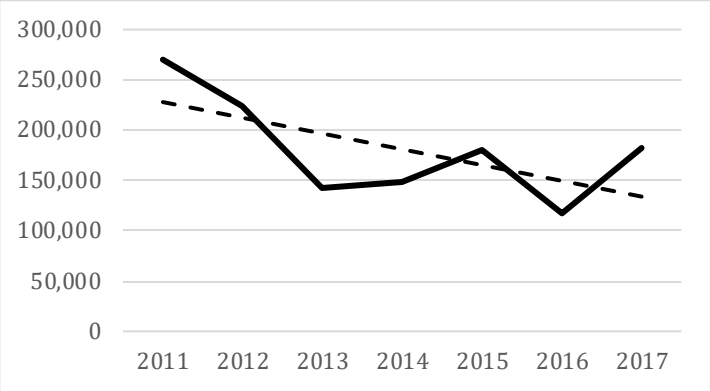


Figure 26 Outbound to Nfld from Rest of NS

Newfoundland was the fourth largest destination for outbound truck shipments from the Rest of Nova Scotia during this period, averaging 4% of overall freight deliveries by truck for a total of 180,939 Mt. Table 58 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 26 above freight volumes to Halifax are trending downward with over year fluctuations led by changes in freight volumes for Base metals, and Forestry products.

2011-2017 Average Outbound from the Rest of Nova Scotia to Newfoundland

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	64,461	10,530	13,754	17,621	19,763	6,103	17,356	21,369	12%
Automobiles and other transportation equipment [36, 37]	1,809	1,337	178	100	107	57	5,240	1,261	1%
Base metals and articles of base metals [31, 32, 33]	115,272	19,211	44,128	19,797	23,929	27,736	64,915	44,998	25%
Food [05, 06, 07, 08, 09]	67,249	125,441	50,291	38,914	40,766	11,826	47,575	54,580	30%
Forest products [25, 26, 27, 28, 29]	2,058	24,928	12,070	32,581	69,269	51,507	36,326	32,677	18%
Fuel oils and crude petroleum [16, 17, 18, 19]	7,956	4,911	3,236	4,750	447	0	289	3,084	2%
Minerals [10, 11, 12, 13, 14]	3,295	4,390	3,824	3,809	3,284	3,502	1,994	3,443	2%
Miscellaneous products [42]	2,114	16,694	1,206	10,009	6,592	20	2,044	5,526	3%
Other manufactured goods [30, 34, 35, 38, 39, 40]	3,223	7,472	4,586	18,047	12,722	13,829	6,813	9,527	5%
Plastic and chemical products [20, 21, 22, 23, 24]	2,670	10,078	7,051	2,490	3,521	2,731	520	4,152	2%
Waste and scrap [41]	1	30	2,213	0	1	2	0	321	0%
Grand Total	270,109	225,023	142,536	148,115	180,402	117,314	183,071	180,939	1

Table 55 Outbound to Newfoundland from Rest of NS

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Newfoundland

The average outbound freight volume to Newfoundland was 180,939 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 6,031 trucks or 2,010 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from the Rest of Nova Scotia to Nfld Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	21,369	712	2	237
Automobiles and other transportation equipment [36, 37]	1,261	42	0	14
Base metals and articles of base metals [31, 32, 33]	44,998	1500	4	500
Food [05, 06, 07, 08, 09]	54,580	1819	5	606
Forest products [25, 26, 27, 28, 29]	32,677	1089	3	363
Fuel oils and crude petroleum [16, 17, 18, 19]	3,084	103	0	34
Minerals [10, 11, 12, 13, 14]	3,443	115	0	38
Miscellaneous products [42]	5,526	184	1	61
Other manufactured goods [30, 34, 35, 38, 39, 40]	9,527	318	1	106
Plastic and chemical products [20, 21, 22, 23, 24]	4,152	138	0	46
Waste and scrap [41]	321	11	0	4
Grand Total	**180,939**	**6,031**	**17**	**2,010**

Table 56 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Rest of Nova Scotia Outbound to Toronto

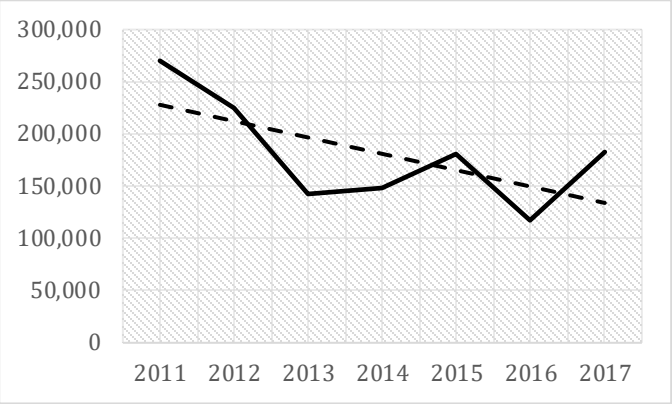


Figure 27 Outbound to Toronto

Toronto was the fifth largest destination for outbound truck shipments from the Rest of Nova Scotia during this period, averaging 3% of overall freight deliveries by truck for a total of 180,939 Mt. Table 60 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 27 above freight volumes to Halifax are trending downward with considerable year over year fluctuations led by changes in freight volumes for Base metals, and Forestry products.

2011-2017 Average Outbound from the Rest of Nova Scotia to Toronto									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	64,461	10,530	13,754	17,621	19,763	6,103	17,356	21,370	12%
Automobiles and other transportation equipment [36, 37]	1,809	1,337	178	100	107	57	5,240	1,261	1%
Base metals and articles of base metals [31, 32, 33]	115,272	19,211	44,128	19,797	23,929	27,736	64,915	44,998	25%
Food [05, 06, 07, 08, 09]	67,249	125,441	50,291	38,914	40,766	11,826	47,575	54,580	30%
Forest products [25, 26, 27, 28, 29]	2,058	24,928	12,070	32,581	69,269	51,507	36,326	32,677	18%
Fuel oils and crude petroleum [16, 17, 18, 19]	7,956	4,911	3,236	4,750	447	0	289	3,084	2%
Minerals [10, 11, 12, 13, 14]	3,295	4,390	3,824	3,809	3,284	3,502	1,994	3,443	2%
Miscellaneous products [42]	2,114	16,694	1,206	10,009	6,592	20	2,044	5,526	3%
Other manufactured goods [30, 34, 35, 38, 39, 40]	3,223	7,472	4,586	18,047	12,722	13,829	6,813	9,527	5%
Plastic and chemical products [20, 21, 22, 23, 24]	2,670	10,078	7,051	2,490	3,521	2,731	520	4,152	2%
Waste and scrap [41]	1	30	2,213	0	1	2	0	321	0%
Grand Total	**270,108**	**225,022**	**142,537**	**148,118**	**180,401**	**117,313**	**183,072**	**180,939**	**1**

Table 57 Rest of Nova Scotia Outbound to Toronto

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Toronto

The average outbound freight volume to Toronto was 180,939 Mt. Using an average load weight of 30 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 3,809 trucks or 1,270 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from the Rest of Nova Scotia to Toronto Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	**Mt Average**	**%**	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	1,820	2%	61	0	20
Automobiles and other transportation equipment [36, 37]	610	1%	20	0	7
Base metals and articles of base metals [31, 32, 33]	2,808	3%	94	0	31
Food [05, 06, 07, 08, 09]	48,815	46%	1,627	4	542
Forest products [25, 26, 27, 28, 29]	11,236	11%	375	1	125
Fuel oils and crude petroleum [16, 17, 18, 19]	16	0%	1	0	0
Minerals [10, 11, 12, 13, 14]	13,233	12%	441	1	147
Miscellaneous products [42]	21,420	20%	714	2	238
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,101	4%	137	0	46
Plastic and chemical products [20, 21, 22, 23, 24]	7,285	7%	243	1	81
Waste and scrap [41]	2,911	3%	97	0	32
Grand Total	**114,255**	**1**	**3,809**	**10**	**1,270**

Table 58 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Rest of Nova Scotia Outbound to Montreal

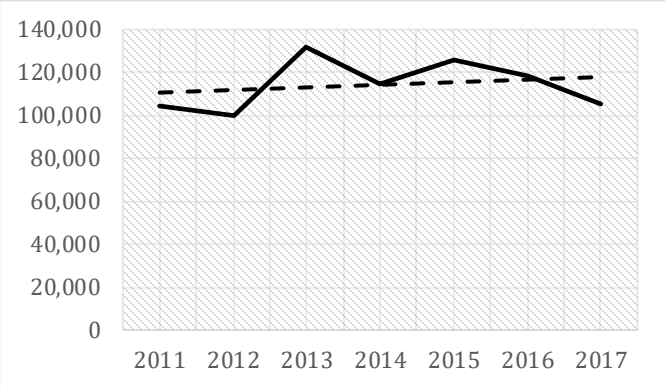


Figure 28 Outbound from Montreal

Montreal was the destination for an average of 2% of overall freight deliveries by truck for a total of 106,762 Mt. As indicated in Figure 28 above freight volumes to Montreal appear to be trending downward with moderate fluctuations led by changes in Food volumes. A breakdown by year and commodity group can be found in Table 62 below.

2011-2017 Average Outbound from the Rest of Nova Scotia to Montreal

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	1,341	2,214	2,180	3,470	1,774	1,701	60	1,820	2%
Automobiles and other transportation equipment [36, 37]	652	1,172	179	46	1,230	616	378	610	1%
Base metals and articles of base metals [31, 32, 33]	3,115	281	2,185	2,078	3,330	2,512	6,154	2,808	3%
Food [05, 06, 07, 08, 09]	54,193	25,434	36,653	45,571	54,907	5,828	66,668	41,322	39%
Forest products [25, 26, 27, 28, 29]	16,210	15,007	4,369	15,629	24,622	2,079	738	11,236	11%
Fuel oils and crude petroleum [16, 17, 18, 19]	82	0	0	0	0	4	28	16	0%
Minerals [10, 11, 12, 13, 14]	6,489	16,569	31,869	15,142	9,795	2,872	9,893	13,233	12%
Miscellaneous products [42]	11,960	23,819	39,944	27,831	3,633	36,005	6,746	21,420	20%
Other manufactured goods [30, 34, 35, 38, 39, 40]	2,051	9,243	4,427	2,912	5,907	1,025	3,141	4,101	4%
Plastic and chemical products [20, 21, 22, 23, 24]	7,895	3,733	3,231	1,872	9,609	13,513	11,144	7,285	7%
Waste and scrap [41]	141	2,419	6,808	101	10,884	15	11	2,911	3%
Grand Total	**104,128**	**99,892**	**131,845**	**114,653**	**125,690**	**66,170**	**104,959**	**106,762**	**1**

Table 59 Outbound Commodities and Volumes from Rest of Nova Scotia to Montreal

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Montreal

The average outbound freight volume to Montreal was 114,255 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 3,809 trucks or 1,270 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from the Rest of Nova Scotia to Montreal Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	**Mt Average**	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	1,820	61	0	20
Automobiles and other transportation equipment [36, 37]	610	20	0	7
Base metals and articles of base metals [31, 32, 33]	2,808	94	0	31
Food [05, 06, 07, 08, 09]	48,815	1,627	4	542
Forest products [25, 26, 27, 28, 29]	11,236	375	1	125
Fuel oils and crude petroleum [16, 17, 18, 19]	16	1	0	0
Minerals [10, 11, 12, 13, 14]	13,233	441	1	147
Miscellaneous products [42]	21,420	714	2	238
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,101	137	0	46
Plastic and chemical products [20, 21, 22, 23, 24]	7,285	243	1	81
Waste and scrap [41]	2,911	97	0	32
Grand Total	**114,255**	**3,809**	**10**	**1,270**

Table 60 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound Commodity Mix 2011-2017

Destination of ALL Outbound Commodities from Halifax

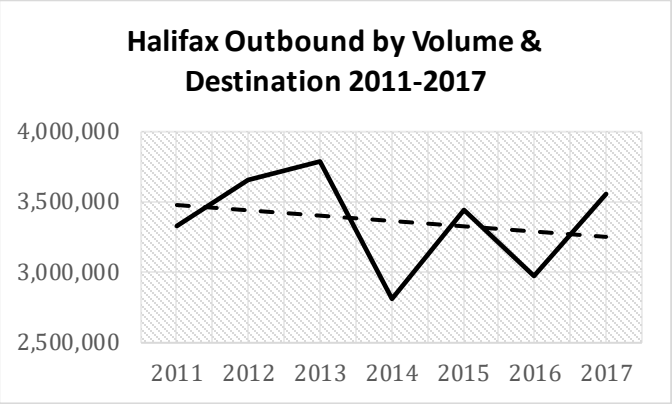


Figure 29 Halifax Outbound to ALL Jurisdictions

Outbound from Halifax to All Jurisdictions 2011-2017									
DESTINATION	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Mt Average**	**%**

Halifax, Nova Scotia, destination of shipments	1,337,543	1,226,311	1,310,885	887,011	1,216,842	1,074,612	1,709,510	1,251,816	37%
Rest of Nova Scotia, destination of shipments	1,128,002	1,424,003	1,363,823	979,978	902,498	841,589	679,787	1,045,669	31%
New Brunswick, destination of shipments	435,145	478,327	527,125	386,524	388,031	289,986	256,720	394,551	12%
Toronto, Ontario, destination of shipments	45,473	51,541	90,248	47,171	380,635	383,242	398,424	199,533	6%
Newfoundland and Labrador, destination of shipments	75,254	133,426	71,152	111,224	80,614	73,837	56,799	86,044	3%
United States and Mexico, destination of shipments	35,011	63,043	151,779	92,102	58,956	44,666	109,066	79,232	2%
Rest of Ontario, destination of shipments	23,691	51,226	23,184	38,225	115,185	118,708	153,758	74,854	2%
Montréal, Quebec, destination of shipments	59,239	97,121	87,613	89,431	52,048	23,007	51,064	65,646	2%
Rest of Quebec, destination of shipments	64,451	36,349	57,459	83,599	120,642	27,527	24,272	59,186	2%
Prince Edward Island, destination of shipments	92,285	33,129	55,343	70,052	64,598	11,933	54,255	54,514	2%
Hamilton, Ontario, destination of shipments	19,006	18,062	24,479	3,159	15,376	17,911	14,731	16,104	0%
Oshawa, Ontario, destination of shipments	168	457	563	118	34,564	37,095	34,700	15,381	0%
Québec, Quebec, destination of shipments	3,106	18,719	14,002	1,793	6,858	2,261	2,264	7,000	0%
Edmonton, Alberta, destination of shipments	9,981	16,355	4,849	9,132	2,320	272	2,094	6,429	0%
Vancouver, British Columbia, destination of shipments	515	362	241	2,391	1,355	13,186	184	2,605	0%
Rest of British Columbia, destination of shipments	989	4,298	2,572	2,832	1,827	2,889	1,652	2,437	0%
Rest of Alberta, destination of shipments	158	992	1,142	5,607	1,349	1,658	1,195	1,729	0%
Calgary, Alberta, destination of shipments	751	1,443	837	1,425	1,262	1,727	703	1,164	0%
Winnipeg, Manitoba, destination of shipments	1,153	609	157	312	1,763	632	392	717	0%
Rest of Saskatchewan, destination of shipments	186	75	139	39	1,938	332	626	476	0%
Windsor, Ontario, destination of shipments	24	81	431	29	616	548	386	302	0%
Saskatoon, Saskatchewan, destination of shipments	49	673	609	176	140	28	132	258	0%
Rest of Manitoba, destination of shipments	18	213	39	19	660	32	95	154	0%
Yukon, destination of shipments	23	207	0	13	4	4	0	36	0%
Northwest Territories, destination of shipments	15	19	11	18	43	12	22	20	0%
Nunavut, destination of shipments	0	1	24	1	0	0	0	4	0%
Grand Total	**3,332,234**	**3,657,043**	**3,788,705**	**2,812,382**	**3,450,126**	**2,967,692**	**3,552,834**	**3,365,859**	**100%**

Table 61 Outbound Commodities and Volumes Shipped from Halifax to Various Specified Destinations

Rest of Nova Scotia Outbound to ALL Destinations Truck/Rail Equivalents and Average Annual Daily Traffic

ORIGIN	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt

Halifax, Nova Scotia, destination of shipments	1,251,816	41,727	114	13,909
Rest of Nova Scotia, destination of shipments	1,045,669	34,856	95	11,619
New Brunswick, destination of shipments	394,551	13,152	36	4,384
Toronto, Ontario, destination of shipments	199,533	6,651	18	2,217
Newfoundland and Labrador, destination of shipments	86,044	2,868	8	956
United States and Mexico, destination of shipments	79,232	2,641	7	880
Rest of Ontario, destination of shipments	74,854	2,495	7	832
Montréal, Quebec, destination of shipments	65,646	2,188	6	729
Rest of Quebec, destination of shipments	59,186	1,973	5	658
Prince Edward Island, destination of shipments	54,514	1,817	5	606
Hamilton, Ontario, destination of shipments	16,103	537	1	179
Oshawa, Ontario, destination of shipments	15,381	513	1	171
Québec, Quebec, destination of shipments	7,000	233	1	78
Edmonton, Alberta, destination of shipments	6,429	214	1	71
Vancouver, British Columbia, destination of shipments	2,605	87	0	29
Rest of British Columbia, destination of shipments	2,437	81	0	27
Rest of Alberta, destination of shipments	1,729	58	0	19
Calgary, Alberta, destination of shipments	1,164	39	0	13
Winnipeg, Manitoba, destination of shipments	717	24	0	8
Rest of Saskatchewan, destination of shipments	476	16	0	5
Windsor, Ontario, destination of shipments	302	10	0	3
Saskatoon, Saskatchewan, destination of shipments	258	9	0	3
Rest of Manitoba, destination of shipments	154	5	0	2
Yukon, destination of shipments	36	1	0	0
Northwest Territories, destination of shipments	20	1	0	0
Nunavut, destination of shipments	4	0	0	0
Totals	**3,365,859**	**166,931**	**457**	**55,644**

Table 62 Truck & Railcar Equivalents & Truck AADT at 100%

Halifax Outbound to Halifax

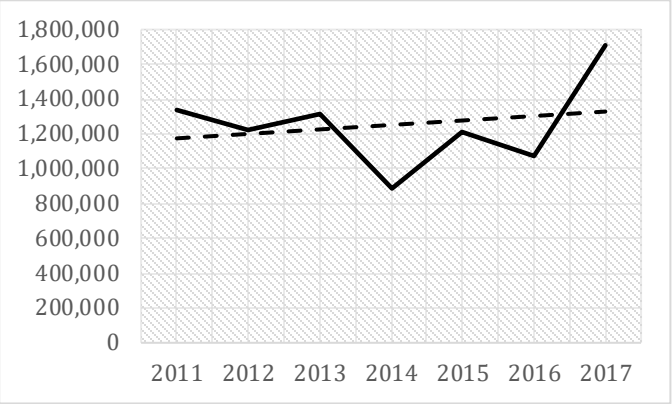


Figure 30 Outbound Halifax to Halifax

Halifax was the largest destination for outbound truck shipments from Halifax, averaging 37% of overall freight deliveries by truck for an average of 1,251,816 Mt. Table 66 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 30 above freight volumes are trending upward with year over year fluctuations led by changes in several commodity groups.

2011-2017 Average Outbound from Halifax to Halifax									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	**Mt Average**	**%**
Agricultural products [01, 02, 03, 04]	10,305	42,945	1,101	16,204	5,370	500	761	11,027	0.9%
Automobiles and other transportation equipment [36, 37]	35,084	3,328	20,355	17,407	19,610	27,564	76,766	28,588	2.3%
Base metals and articles of base metals [31, 32, 33]	94,623	105,941	145,126	60,947	64,207	182,234	26,741	97,117	7.8%
Food [05, 06, 07, 08, 09]	165,340	172,462	209,926	158,465	328,562	161,436	303,509	214,243	17.1%
Forest products [25, 26, 27, 28, 29]	207,067	102,860	137,680	83,358	221,144	99,820	40,035	127,424	10.2%
Fuel oils and crude petroleum [16, 17, 18, 19]	402,277	396,904	273,038	90,506	136,989	372,647	776,555	349,845	27.9%
Minerals [10, 11, 12, 13, 14]	205,713	7,593	18,801	4,980	1,785	37,670	203,419	68,566	5.5%
Miscellaneous products [42]	92,735	208,700	185,646	243,469	8,215	76,347	129,434	134,935	10.8%
Other manufactured goods [30, 34, 35, 38, 39, 40]	47,421	65,066	108,827	20,690	55,814	49,809	58,586	58,030	4.6%
Plastic and chemical products [20, 21, 22, 23, 24]	55,807	105,277	188,810	119,794	97,333	35,286	92,396	99,243	7.9%
Waste and scrap [41]	21,170	15,235	21,574	71,191	277,814	31,300	1,308	62,799	5.0%
Grand Total	**1,337,543**	**1,226,311**	**1,310,885**	**887,011**	**1,216,842**	**1,074,612**	**1,709,510**	**1,251,816**	**1**

Table 63 Outbound Commodities and Volumes Shipped from Halifax to Halifax

Modal Equivalents & Average Annual Daily Traffic (AADT) Commodity Shipments Destined for Halifax

The average outbound freight volume from Halifax to Halifax was 1,251,816 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 41,727 trucks or 13,909 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax-to-Halifax Truck & Railcar Equivalents & Truck AADT AT 100%

COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	11,027	368	1	123
Automobiles and other transportation equipment [36, 37]	28,588	953	3	318
Base metals and articles of base metals [31, 32, 33]	97,117	3237	9	1079
Food [05, 06, 07, 08, 09]	214,243	7141	20	2380
Forest products [25, 26, 27, 28, 29]	127,424	4247	12	1416
Fuel oils and crude petroleum [16, 17, 18, 19]	349,845	11662	32	3887
Minerals [10, 11, 12, 13, 14]	68,566	2286	6	762
Miscellaneous products [42]	134,935	4498	12	1499
Other manufactured goods [30, 34, 35, 38, 39, 40]	58,030	1934	5	645
Plastic and chemical products [20, 21, 22, 23, 24]	99,243	3308	9	1103
Waste and scrap [41]	62,799	2093	6	698
Grand Total	**1,251,816**	**41,727**	**114**	**13,909**

Table 64 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to to Rest of Nova Scotia

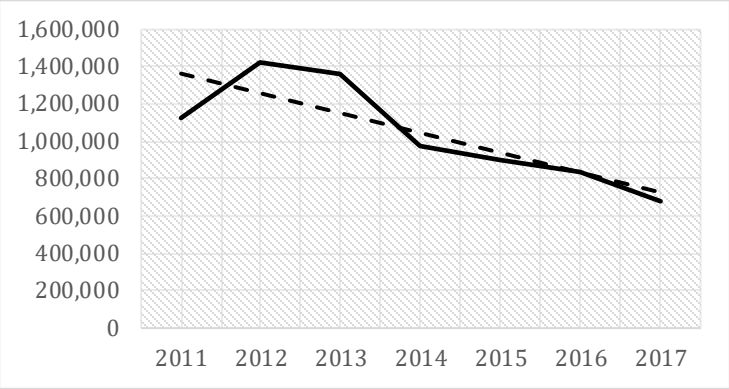


Figure 31 Outbound from Halifax to Rest of NS

The Rest of Nova Scotia was the second largest destination for outbound truck shipments from Halifax, averaging 31% of overall freight deliveries by truck for an average of 1,045,669 Mt. Table 68 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 31 above freight volumes were trending downward for 6 of the past 7 years led by a decline in the Fuel oils and crude petroleum products commodity group.

2011-2017 Average Outbound from Halifax to Rest of Nova Scotia									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	2,733	30,118	40,811	15,824	35,870	6,734	7,995	20,012	2%
Automobiles and other transportation equipment [36, 37]	18,740	4,729	13,619	10,043	7,941	8,543	68,284	18,843	2%
Base metals and articles of base metals [31, 32, 33]	26,329	89,884	38,877	60,721	54,079	75,857	36,681	54,633	5%
Coal [15]	0	0	0	0	1	0	0	0	0%
Food [05, 06, 07, 08, 09]	139,706	103,212	103,746	128,887	152,208	87,355	142,707	122,546	12%
Forest products [25, 26, 27, 28, 29]	95,404	114,766	401,914	377,527	345,647	330,805	112,035	254,014	24%
Fuel oils and crude petroleum [16, 17, 18, 19]	675,127	895,512	608,544	217,355	160,661	179,927	171,452	415,511	40%
Minerals [10, 11, 12, 13, 14]	1,102	4,662	2,028	5	66	14,265	2,682	3,544	0%
Miscellaneous products [42]	52,544	86,857	52,741	41,293	26,438	108,238	19,705	55,402	5%
Other manufactured goods [30, 34, 35, 38, 39, 40]	24,249	22,912	30,079	34,754	36,338	17,294	12,493	25,445	2%
Plastic and chemical products [20, 21, 22, 23, 24]	68,132	67,037	66,638	77,025	72,992	11,996	105,649	67,067	6%
Waste and scrap [41]	23,935	4,314	4,827	16,543	10,258	574	103	8,651	1%
Grand Total	**1,128,002**	**1,424,003**	**1,363,823**	**979,978**	**902,498**	**841,589**	**679,787**	**1,045,669**	**1**

Table 65 Outbound Commodities and Volumes Shipped from Halifax to Rest of Nova Scotia

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for the Rest of Nova Scotia

The average outbound freight volume from Halifax to the Rest of Nova Scotia was 1,045,669 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 34,856 trucks or 11,619 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to the Rest of Nova Scotia Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	**Mt Average**	**%**	**Truckload Equivalents 30Mt**	**AADT**	**Railcar Equivalents 90 Mt**
Agricultural products [01, 02, 03, 04]	20,012	2%	667	1.8	222
Automobiles and other transportation equipment [36, 37]	18,843	2%	628	1.7	209
Base metals and articles of base metals [31, 32, 33]	54,633	5%	1821	5.0	607
Coal [15]	0	0%	0	0.0	0
Food [05, 06, 07, 08, 09]	122,546	12%	4085	11.2	1362
Forest products [25, 26, 27, 28, 29]	254,014	24%	8467	23.2	2822
Fuel oils and crude petroleum [16, 17, 18, 19]	415,511	40%	13850	37.9	4617
Minerals [10, 11, 12, 13, 14]	3,544	0%	118	0.3	39
Miscellaneous products [42]	55,402	5%	1847	5.1	616
Other manufactured goods [30, 34, 35, 38, 39, 40]	25,445	2%	848	2.3	283
Plastic and chemical products [20, 21, 22, 23, 24]	67,067	6%	2236	6.1	745
Waste and scrap [41]	8,651	1%	288	0.8	96
Grand Total	**1,045,669**	**1**	**34,856**	**95**	**11,619**

Table 66 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to New Brunswick

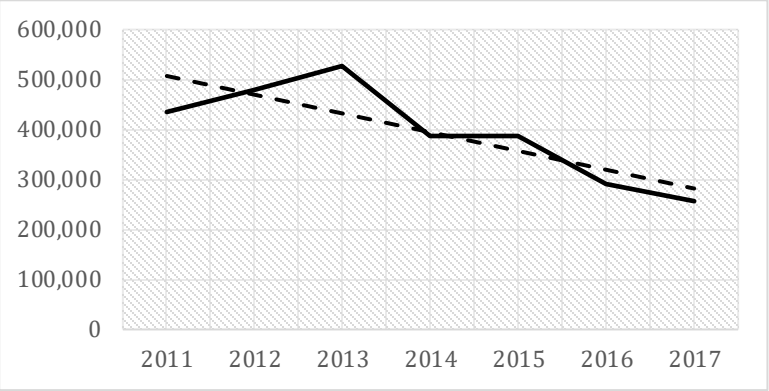


Figure 32 Outbound to New Brunswick

New Brunswick was the third largest destination for outbound truck shipments from Halifax, averaging 12% of overall freight deliveries by truck for an average of 394,551 Mt. Table 70 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 32 above freight volumes appear to have been trending downward for 4 of the 7 years with significant fluctuations in some commodity volumes.

2011-2017 Average Outbound from Halifax to New Brunswick									
COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	426	4,152	9,327	4,158	5,823	502	1,500	3,698	0.9%
Automobiles and other transportation equipment [36, 37]	513	2,745	9,916	8,697	8,333	4,297	10,801	6,472	1.6%
Base metals and articles of base metals [31, 32, 33]	120,471	38,960	48,680	24,518	50,795	23,775	42,840	50,006	12.7%
Food [05, 06, 07, 08, 09]	118,315	109,520	104,783	123,964	113,867	54,726	109,348	104,932	26.6%
Forest products [25, 26, 27, 28, 29]	33,803	24,348	106,869	74,235	57,497	44,748	27,376	52,697	13.4%
Fuel oils and crude petroleum [16, 17, 18, 19]	48,128	147,567	124,542	36	238	33	1,672	46,031	11.7%
Minerals [10, 11, 12, 13, 14]	6,198	18,671	11,734	3,949	4,751	3	5,190	7,214	1.8%
Miscellaneous products [42]	54,701	109,489	75,837	115,527	87,019	126,237	28,552	85,337	21.6%
Other manufactured goods [30, 34, 35, 38, 39, 40]	10,834	8,713	10,752	9,180	23,699	19,622	13,274	13,725	3.5%
Plastic and chemical products [20, 21, 22, 23, 24]	40,799	14,004	14,319	13,080	24,293	14,604	15,305	19,486	4.9%
Waste and scrap [41]	954	157	10,366	9,183	11,716	1,437	863	4,954	1.3%
Grand Total	435,145	478,327	527,125	386,524	388,031	289,986	256,720	394,551	1

Table 67 Outbound Commodities and Volumes Shipped from Halifax to New Brunswick

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for New Brunswick

The average outbound freight volume from Halifax to New Brunswick was 394,551 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 11,152 trucks or 4,384 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to New Brunswick Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	3,698	123	0	41
Automobiles and other transportation equipment [36, 37]	6,472	216	1	72
Base metals and articles of base metals [31, 32, 33]	50,006	1667	5	556
Food [05, 06, 07, 08, 09]	104,932	3498	10	1166
Forest products [25, 26, 27, 28, 29]	52,697	1757	5	586
Fuel oils and crude petroleum [16, 17, 18, 19]	46,031	1534	4	511
Minerals [10, 11, 12, 13, 14]	7,214	240	1	80
Miscellaneous products [42]	85,337	2845	8	948
Other manufactured goods [30, 34, 35, 38, 39, 40]	13,725	457	1	152
Plastic and chemical products [20, 21, 22, 23, 24]	19,486	650	2	217
Waste and scrap [41]	4,954	165	0	55
Grand Total	394,551	13,152	36	4,384

Table 68 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to Toronto

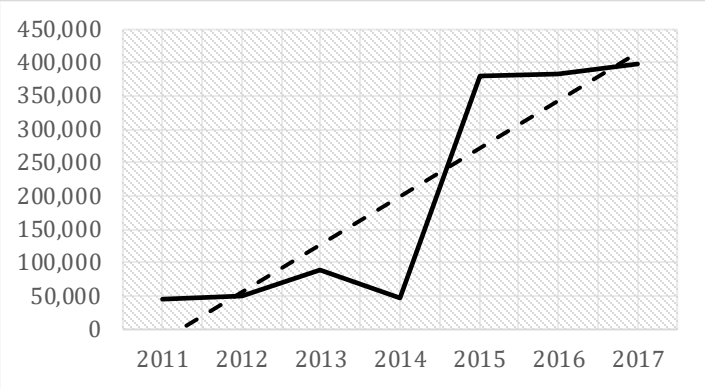


Figure 33 Outbound to Toronto from Halifax

Toronto was the fourth largest destination for outbound truck shipments from Halifax, averaging 6% of overall freight deliveries by truck for an average of 199,533 Mt. Table 60 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 33 above freight volumes appear to have been trending upward for the last 3 of the 7 years, however a review of the underlying data in Table 72 suggests that there has been significant changes in freight volumes in certain commodity groups.

2011-2017 Average Outbound from Halifax to Toronto

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	435	76	32	2	3	8	69	89	0.0%
Automobiles and other transportation equipment [36, 37]	5,552	6,947	4,550	3,567	4,715	14,469	23,194	8999	4.5%
Base metals and articles of base metals [31, 32, 33]	725	5,871	802	1,323	113	689	21,869	4485	2.2%
Food [05, 06, 07, 08, 09]	6,158	16,284	49,574	5,479	5,902	2,592	9,571	13651	6.8%
Forest products [25, 26, 27, 28, 29]	641	410	690	172	1,585	1,262	1,650	916	0.5%
Fuel oils and crude petroleum [16, 17, 18, 19]	11,095	0	0	4,702	321,894	349,662	321,890	144178	72.3%
Minerals [10, 11, 12, 13, 14]	22	1,401	2,796	10,277	9,731	1	1	3461	1.7%
Miscellaneous products [42]	13,885	8,887	24,074	15,584	21,064	3,694	9,245	13776	6.9%
Other manufactured goods [30, 34, 35, 38, 39, 40]	6,536	11,445	5,240	5,878	15,550	10,052	9,840	9220	4.6%
Plastic and chemical products [20, 21, 22, 23, 24]	422	77	135	186	77	814	1,095	401	0.2%
Waste and scrap [41]	1	144	2,356	1	0	0	0	357	0.2%
Grand Total	**45,473**	**51,541**	**90,248**	**47,171**	**380,635**	**383,242**	**398,424**	**199,533**	**1**

Table 69 Outbound Commodities and Volumes Shipped from Halifax to Toronto

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Toronto

The average outbound freight volume from Halifax to Toronto was 193,533 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 6,651 trucks or 2,217 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to Toronto Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	89	3	0.0	1
Automobiles and other transportation equipment [36, 37]	8999	300	0.8	100
Base metals and articles of base metals [31, 32, 33]	4485	149	0.4	50
Food [05, 06, 07, 08, 09]	13651	455	1.2	152
Forest products [25, 26, 27, 28, 29]	916	31	0.1	10
Fuel oils and crude petroleum [16, 17, 18, 19]	144178	4806	13.2	1602
Minerals [10, 11, 12, 13, 14]	3461	115	0.3	38
Miscellaneous products [42]	13776	459	1.3	153
Other manufactured goods [30, 34, 35, 38, 39, 40]	9220	307	0.8	102
Plastic and chemical products [20, 21, 22, 23, 24]	401	13	0.0	4
Waste and scrap [41]	357	12	0.0	4
Grand Total	**199,533**	**6,651**	**18**	**2,217**

Table 70 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to Newfoundland & Labrador

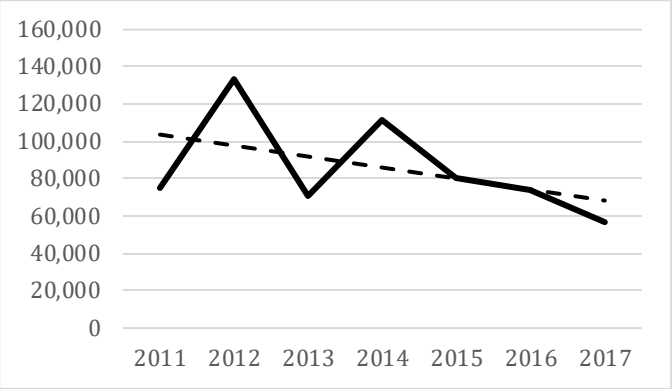


Figure 34 Outbound to Nfld

Newfoundland & Labrador was the fifth largest destination for outbound truck shipments from Halifax, averaging 3% of overall freight deliveries by truck for an average of 86,044 Mt. Table 74 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 34 above freight volumes appear to have been trending downward for the last 3 of the 7 years with considerable year to year fluctuations.

2011-2017 Average Outbound from Halifax to Newfoundland & Labrador

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	2,328	3,480	1,071	108	468	8,665	8,527	3,521	4%
Automobiles and other transportation equipment [36, 37]	9,150	14,115	2,538	2,019	2,724	2,485	804	4,833	6%
Base metals and articles of base metals [31, 32, 33]	6,944	3,367	9,256	5,186	4,767	19,182	14,963	9,095	11%
Food [05, 06, 07, 08, 09]	35,719	66,430	33,932	21,159	35,076	23,146	14,401	32,838	38%
Forest products [25, 26, 27, 28, 29]	8,116	10,164	11,554	38,682	18,164	10,379	935	13,999	16%
Fuel oils and crude petroleum [16, 17, 18, 19]	98	14,795	510	62	12	737	904	2,445	3%
Minerals [10, 11, 12, 13, 14]	9	114	31	2	16	7	1	26	0%
Miscellaneous products [42]	992	15,194	5,778	37,530	4,595	1,021	1,721	9,547	11%
Other manufactured goods [30, 34, 35, 38, 39, 40]	7,979	4,487	6,222	3,967	10,683	3,487	10,698	6,789	8%
Plastic and chemical products [20, 21, 22, 23, 24]	3,894	1,222	260	2,509	4,105	4,726	3,845	2,937	3%
Waste and scrap [41]	25	58	0	0	3	0	1	12	0%
Grand Total	**75,254**	**133,426**	**71,152**	**111,224**	**80,614**	**73,837**	**56,799**	**86,044**	**1**

Table 71 Outbound Commodities and Volumes from Halifax to Newfoundland and Labrador

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for Newfoundland & Labrador

The average outbound freight volume from Halifax to Newfoundland & Labrador was 86,044 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 2,868 trucks or 956 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to Newfoundland Truck & Railcar Equivalents & Truck AADT AT 100%					
COMMODITY	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	3,521	4%	117	0.3	39
Automobiles and other transportation equipment [36, 37]	4,833	6%	161	0.4	54
Base metals and articles of base metals [31, 32, 33]	9,095	11%	303	0.8	101
Food [05, 06, 07, 08, 09]	32,838	38%	1095	3.0	365
Forest products [25, 26, 27, 28, 29]	13,999	16%	467	1.3	156
Fuel oils and crude petroleum [16, 17, 18, 19]	2,445	3%	82	0.2	27
Minerals [10, 11, 12, 13, 14]	26	0%	1	0.0	0
Miscellaneous products [42]	9,547	11%	318	0.9	106
Other manufactured goods [30, 34, 35, 38, 39, 40]	6,789	8%	226	0.6	75
Plastic and chemical products [20, 21, 22, 23, 24]	2,937	3%	98	0.3	33
Waste and scrap [41]	12	0%	0	0.0	0
Grand Total	86,044	1	2868	8	956

Table 72 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to USA &Mexico

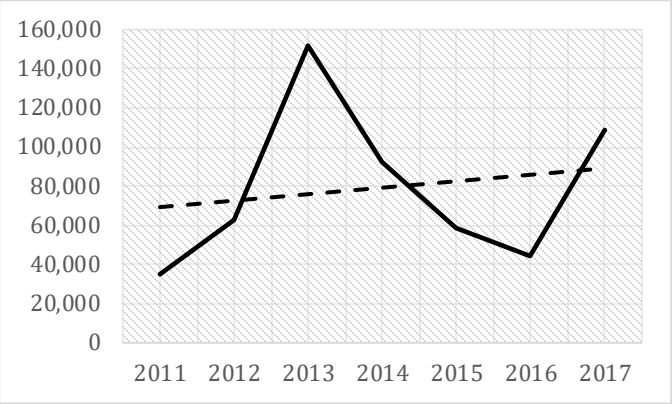


Figure 35 Outbound to USA & Mexico from Halifax

The USA and Mexico were the sixth largest destination for outbound truck shipments from Halifax, averaging 2% of overall freight deliveries by truck for an average of 79,232 Mt. Table 76 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 35 above overall freight volumes appear to have been trending upward however there has been some fluctuations in freight volumes over the period.

2011-2017 Average Outbound from Halifax to USA & Mexico 2011-2017

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	4,988	12,214	6,316	2,265	7,557	19,208	9,722	8,896	11%
Automobiles and other transportation equipment [36, 37]	129	1,046	3,822	41	305	372	17,869	3,369	4%
Base metals and articles of base metals [31, 32, 33]	6,565	1,213	970	810	1,945	679	3,193	2,196	3%
Food [05, 06, 07, 08, 09]	5,588	15,451	13,629	11,498	14,660	13,688	30,159	14,953	19%
Forest products [25, 26, 27, 28, 29]	2,150	495	92,931	47,864	13,178	6,701	2,981	23,757	30%
Fuel oils and crude petroleum [16, 17, 18, 19]	29	5	2	0	17	5	8	9	0%
Minerals [10, 11, 12, 13, 14]	7	2	1	148	103	92	2	51	0%
Miscellaneous products [42]	6,875	26,241	24,623	26,391	10,352	1,048	37,203	18,962	24%
Other manufactured goods [30, 34, 35, 38, 39, 40]	8,199	6,268	5,570	2,988	6,234	519	2,321	4,585	6%
Plastic and chemical products [20, 21, 22, 23, 24]	474	59	92	79	4,604	2,354	5,605	1,895	2%
Waste and scrap [41]	7	52	3,823	20	2	1	3	558	1%
Grand Total	**35,011**	**63,043**	**151,779**	**92,102**	**58,956**	**44,666**	**109,066**	**79,232**	**1**

Table 73 Outbound Commodities and Volumes Shipped from Halifax to USA & Mexico

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for the USA & Mexico

The average outbound freight volume from Halifax to USA & Mexico was 79,232 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 2,868 trucks or 956 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to USA & Mexico Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	8,896	297	0.8	99
Automobiles and other transportation equipment [36, 37]	3,369	112	0.3	37
Base metals and articles of base metals [31, 32, 33]	2,196	73	0.2	24
Food [05, 06, 07, 08, 09]	14,953	498	1.4	166
Forest products [25, 26, 27, 28, 29]	23,757	792	2.2	264
Fuel oils and crude petroleum [16, 17, 18, 19]	9	0	0.0	0
Minerals [10, 11, 12, 13, 14]	51	2	0.0	1
Miscellaneous products [42]	18,962	632	1.7	211
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,585	153	0.4	51
Plastic and chemical products [20, 21, 22, 23, 24]	1,895	63	0.2	21
Waste and scrap [41]	558	19	0.1	6
Grand Total	**79,232**	**2,641**	**7**	**880**

Table 74 2011-2017 Average Outbound from Halifax to USA & Mexico

Halifax Outbound to Rest of Ontario

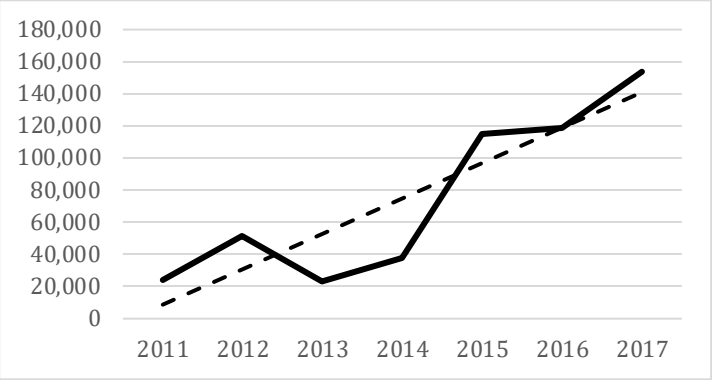


Figure 36 Outbound to Rest of Ontario

The Rest of Ontario was the seventh largest destination for outbound truck shipments from Halifax, averaging 2% of overall freight deliveries by truck for an average of 74,854 Mt. Table 78 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 36 above overall freight volumes are trending upward over the period.

2011-2017 Average Outbound from Halifax to Rest of Ontario

COMMODITY	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
Agricultural products [01, 02, 03, 04]	44	81	179	25	20	111	37	71	0.1%
Automobiles and other transportation equipment [36, 37]	964	5,171	1,953	2,918	4,898	7,873	9,052	4690	6.3%
Base metals and articles of base metals [31, 32, 33]	1,028	5,684	1,423	1,628	586	253	1,129	1676	2.2%
Coal [15]	0	0	0	0	0	2	79	11	0.0%
Food [05, 06, 07, 08, 09]	1,902	1,838	451	10,679	606	482	712	2381	3.2%
Forest products [25, 26, 27, 28, 29]	1,262	575	3,153	1,107	2,325	1,986	2,998	1915	2.6%
Fuel oils and crude petroleum [16, 17, 18, 19]	2	1	1	2	92,462	100,447	92,467	40769	54.5%
Minerals [10, 11, 12, 13, 14]	1	645	0	38	1	0	0	98	0.1%
Miscellaneous products [42]	22	26,542	7,150	18,221	3,955	122	1,348	8194	10.9%
Other manufactured goods [30, 34, 35, 38, 39, 40]	17,257	6,446	3,342	3,334	10,204	6,317	44,517	13060	17.4%
Plastic and chemical products [20, 21, 22, 23, 24]	1,210	4,199	3,480	272	127	1,114	1,414	1688	2.3%
Waste and scrap [41]	1	44	2,053	0	1	2	5	301	0.4%
Grand Total	**23,691**	**51,226**	**23,184**	**38,225**	**115,185**	**118,708**	**153,758**	**74,854**	**1**

Table 75 Outbound Commodities and Volumes Shipped from Halifax to Rest of Ontario

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for the Rest of Ontario

The average outbound freight volume from Halifax to the Rest of Ontario was 74,854 Mt.. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 2,641 trucks or 880 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to Rest of Ontario Truck & Railcar Equivalents & Truck AADT AT 100%				
COMMODITY	Mt Average	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	8,896	297	0.8	99
Automobiles and other transportation equipment [36, 37]	3,369	112	0.3	37
Base metals and articles of base metals [31, 32, 33]	2,196	73	0.2	24
Food [05, 06, 07, 08, 09]	14,953	498	1.4	166
Forest products [25, 26, 27, 28, 29]	23,757	792	2.2	264
Fuel oils and crude petroleum [16, 17, 18, 19]	9	0	0.0	0
Minerals [10, 11, 12, 13, 14]	51	2	0.0	1
Miscellaneous products [42]	18,962	632	1.7	211
Other manufactured goods [30, 34, 35, 38, 39, 40]	4,585	153	0.4	51
Plastic and chemical products [20, 21, 22, 23, 24]	1,895	63	0.2	21
Waste and scrap [41]	558	19	0.1	6
Grand Total	**79,232**	**2,641**	**7**	**880**

Table 76 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

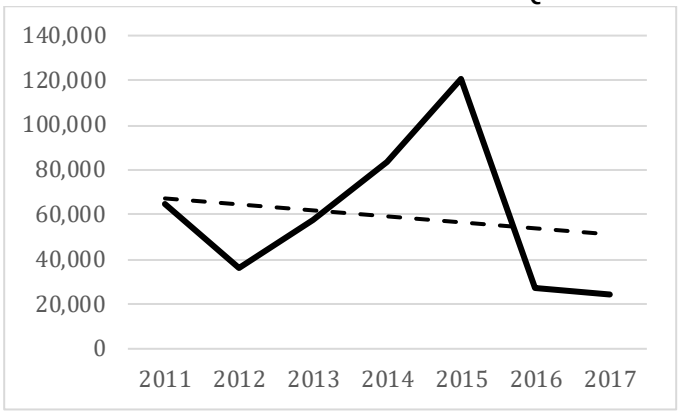


Figure 37 Halifax Outbound to Rest of Quebec

The Rest of Quebec was the seventh largest destination for outbound truck shipments from Halifax, averaging 2% of overall freight deliveries by truck for an average of 59,186 Mt. Table 80 below provides the commodity mix and volumes from 2011 to 2017 and the averages. As indicated in Figure 37 above overall freight volumes are trending upward over the period.

2011-2017 Average Outbound from Halifax to Rest of Quebec

	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
COMMODITY	1,477	109	257	2	184	318	941	470	1%
Automobiles and other transportation equipment [36, 37]	1,142	1,701	613	233	88	1,237	367	769	1%
Base metals and articles of base metals [31, 32, 33]	21,678	3,867	23,041	27,320	1,120	15,699	12,341	15009	25%
Food [05, 06, 07, 08, 09]	16	572	472	6,501	4,839	777	87	1895	3%
Forest products [25, 26, 27, 28, 29]	15,897	5,487	5,006	9,954	7,029	4,328	3,632	7333	12%
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0	1	0	528	570	526	232	0%
Minerals [10, 11, 12, 13, 14]	5	5	1,819	0	0	0	0	261	0%
Miscellaneous products [42]	3,178	4,547	7,911	12,377	86,179	835	1,666	16670	28%
Other manufactured goods [30, 34, 35, 38, 39, 40]	17,660	1,568	1,996	7,168	7,424	1,707	4,362	5983	10%
Plastic and chemical products [20, 21, 22, 23, 24]	2,646	1,538	105	67	1,185	199	350	870	1%
Waste and scrap [41]	752	16,954	16,238	19,977	12,067	1,858	0	9692	16%
Grand Total	**64,451**	**36,349**	**57,459**	**83,599**	**120,642**	**27,527**	**24,272**	**59,186**	**1**

Table 77 Halifax Outbound to Rest of Quebec

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for the Rest of Quebec

The average outbound freight volume from Halifax to the Rest of Quebec was 59,186 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 1,973 trucks or 658 railcars. Annual Average Daily Traffic (AADT) is a measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

2011-2017 Average Outbound from Halifax to Rest of Quebec Truck & Railcar Equivalents & Truck AADT AT 100%					
Row Labels	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
COMMODITY	470	1%	16	4%	5
Automobiles and other transportation equipment [36, 37]	769	1%	26	1%	9
Base metals and articles of base metals [31, 32, 33]	15009	25%	500	25%	167
Food [05, 06, 07, 08, 09]	1895	3%	63	3%	21
Forest products [25, 26, 27, 28, 29]	7333	12%	244	12%	81
Fuel oils and crude petroleum [16, 17, 18, 19]	232	0%	8	0%	3
Minerals [10, 11, 12, 13, 14]	261	0%	9	1%	3
Miscellaneous products [42]	16670	28%	556	28%	185
Other manufactured goods [30, 34, 35, 38, 39, 40]	5983	10%	199	10%	66
Plastic and chemical products [20, 21, 22, 23, 24]	870	1%	29	1%	10
Waste and scrap [41]	9692	16%	323	16%	108
Grand Total	**59,186**	**1**	**1,973**	**1**	**658**

Table 78 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Halifax Outbound to PEI

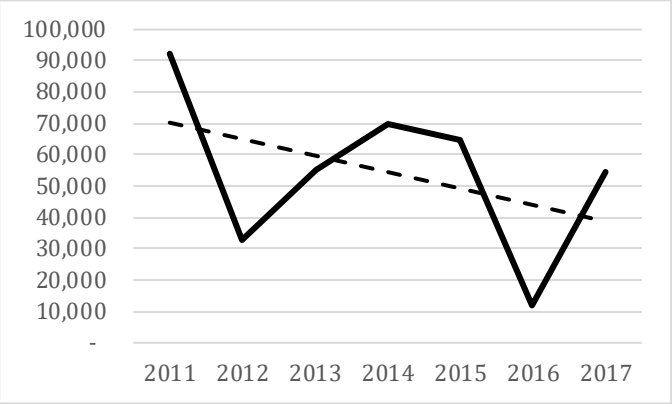


Figure 38 Outbound to PEI

The average outbound freight volume from Halifax to PEI was 59,186 Mt. Figure 38 above suggests that freight volumes from PEI are erratic and in decline however the freight volumes are relatively low and this makes changes appear to be more dramatic than they actually are.

2011-2017 Average Outbound from Halifax to Prince Edward Island									
	2011	2012	2013	2014	2015	2016	2017	Mt Average	%
COMMODITY	1,477	109	257	2	184	318	941	470	1%
Automobiles and other transportation equipment [36, 37]	1,142	1,701	613	233	88	1,237	367	769	1%
Base metals and articles of base metals [31, 32, 33]	21,678	3,867	23,041	27,320	1,120	15,699	12,341	15009	25%
Food [05, 06, 07, 08, 09]	16	572	472	6,501	4,839	777	87	1895	3%
Forest products [25, 26, 27, 28, 29]	15,897	5,487	5,006	9,954	7,029	4,328	3,632	7333	12%
Fuel oils and crude petroleum [16, 17, 18, 19]	0	0	1	0	528	570	526	232	0%
Minerals [10, 11, 12, 13, 14]	5	5	1,819	0	0	0	0	261	0%
Miscellaneous products [42]	3,178	4,547	7,911	12,377	86,179	835	1,666	16670	28%
Other manufactured goods [30, 34, 35, 38, 39, 40]	17,660	1,568	1,996	7,168	7,424	1,707	4,362	5983	10%
Plastic and chemical products [20, 21, 22, 23, 24]	2,646	1,538	105	67	1,185	199	350	870	1%
Waste and scrap [41]	752	16,954	16,238	19,977	12,067	1,858	0	9692	16%
Grand Total	**64,451**	**36,349**	**57,459**	**83,599**	**120,642**	**27,527**	**24,272**	**59,186**	**1**

Table 79 Outbound from Halifax to PEI

Modal Equivalents & Average Annual Daily Traffic (AADT) for Commodity Shipments Destined for PEI

The average outbound freight volume from Halifax to PEI was 59,186 Mt. Assuming an average truck has a capacity of 30 Mt and an average railcar has a capacity of 90 Mt. this freight volume is the equivalent of 1,817 trucks or 606 railcars. Annual Average Daily Traffic (AADT) is a

measure of how busy a section of road or highway is over time and is calculated by dividing the number of vehicles that are annually travelling a thoroughfare in both directions by 365 days. For the purposes of analysis, the table below reflects the AADT for truck traffic flowing in only one direction.

COMMODITY	Mt Average	%	Truckload Equivalents 30Mt	AADT	Railcar Equivalents 90 Mt
Agricultural products [01, 02, 03, 04]	1,043	2%	35	0.1	12
Automobiles and other transportation equipment [36, 37]	1,136	2%	38	0.1	13
Base metals and articles of base metals [31, 32, 33]	14,449	27%	482	1.3	161
Food [05, 06, 07, 08, 09]	4,543	8%	151	0.4	50
Forest products [25, 26, 27, 28, 29]	6,154	11%	205	0.6	68
Fuel oils and crude petroleum [16, 17, 18, 19]	5,633	10%	188	0.5	63
Minerals [10, 11, 12, 13, 14]	875	2%	29	0.1	10
Miscellaneous products [42]	14,094	26%	470	1.3	157
Other manufactured goods [30, 34, 35, 38, 39, 40]	2,531	5%	84	0.2	28
Plastic and chemical products [20, 21, 22, 23, 24]	4,042	7%	135	0.4	45
Waste and scrap [41]	13	0%	0	0.0	0
Grand Total	**54,514**	**1**	**1,817**	**5**	**606**

Table 80 TRUCK & RAILCAR EQUIVALENTS & TRUCK AADT AT 100%

Nova Scotia Rail Freight Inbound and Outbound Modal Assessment

Rail Inbound and Outbound Commodity Mix for Halifax and the Rest of Nova Scotia

Nova Scotia Inbound & Outbound Rail Commodity Mix and Railcar Equivalent at 90MT

Nova Scotia Inbound & Outbound Rail									
	Halifax			Rest of Nova Scotia			All of Nova Scotia		
Commodity group	7-year-ave Mt	%	Rank	7-year-ave Mt	%		7-year-ave Mt	%	Rank
Agricultural products 2	94,241	6%	5	99,973	25%	2	194,214	10%	3
Food 4	61,009	4%	7	11,733	3%	5	72,741	4%	8
Minerals 5	5,004	0%	10	5,477	1%	7	10,481	1%	10
Fuel oils and crude petroleum 6	76,513	5%	6	22,108	5%	4	98,621	5%	7
Plastic and chemical products 7	60,493	4%	8	185,276	46%	1	245,769	12%	2
Forest products 8	125,713	8%	3	65,009	16%	3	190,722	10%	4
Base metals and articles of base metals 9	101,245	6%	4	10,765	3%	6	112,010	6%	6
Automobiles and other transportation equipment 10	141,655	9%	2	2,871	1%	8	144,525	7%	5
Other manufactured goods 11	19,980	1%	9	188	0%	10	20,169	1%	9
Waste and scrap	2,734	0%	11	1,903	0%	9	4,637	0%	11
Miscellaneous products	887,594	56%	1	-	0%	11	887,594	45%	1
Grand total	1,576,180	100%		405,302	100%		1,981,482	100%	
Estimated railcar equivalents at 90MT	17,513			4,503			22,016		

Inbound Rail by Originating Jurisdiction

Inbound by Rail to Halifax and Rest of Nova Scotia

	2011	2012	2013	2014	2015	2016	2017	7-year-average	%	Rank
New Brunswick, origin of shipments	81,222	33,394	42,380	20,832	7,133	11,429	27,912	**32,043**	**2%**	**11**
Québec, Quebec, origin of shipments	2,527	3,690	8,067	12,240	15,891	11,709	15,412	**9,934**	**1%**	**17**
Montréal, Quebec, origin of shipments	357,122	302,759	328,309	281,847	358,360	420,979	421,152	**352,932**	**22%**	**2**
Rest of Quebec, origin of shipments	159,514	230,095	187,925	120,210	138,087	130,782	99,906	**152,360**	**10%**	**3**
Toronto, Ontario, origin of shipments	4,555	1,932	3,497	1,347	4,506	3,866	2,515	**3,174**	**0%**	**18**
Hamilton, Ontario, origin of shipments	457,259	498,027	487,536	423,181	467,566	584,984	632,998	**507,364**	**32%**	**1**
Windsor, Ontario, origin of shipments	18,421	26,991	31,267	11,121	13,650	9,225	13,464	**17,734**	**1%**	**14**
Rest of Ontario, origin of shipments	66,123	76,768	78,815	62,179	82,990	84,387	68,636	**74,271**	**5%**	**5**
Winnipeg, Manitoba, origin of shipments	51,367	55,852	64,570	36,656	50,776	44,557	53,721	**51,071**	**3%**	**8**
Rest of Manitoba, origin of shipments	11,016	8,441	17,604	13,459	31,624	29,591	22,808	**19,220**	**1%**	**13**
Saskatoon, Saskatchewan, origin of shipments	2,684	6,086	39,701	64,648	50,587	54,477	43,491	**37,382**	**2%**	**10**
Rest of Saskatchewan, origin of shipments	51,773	21,769	41,054	75,409	74,696	70,042	52,082	**55,261**	**3%**	**7**
Calgary, Alberta, origin of shipments	32,349	16,040	17,261	45,716	13,102	8,776	6,837	**20,011**	**1%**	**12**
Edmonton, Alberta, origin of shipments	7,074	3,269	3,896	5,264	14,447	19,715	32,124	**12,256**	**1%**	**16**
Rest of Alberta, origin of shipments	22,095	30,195	59,317	61,173	74,134	68,721	51,194	**52,404**	**3%**	**6**
Vancouver, British Columbia, origin of shipments	7,314	10,525	10,198	7,303	12,854	28,106	19,180	**13,640**	**1%**	**15**
Rest of British Columbia, origin of shipments	53,140	62,663	51,983	42,189	37,903	38,577	34,698	**45,879**	**3%**	**9**
United States and Mexico, origin of shipments	182,290	147,958	140,150	143,617	129,757	99,368	98,865	**134,572**	**8%**	**4**
Grand total	**1,567,845**	**1,536,452**	**1,613,529**	**1,428,391**	**1,578,064**	**1,719,293**	**1,696,994**	**1,591,510**	**100%**	

Rail Inbound to Halifax

Inbound Rail Commodity Mix

Commodity group 1	7-Year-average	%	Rank	Railcar equivalents @ 90 Mt.
Agricultural products 2	94,241	3%	6	1,047

Food 4	61,009	2%	7	677
Minerals 5	1,318,131	45%	1	14,645
Fuel oils and crude petroleum 6	87,015	3%	8	966
Plastic and chemical products 7	60,493	2%	9	672
Forest products 8	127,552	4%	4	1,417
Base metals and articles of base metals 9	101,253	3%	5	1,125
Automobiles and other transportation equipment 10	141,887	5%	3	1,576
Other manufactured goods 11	19,980	1%	10	222
Waste and scrap	2,734	0%	11	30
Miscellaneous products	887,594	31%	2	9,862
Grand total	**2,901,888**	1		**32,243**

Inbound by Rail to Halifax by Originating Jurisdiction

	2011	2012	2013	2014	2015	2016	2017	7-year-average MT	%	Rank
New Brunswick, origin of shipments	26,609	28,123	16,203	10,748	6,294	10,591	27,887	**18,065**	1%	10
Québec, Quebec, origin of shipments	2,527	2,289	2,222	8,105	14,271	11,448	14,595	**7,922**	1%	16
Montréal, Quebec, origin of shipments	348,923	296,991	320,960	262,318	338,857	407,136	408,532	**340,531**	22%	3

Rest of Quebec, origin of shipments	54,828	145,899	115,390	55,340	81,792	73,867	51,069	**82,598**	5%	4
Oshawa, Ontario, origin of shipments	3,540	1,387	2,939	1,076	4,343	3,552	2,431	**2,753**	0%	
Toronto, Ontario, origin of shipments	444,220	479,364	475,205	411,269	451,047	565,688	613,197	**491,427**	31%	1
Hamilton, Ontario, origin of shipments	-	-	-	-	-	-	1,965	**281**	0%	
Windsor, Ontario, origin of shipments	5,689	14,799	5,004	5,648	6,849	9,503	9,525	**8,145**	1%	15
Rest of Ontario, origin of shipments	51,204	54,277	62,937	35,579	49,263	41,021	50,840	**49,303**	3%	5
Winnipeg, Manitoba, origin	10,928	8,441	17,291	11,221	21,753	14,677	19,022	**14,762**	1%	12
Rest of Manitoba, origin of shipments	171	3,319	34,678	44,073	7,252	9,701	2,723	**14,559**	1%	13
Saskatoon, origin of shipments	51,118	21,769	40,285	73,595	56,305	52,914	32,723	**46,958**	3%	6
Rest of Saskatchewan, origin	32,191	15,415	17,261	45,237	11,133	6,947	2,292	**18,639**	1%	9
Calgary, origin of shipments	6,380	3,269	3,050	3,273	5,978	4,818	8,985	**5,108**	0%	
Edmonton, origin of shipments	7,876	14,434	48,445	49,601	50,287	46,308	32,737	**35,670**	2%	7
Rest of Alberta, origin of shipments	3,852	6,369	7,551	3,113	2,585	18,548	15,521	**8,220**	1%	14
Vancouver, origin of shipments	23,024	29,728	26,571	20,711	21,749	20,833	21,568	**23,455**	1%	8
Rest of British Columbia, origin	21,033	21,365	20,042	15,656	18,476	16,371	11,740	**17,812**	1%	11
United States and Mexico, origin	390,313	393,995	379,855	310,902	308,590	453,207	492,942	**389,972**	25%	2
Grant total	**1,484,425**	**1,541,233**	**1,595,890**	**1,367,463**	**1,456,824**	**1,767,128**	**1,820,294**	**1,576,180**	**100%**	

Rail Inbound to Rest of Nova Scotia

Inbound Rail Commodities Rest of Nova Scotia

Commodity group 1	7-year-average	%	Rank	Railcar equivalents @ 90 Mt.
Agricultural products 2	99,973	25%	2	1,111
Food 4	11,733	3%	5	130
Minerals 5	5,477	1%	7	61
Fuel oils and crude petroleum 6	22,108	5%	4	246
Plastic and chemical products 7	185,276	46%	1	2,059

Forest products 8	65,009	16%	3	722
Base metals and articles of base metals 9	10,765	3%	6	120
Automobiles and other transportation equipment 10	2,871	1%	8	32
Other manufactured goods 11	188	0%	10	2
Waste and scrap	1,903	0%	9	21
Miscellaneous products	-	0%		-
Grant total	405,302	1		4,503

Inbound by Rail to Rest of Nova Scotia by Originating Jurisdiction

	2011	2012	2013	2014	2015	2016	2017	7-year-average	%	Rank
New Brunswick, origin of shipments	54,613	5,271	26,177	10,083	839	839	25	13,978	3%	9
Québec, Quebec, origin of shipments	0	1,401	5,845	4,135	1,620	261	817	2,011	0%	15
Montréal, Quebec, origin of shipments	8,199	5,768	7,348	19,529	19,503	13,844	12,620	12,401	3%	10
Rest of Quebec, origin of shipments	104,685	84,196	72,535	64,869	56,295	56,915	48,837	69,762	17%	2
Toronto, Ontario, origin of shipments	1,016	545	557	271	163	315	84	422	0%	18
Hamilton, Ontario, origin of shipments	13,039	18,663	12,331	11,912	16,519	19,296	19,801	15,937	4%	8
Windsor, Ontario, origin of shipments	18,421	26,991	31,267	11,121	13,650	9,225	11,499	17,453	4%	6
Rest of Ontario, origin of shipments	60,434	61,970	73,810	56,531	76,141	74,884	59,110	66,126	16%	3

Winnipeg, Manitoba, origin of shipments	163	1,574	1,633	1,077	1,513	3,536	2,880	1,768	0%	16
Rest of Manitoba, origin of shipments	87	0	313	2,238	9,870	14,914	3,786	4,458	1%	14
Saskatoon, Saskatchewan, origin of shipments	2,513	2,767	5,023	20,575	43,335	44,776	40,769	22,823	6%	4
Rest of Saskatchewan, origin of shipments	655	0	769	1,814	18,392	17,129	19,359	8,302	2%	11
Calgary, Alberta, origin of shipments	158	625	0	479	1,970	1,829	4,545	1,372	0%	17
Edmonton, Alberta, origin of shipments	694	0	846	1,991	8,470	14,897	23,140	7,148	2%	12
Rest of Alberta, origin of shipments	14,219	15,761	10,872	11,573	23,847	22,414	18,458	16,735	4%	7
Vancouver, British Columbia, origin of shipments	3,463	4,156	2,646	4,190	10,269	9,557	3,659	5,420	1%	13
Rest of British Columbia, origin of shipments	30,116	32,935	25,412	21,479	16,155	17,745	13,130	22,425	6%	5
United States and Mexico, origin of shipments	161,257	126,594	120,108	127,961	111,281	82,997	87,125	116,761	29%	1
Grand total	**473,732**	**389,214**	**397,493**	**371,830**	**429,830**	**405,371**	**369,642**	**405,302**	**100%**	

Rail Outbound from Nova Scotia

Outbound Rail Commodities

Commodity group 1	7-year-average	%	Rank	Railcar equivalents @ 90Mt
Agricultural products 2	5,795	0%	11	64
Food 4	81,484	4%	6	905
Minerals 5	226,452	11%	3	2,516
Fuel oils and crude petroleum 6	68,181	3%	7	758
Plastic and chemical products 7	99,156	5%	5	1,102
Forest products 8	350,862	18%	2	3,898
Base metals and articles of base metals 9	38,871	2%	9	432
Automobiles and other transportation equipment 10	143,858	7%	4	1,598

Other manufactured goods 11	8,578	0%	10	95
Waste and scrap	45,481	2%	8	505
Miscellaneous products	919,897	46%	1	10,221
Grand total	1,988,616			22,096

Outbound Rail by Destination

	2011	2012	2013	2014	2015	2016	2017	7-year-ave	%	Rank
New Brunswick, destination	125,139	202,273	259,338	298,820	291,169	303,798	343,249	**260,541**	13%	4
Québec, Quebec, destination	2,778	4,791	3,132	2,735	2,710	3,619	2,304	**3,153**	0%	6
Montréal, Quebec, destination	204,586	207,925	233,742	234,385	251,744	341,199	352,991	**260,939**	13%	3
Rest of Quebec, destination	52,777	38,482	11,022	12,666	14,268	17,355	9,192	**22,252**	1%	9
Oshawa, Ontario, destination	-	396	2,007	465	-	327	-	**456**	0%	16
Toronto, Ontario	412,555	428,493	433,851	439,371	488,788	612,495	775,527	**513,012**	26%	2
Hamilton, Ontario	276	89	504	198	209	-	10,799	**1,725**	0%	14
Windsor, Ontario	-	-	-	-	1,062	87	186	**191**	0%	17
Rest of Ontario	43,790	33,178	15,553	13,929	24,362	30,619	24,272	**26,529**	1%	7
Winnipeg, Manitoba,	9,392	8,507	9,689	11,482	14,242	9,227	10,920	**10,494**	1%	11
Rest of Manitoba,	59	-	-	-	-	-	862	**132**	0%	18
Saskatoon, Saskatchewan,	3,341	3,112	2,106	3,506	4,636	5,796	6,878	**4,197**	0%	12
Rest of Saskatchewan,	917	1,022	1,081	2,788	4,187	-	457	**1,493**	0%	15

Calgary, Alberta,	11,601	9,575	9,300	12,380	13,336	13,508	17,346	**12,435**	1%	10
Edmonton, Alberta,	84,955	90,644	87,055	95,358	87,211	82,310	84,927	**87,494**	4%	5
Rest of Alberta, destination of shipments	185	473	4,023	2,377	6,325	236	3,150	**2,395**	0%	13
Vancouver, British Columbia,	23,740	23,752	22,583	27,597	29,395	37,321	37,340	**28,818**	1%	8
Rest of British Columbia,	21	1,187	299	387	533	-	5,326	**1,107**	0%	16
United States and Mexico, destination	847,196	597,303	717,553	684,531	733,699	825,496	852,996	**751,253**	38%	1
Grand total	**1,823,309**	**1,651,202**	**1,812,836**	**1,842,977**	**1,967,875**	**2,283,392**	**2,538,721**	**1,988,616**	**101%**	

Rail Outbound from Halifax

Outbound Rail Commodities from Halifax

Commodity group	7-year-average	%	Rank	Railcar equivalents @ 90Mt
Agricultural products 2	4,480	0%	10	50
Food 4	32,126	2%	5	357
Minerals 5	3,086	0%	11	34
Fuel oils and crude petroleum 6	4,922	0%	9	55
Plastic and chemical products 7	98,483	8%	3	1,094
Forest products 8	29,804	2%	6	331
Base metals and articles of base metals 9	27,596	2%	7	307
Automobiles and other transportation equipment 10	141,740	11%	2	1,575
Other manufactured goods 11	8,563	1%	8	95
Waste and scrap	36,952	3%	4	411
Miscellaneous products	919,897	70%	1	10,221
Grand total	**1,307,649**	**100%**		**14,529**

Outbound Rail from Halifax by Destination

Outbound by Rail from Halifax

	2011	2012	2013	2014	2015	2016	2017	7-year-average	%	Rank
New Brunswick, destination of shipments	8,267	5,704	18,944	28,897	21,949	33,386	48,557	23,672	2%	6
Québec, Quebec, destination of shipments	310	508	-	-	-	-	-	117	0%	17
Montréal, Quebec, destination of shipments	189,736	191,182	214,943	214,498	227,958	295,113	339,086	238,931	18%	3
Rest of Quebec, destination of shipments	28,171	27,025	8,692	8,262	8,034	7,359	7,280	13,546	1%	7
Oshawa, Ontario, destination of shipments	-	-	-	-	-	327	-	47	0%	19
Toronto, Ontario, destination of shipments	405,722	424,013	425,919	433,223	486,380	603,018	759,247	505,360	39%	1
Hamilton, Ontario, destination of shipments	220	63	-	-	163	-	193	91	0%	18
Windsor, Ontario, destination of shipments	-	-	-	-	983	-	186	167	0%	16
Rest of Ontario, destination of shipments	2,412	5,913	4,913	395	57	3,571	985	2,606	0%	12
Winnipeg, Manitoba, destination of shipments	9,392	8,507	9,605	11,482	14,242	9,227	10,920	10,482	1%	9
Rest of Manitoba, destination of shipments	59	-	-	-	-	-	-	8	0%	20
Saskatoon, Saskatchewan, destination of shipments	3,341	3,112	2,106	3,506	4,636	5,796	6,878	4,197	0%	10
Rest of Saskatchewan, destination of shipments	806	1,022	1,056	299	682	-	49	559	0%	14
Calgary, Alberta, destination of shipments	11,497	9,394	9,254	12,380	13,201	13,508	17,161	12,342	1%	8
Edmonton, Alberta, destination of shipments	84,872	90,487	86,811	87,637	86,005	76,526	84,141	85,211	7%	4
Rest of Alberta, destination of shipments	185	473	1,296	461	1,253	236	1,796	814	0%	13

Vancouver, British Columbia, destination	23,740	23,752	22,583	27,597	29,395	34,637	34,752	28,065	2%	5
Rest of British Columbia, destination of shipments	21	1,187	261	387	-	-	156	287	0%	15
United States and Mexico, destination of shipments	299,947	338,621	364,889	361,079	393,126	437,197	473,158	381,145	29%	2
Grand total	**1,068,698**	**1,130,962**	**1,171,270**	**1,190,103**	**1,288,064**	**1,519,901**	**1,784,547**	**1,307,649**	**100%**	

Rail Outbound to Rest of Nova Scotia

Outbound Rail Commodities from Rest of Nova Scotia

	Total	%	Ranking	Railcar equivalents @ 90 Mt.
Commodity group 1				
Agricultural products 2	1,316	0%	8	15
Food 4	49,358	7%	4	548
Minerals 5	223,367	33%	2	2,482
Fuel oils and crude petroleum 6	63,259	9%	3	703
Plastic and chemical products 7	673	0%	10	7
Forest products 8	321,057	47%	1	3,567
Base metals and articles of base metals 9	11,275	2%	5	125
Automobiles and other transportation equipment 10	2,119	0%	7	24
Other manufactured goods 11	14	0%	9	0
Waste and scrap	8,529	1%	6	95
Miscellaneous products	-	0%	10	-
Grand total	680,967	100%		7,566

Outbound Rail from Rest of Nova Scotia by Destination

Outbound by Rail from **Rest of Nova Scotia**										
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**7-year-average**	**%**	**Rank**
New Brunswick, destination of shipments	116,873	196,570	240,394	269,923	269,220	270,412	294,692	**236,869**	**35%**	2
Québec, Quebec, destination of shipments	2,468	4,283	3,132	2,735	2,710	3,619	2,304	**3,036**	**0%**	3
Montréal, Quebec, destination of shipments	14,850	16,743	18,800	19,887	23,786	46,086	13,905	**22,008**	**3%**	5
Rest of Quebec, destination of shipments	24,606	11,458	2,331	4,405	6,234	9,995	1,911	**8,706**	**1%**	6
Oshawa, Ontario, destination of shipments	-	396	2,007	465	-	-	-	**410**	**0%**	14
Toronto, Ontario, destination of shipments	6,833	4,481	7,932	6,148	2,409	9,477	16,280	**7,651**	**1%**	7
Hamilton, Ontario, destination of shipments	56	27	504	198	45	-	10,606	**1,634**	**0%**	9
Windsor, Ontario, destination of shipments	-	-	-	-	80	87	-	**24**	**0%**	17
Rest of Ontario, destination of shipments	41,378	27,266	10,640	13,535	24,305	27,049	23,287	**23,923**	**4%**	4
Winnipeg, Manitoba, destination of shipments	-	-	84	-	-	-	-	**12**	**0%**	18
Rest of Manitoba, destination of shipments	-	-	-	-	-	-	862	**123**	**0%**	15
Saskatoon, Saskatchewan, destination of shipments	-	-	-	-	-	-	-	**-**	**0%**	19
Rest of Saskatchewan, destination of shipments	111	-	26	2,489	3,504	-	408	**934**	**0%**	11
Calgary, Alberta, destination of shipments	104	181	45	-	135	-	185	**93**	**0%**	16
Edmonton, Alberta, destination of shipments	83	157	243	7,721	1,206	5,783	786	**2,283**	**0%**	8
Rest of Alberta, destination of shipments	-	-	2,727	1,916	5,072	-	1,354	**1,581**	**0%**	10

Vancouver, British Columbia, destination of shipments	-	-	-	-	-	2,684	2,587	**753**	**0%**	13
Rest of British Columbia, destination of shipments	-	-	37	-	533	-	5,170	**820**	**0%**	12
United States and Mexico, destination of shipments	547,249	258,682	352,665	323,452	340,572	388,299	379,838	**370,108**	**55%**	1
Grand total	**754,611**	**520,240**	**641,566**	**652,873**	**679,811**	**763,491**	**754,174**	**680,967**	**102%**	

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 3

REGIONAL TRANSPORTATION HISTORICAL STUDIES REVIEW

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Introduction

The following section provides a review of some of the historical and past research and studies concerning rail on Cape Breton and transportation in the Atlantic region between Nova Scotia and Newfoundland. Some of these studies provided a base line of traffic volumes that can be used to compare and benchmark the current volumes to validate the current and past volumes that were transported by rail using the Cape Breton line.

1. Ministers Rail Advisory Committee - Cape Breton Rail Studies
    a. Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services, 2015; ATN Consulting
    b. Assessment of Rail / Truck Shipping Between Cape Breton and Mainland Nova Scotia 2015, Marinova
    c. Summary Report: Overview of Studies Undertaken with Respect to Rail Services on the Sydney Subdivision
    d. Preliminary Review of Operating, Costs, Geotechnical and Infrastructure Improvements
2. Newfoundland Domestic Trade Routes & Competition Assessments, 2015; CPCS for Transport Canada
3. Study on Potential Hub Spoke Container Transshipment Operations in Eastern Canada for Maritime Movements of Freight, 2008, CPCS
4. Nova Scotia Port Competitiveness, 2018, CPCS
5. Nova Scotia Transport Infrastructure Roads
6. Ports of Sydney Master Plan, 2007, CBCL

Minister's Rail Advisory Committee – Cape Breton Rail Studies

Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services, 2015; ATN Consulting
Reviewed new economic projects with 3–5-year timelines and impact on rail services

- Identified 5 key projects Donkin Coal Mine; Port Sydney Container Terminal; Provincial Energy Ventures; International Iron Beneficiation group and Atlantic minerals
- Study reported that only 500 carloads of coal would be generated from the Donkin mine to Atlantic Minerals plant if developed
- Study identified Marine Atlantic trailer truck movements 2009-2014

	2009	2010	2011	2012	2013	2014
Straight Trucks	2501	1997	2433			2306
Tractor	43,629					43,888
Trailers	50,564					51,202
Total	96,694					97,339

Table 1 Marine Atlantic Trailer Movements 2009-2014

Assessment Rail/Truck Shipping Between Cape Breton and Mainland Nova Scotia, 2015, Marinova

- Identified historical rail shipments over the line between 2011-2014
- Inbound railcars were estimated at 600 loads per year

- Inbound products included plywood 261 cars/year; resins at 140 cars/year; Petroleum products at 30 cars/year; Feed grains at 40 cars/year
- Outbound identified 160 cars per year of coal products
- Report identified that the recent increase in rail rates drove business away and resulted in additional 1,500 truckloads one-way movement between Port Hawkesbury to Sydney
- The shipper Hilly Acres started to transload AG feeds at Truro NS, Estimated at 40 cars at 3,600 Mt

Summary Report: Overview of Studies Undertaken with Respect to Rail Services on the Sydney Subdivision, 2015, Group ATN Consulting Inc

This study focused on determining commodities and volumes being shipped by rail over the Sydney Subdivision and the associated shipping costs, and surveyed recent and past users of rail service to determine the following:

- Anticipated increase in trucking volumes without rail service;
- Anticipated truck shipping costs;
- Anticipated time differential of truck versus rail; and
- Any other impacts of shipping by truck (timeliness of service, deterioration of product, capital investment required). A high-level analysis of trucking capacity presently available within the region was also provided.

Newfoundland Domestic Trade Routes & Competition Assessments CPCS, 2015; Transport Canada

- Study evaluated different supply chain options and costs by different modal combinations including truck, marine container, rail/transfer from eastern Canada to Newfoundland
- Study compared market shares for current key transport suppliers
- Marine Atlantic market share of transport volumes was 55% and Oceanex was 45%
- Identified key commodity groups transported as food products, transport equipment; manufactured goods; misc. goods to the Avalon peninsula
- Competition to Newfoundland was between Oceanex and CN; mentions that Marine Atlantic does not compete with Oceanex, since they do not sign contracts for services

Study on Potential Hub Spoke Container Transhipment Operations in Eastern Canada for Maritime Movements of Freight. 2008, CPCS

- Study reviews current ocean container infrastructure for ports in eastern Canada

- Study identified Oceanex trade volumes in TEUS at 78,900 in 2005; was 66,800 in 2001
- Oceanex operated three vessels: two in service Montreal to NL with capacity of 1600 TEU and 1 between Halifax and NL with 1200 TEU capacity

Nova Scotia Port Competitiveness, 2018, CPCS

- Study reviews current ocean container services and factors concerning ports competitiveness
- Study identified various logistic characteristics that impact east coast ports competitiveness
- Study concludes that container port in Nova Scotia key competitor is New York and US gateway ports
- Study identify that the key container Trade route is from India through the Suez to US East Coast
- Study identifies that supporting Halifax infrastructure so that it continues to be viable option of shipping lines as a port of call
- Study mentions that “supporting more major projects only when the lion’s share of risk is taken by the private sector”
- Study identifies that developing a critical mass is provided in Nova Scotia to ensure long term sustainability of gateway port in Nova Scotia
- Study identifies that new container port greenfield site at Sydney that could accommodate the largest ships and sufficient crane ad labour rules and land space could meet the objectives of fast discharge of vessels required to attract container lines. Study mentions lack of rail infrastructure as impediment to Sydney

Nova Scotia Transport Infrastructure Roads (NSTIR)

The Nova Scotia Department of Public Works report on Nova Scotia Transport infrastructure Roads (NSTIR) publishes annual traffic at Canso Causeway for average annual daily traffic. The following table uses their data to estimate the annual volumes of truck traffic.

			AADT		Mt Annual volume estimates		
YEAR	AADT	% Trucks	Est Trucks	Year	% Loaded 50	% Loaded 60	% Loaded 40
2010	8,550	17	1,454	530,528	265,264	318,317	212,211
2011	8,160	18	1,469	536,112	268,056	321,667	214,445
2012	8,300	22	1,826	666,490	333,245	399,894	266,596
2013	8,300	20	1,660	605,900	302,950	363,540	242,360
2014	7,700	17	1,309	477,785	238,893	286,671	191,114
2015	8,180	16	1,309	477,712	238,856	286,627	191,085
2016	8,780	17	1,493	544,799	272,400	326,879	217,920
2017	8,970	19	1,704	622,070	311,035	373,242	248,828

Table 2 NSTIR Annual Canso Causeway Truck Volume Estimates

Ports of Sydney Master Plan, 2007 CBCL, Bermello Ajamil & Partners, Martin Associates

A consortium of marine terminal owners and operators formed The Marine Group to plan the maritime future of Sydney Harbour. The report includes:

- A comprehensive overview of the port and its potential
- A section entitled “Inventory of Transportation Networks: Rail, Road and Navigation Channel”

Regional Goods Movement Opportunities Scoping Study Standing Committee Report

In 2016, Davies Transportation Consulting Inc. was engaged to prepare a Regional Goods Movement Opportunities Scoping Study for the purpose of providing needed background and a strategic framework for how the movement of goods within the region should be integrated into the regional transportation network. This study published in 2016 identified the weekly daily truck trips into/out of the Port of Halifax entry gates. Table 3, taken from this study, provides the annual truck exports entering the port from various export shippers across the Atlantic Region. Using the export trucks equates to over 60,000 annual truck loads per year. The gate moves are the count of truck movements in and out of the port which is the doubling of the truck numbers.

YEAR	Annual Trucks Import (Units)	Annual Trucks Exports (Units)	Annual Import Gate Moves	Annual Export Gate Moves	Annual Gate Moves	Annual One Way Truck Trips	Daily Weekday One Way Truck Trips
2012	31,047	60,646	62,094	121,292	183,386	229,231	917
2013	29,673	63,208	59,347	126,417	185,764	232,204	929
2014	29,384	58,764	58,767	117,528	176,295	232,204	881
2015	30,834	57,416	61,668	114,832	176,500	220,626	883
Average	30,235	60,009	60,469	120,017	180,486	228,566	903

Table 3 Weekly-Daily Truck Trips in/out of Port of Halifax

Likewise, Table 4 below, also from this study, provides daily estimates of trucks from across Atlantic Canada that are destined for export based upon export truck percentage of 15% from New Brunswick/PEI, 10% from Newfoundland and 75% from Nova Scotia. The estimates provide a level of truck activity from Newfoundland to compare to Marine Atlantic truck crossings. Using 10% as a proxy indicates 149 average trucks per day would be generated from Newfoundland exporters.

							Estimated Trucks/Day to Export Destinations		
YEAR	Annual Trucks Import (Units)	Annual Trucks Exports (Units)	Import Truck Mt 18	Export Truck Mt 19	ADTT Imports	ADTT Exports	15% NB/PEI	10% NL	75% NS
2012	31,047	60,646	558,846	1,091,628	166	1,531	230	153	1,148
2013	29,673	63,208	534,114	1,137,744	173	1,463	219	146	1,097
2014	29,384	58,764	528,912	1,057,752	161	1,449	217	145	1,087
2015	30,834	57,416	555,012	1,033,488	157	1,521	228	152	1,140
Average	30,235	60,009	544,221	1,080,153	164	1,491	224	149	1,118

Table 4 Atlantic Canada Estimated Trucks Destined for Export

The study also identified the truck congestion in the Halifax district and downtown region in accessing the two port loading sites. After this study was completed CN and MSC developed a intermodal service for containers/trucks to the port from Moncton to assist in lessening the

congestion. This service was implemented in 2020 and was probably predicated on a large shipper of export products from New Brunswick through the Port of Halifax.

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 4

MARINE TRANSPORTATION REGIONAL ASSESSMENTS

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Marine Transportation Regional Assessments

Overview

The current transportation of products/commodities to Newfoundland are by truck using the ferry operated by Marine Atlantic or by marine containers and by bulk vessel charters. The marine container routes are operated by the following marine companies:

1. Oceanex
2. MSC
3. Eimskip

Oceanex operates to Newfoundland from either Halifax or Montreal. MSC has just announced a new service from Cornerbrook to EU for newsprint by container. Eimskip operates from St John's; Argentia; Harbour Grace; St Anthony and Halifax to Northern Europe specializing in frozen seafood. There are also some bulk vessel movements of base commodities and petroleum products that area shipped to ports In Newfoundland. Figure 1 below shows the operational routes of both Marine Atlantic and Oceanex carriers that provide services that link Newfoundland with mainland Canada.

In October 2020, The Corner Brook Port Corporation (CBPC), announced that MSC Mediterranean Shipping Company was increasing its container service with a weekly call to the Ports of Montreal, Saint John, and Corner Brook. MSC is the only international ocean carrier providing access to Europe as well as to Asian and South American markets. Shippers on the mainland can access the MSC marine service through the Port of Halifax.

Oceanex is shown in red and operates between Montréal and Halifax to St John's.
Marine Atlantic is shown in blue and operates between Sydney and Port aux Basques and Argentia(seasonal).

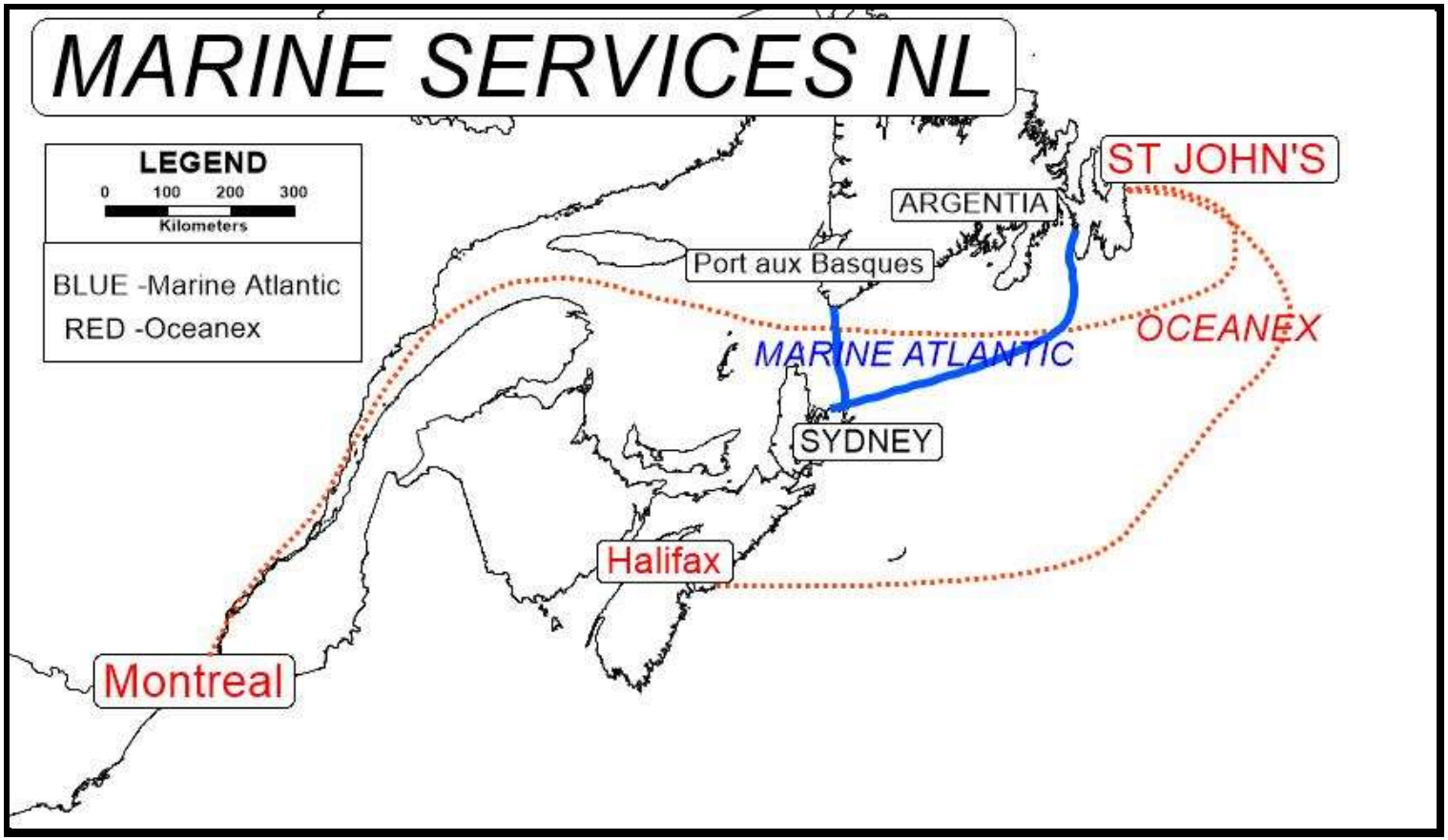


Figure 1 Oceanex Marine Services Map

Oceanex

Oceanex Inc. is a Montreal-based company with over 400 employees that provides intermodal transportation services to the province of Newfoundland and Labrador. This includes pier-to-pier (between marine terminals) and door-to-door (from shipper's warehouse to consignee's facility) transportation services utilizing three RoRo vessels capable of handling 20', 40' and 53' intermodal containers. Oceanex also provides vessel cargo services for the automotive industry transporting vehicles to NL. The company offers vessel service from Montreal and Halifax and can provide intermediate transfer of container cargos from international inbound/outbound marine cargo shipments arriving in Montreal/Halifax for any freight that is destined to Newfoundland. The company is also integrated with CN intermodal service yards across North America (i.e., Brampton; Montreal; Chicago; Detroit; Indianapolis; Winnipeg; Calgary; Edmonton; Saskatoon; Regina; Vancouver and

Moncton) from which shippers can have their containers loaded to rail and delivered to coordinate with Oceanex sailings from Halifax or Montreal to Newfoundland. The following Table shows names of the three vessels that it operates and the TEU capacity.

Oceanex Connaigra			
The Oceanex Connaigra, a 1,300 TEU RoRo vessel, carries containers, trailers and motor vehicles.			
SAILS BETWEEN MONTREAL AND ST. JOHN'S			
Type:	RoRo	Capacity:	1,300 TEUs
Length:	210.00 meters	Speed:	23 knots
Breadth:	29.60 meters	Commissioned:	Oct. 2013
Gross Tonnage:	26,800		
The Oceanex Sanderling			
The Oceanex Sanderling, a 1,125 TEU RoRo vessel, carries containers, trailers and motor vehicles.			
SAILS BETWEEN HALIFAX AND ST. JOHN'S			
Type:	RoRo	Capacity:	1,125 TEUs
Length:	193.32 meters	Speed:	19 knots
Breadth:	27.00 meters	Commissioned:	1977
Gross Tonnage:	21,849		
The Oceanex Avalon			
The Oceanex Avalon, a 1,004 TEU LoLo vessel, carries only containers.			
SAILS BETWEEN MONTREAL AND ST. JOHN'S			
Type:	LoLo	Capacity:	1,004 TEUs
Length:	148.90 meters	Speed:	20 knots
Breadth:	25.90 meters	Commissioned:	May-05

Table 1 Oceanex Vessels (source www.oceanex.com)

The sailing and services are as follows:

Port	Trips per week
St John's	2
Montreal	2
Halifax	1

Table 2 Oceanex Weekly Sailings

The capacity of ships is as follows:

Vessels	TEU CTR Capacity	Service
Avalon	1004	Montreal St Johns
Sanderling	1125	Halifax St Johns Corner Brook
Oceanex Connaigra	1300	Montreal St Johns

Table 3 Oceanex Vessel TEU CTR Capacity

The estimated container capacity per year and tonnage that could be transported by the vessels to Newfoundland was assessed as follows:

Port	Capacity	TEU Year	Mt 21
MTL	45 Trips	45,180	
	40 Trips	58,500	
	Total Capacity	51,840	1,088,640
	Trips Year		
HAL; SJ	50	56,250	1,181,250
Total Estimates		108,090	2,269,890

Table 4 Oceanex Annual Container Capacity and Tonnage

Other data sources and review of Oceanex literature indicate that Oceanex's carrying capacity for freight to Newfoundland from Montreal is estimated at 1 million Mt per year amounting to 51,000 TEU's per year. For freight volumes from Halifax to Newfoundland is 1.1 million Mt or 56,000 TEU'S per year. This is the estimated carrying capacity based upon 100% efficiency, we expect that the operation is operating at 75% of its capacity.

Oceanex has several competitive advantages:

- They are well-established, have apparently strong relationships with truck and rail carriers and can offer competitive shipping rates.

- They offer Newfoundland shippers a door-to-door container pickup and drop-off service that allows containers to be loaded at the processor's location before being delivered to Halifax or Montreal where they can be put on rail to the US or Asia. This enables shippers to avoid having to transload their products to containers at port.
- In 2008, TruckNews.com published an article entitled The elusive Newfoundland backhaul that indicated that Oceanex had slashed its backhaul reefer rate for fish from Corner Brook and St. John's to Halifax by 41%. *"We could do it for free if we wanted,"* said Oceanex executive chairman Captain Sydney Hynes. "*A part of our growth strategy is backhauling, and we will be as aggressive as it takes to get up the volume on ships."*

Marine Atlantic

Marine Atlantic is an independent Canadian federal Crown corporation mandated to operate ferry services between the provinces of Newfoundland and Labrador and Nova Scotia. They offer a year-round, 96 nautical mile daily ferry service between Port aux Basques, Newfoundland and Labrador and North Sydney, Nova Scotia as well as a daily 280 nautical mile ferry sailing offered from mid-June until late September between Argentia, Newfoundland and Labrador and North Sydney, Nova Scotia.

Data concerning Marine Atlantic's truck traffic loads was identified through their public records. In 20/21 they transported 31,200 truck trailers estimated with a carrying capacity of 749,000 mt based on load factor of 24 Mt. This would be on the higher end of the estimate. Table 5 below identifies the various public record data for truck volumes from 2015 to 2021.

Table: Marine Atlantic Freight Truck statistics

Cargo Type	15/16	16/17	17/18	18/19	19/20	20/21
Straight Trucks					694	390
Tractor trailers					15,169	13,760
Drop trailers					17,045	17,481
Total Trailers					32,214	31,241
Est Volume Mt 24					773,136	749,784

Table 5 Marine Atlantic Freight Statistics

The table identified that two annual flows and we estimate that the traffic to Newfoundland would be 75% of the total volume and 25 % from Newfoundland as there would be more empty trailers from Newfoundland returning as compared to inbound volumes. The company offers overnight services and cabin rentals to commercial drivers and have pick up and delivery drop off services at their respective ports of call.

MSC: Global Container Shipping Company

MSC, is a global container line headquartered in Geneva, Switzerland who have 150K employees working from 675 offices worldwide. They have 730 vessels traversing 260 routes while servicing 520 ports of call in 155 countries and ship 23 million TEU annually[1]. Canadian ports served by MSC include: Becancour, QC; Halifax, NS; Montreal, QC; Vancouver, BC; Prince Rupert, BC; Quebec City, QC; Saint John, NB and Corner Brook, NL.

The service to Corner Brook commenced in May 2020 with sailings forecasted to be twice a month. They deliver 350 empty containers to Corner Brook Pulp and Paper and pick up containers loaded with newsprint.

In June 2020, the **Corner Brook Port Corporation (CBPC)** invited expressions of interest from prospective cold storage users to support the development of a cold storage facility in Corner Brook, Newfoundland and Labrador. This multi-user facility will be positioned strategically on the dock at the Port of Corner Brook to give direct access to the port's international container service.

CBPC recognizes the limited access to proper cold storage in the region and the impact it has on the industry. Currently, many processors incur significant additional transportation costs as it is necessary to move fish off the island to be stored in facilities in other provinces. As well, due to the lack of cold storage near the Port of Corner Brook, it has been identified that the fishing industry does not have equal opportunity to benefit from the international container service available at the port. Specifically, processors planning to ship fish to international markets directly from Corner Brook are not able to safely store fish prior to its shipment. A dockside cold storage facility will provide processors with lower costs, quicker time to market and better direct access to international markets promoting economic development for seafood processors, fisherpeople and other businesses in the surrounding areas.

To address this cold storage shortage, CBPC plans to construct a public use cold storage facility for fish products at the Port of Corner Brook. The facility will have an expected holding capacity of 5,000 to 6,000 tonne. The expected budget for this project is $10 million. CBPC has funds to invest in this project however additional funding for cold storage equipment and racking will be required. While CBPC will be applying to federal programs to assist with this project we are seeking industry partners in invest in the project in exchange for guaranteed storage at a preferred rate. While project partners will be able to invest to guarantee their access to storage a limited percentage of storage will remain available for public use.

The Port of Cornerbrook has the following stakeholders that have operations or transport freight by vessel for/to Corner Brook.

- Atlantic Minerals
- Logistic Stevedoring
- Barry's Seafood
- Clarke Transport

[1] www.msc.com

- Tripp Marine
- MSC Mediterranean Shipping Company
- Valero
- Corner Brook Pulp and Paper
- Ways Transport
- Imperial Oil
- CRH (aggregates, cement)

Eimskip

Eimskip is a global shipping company headquartered in Reykjavík, Iceland that has 55 offices in 20 countries. Eimskip specializes in worldwide freight forwarding services with focus on frozen and chilled commodities. Eimskip operates 17 vessels and 42 warehouses and cold storages in North America, Europe, and Asia. Their Canadian office is in St. John's and their vessels service the ports of Argentia and St. Anthony in Newfoundland, and Halifax, Nova Scotia. They offer agency services, freight forwarding, trucking/distribution, warehousing, terminal operations and also provide offloading, stevedoring, and cold storage services from operations at Harbour Grace and St. Anthony. Eimskip offers sailing services for its charter ships from St John's and Halifax and Portland ME to northern European Atlantic ports. The company specializes in seafood. They also indicate that they have interest in the region regarding the future of utilizing Sydney port and integrated rail services.

Eimskip is a niche player in forwarding services specializing in reefer forwarding. Eimskip focuses on selling forwarding services by utilizing its global network of the Company's own offices, international deep-sea lines, and its associates. Eimskip is a specialist in the transportation of temperature-controlled cargo, where seafood products play an essential role.

Port Hawkesbury Transload

The Port Hawkesbury mill site was first developed in 1962, with the start-up of a sulfite pulp mill. In the early 1970's the mill added a 190,000 tonne per year newsprint machine and in 1998 the mill invested $850 million on a state-of-the-art 360,000 tonnes per year supercalender (SC) paper machine. In 2011 the company filed for creditor protection and in 2012 it was purchased by a company from British Columbia, Stern Partners, who put the SC paper line back into production but permanently shuttered the newsprint production line with the intention of re-purposing the underlying infrastructure to maximize the industrial potential of the site. When the GW line closure from Port Hawkesbury to Sydney occurred the company saw an opportunity to develop a transload site that could receive materials by rail, transfer the materials to truck for shipment to Sydney, Newfoundland, and Labrador. According to GW, the Port Hawkesbury transload site and offer a 15-rail car spot with warehouse storage capacity of 10,000 (we assume square feet based on satellite photos, but it could be tonnes, cubic meters and so on). Services offered include rail off loading and storage of some cargo in closed warehouses. There does not appear to be bulk transloading of products at this site.

Port Hawkesbury Paper has the capacity to ship paper by ship, truck or rail but we have no definitive way to determine the volumes moving through each method. They are reportedly the third largest exporter from the Port of Halifax, which suggests that they are containerizing product at the mill in Port Hawkesbury and trucking it 273 kilometers to the Port of Halifax to be loaded onto a ship. Statistics Canada data (reports that 204,830

logistic marketing

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 5

INTERVIEWS AND FUTURE RAIL

January 2023

Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Note:
Technical Appendix 5 is not available for public view as it contains confidential information regarding performance and plans of local companies, gleaned from personal interviews.

In the creation of Technical Appendix 5, sixteen (16) Cape Breton companies were surveyed to determine what they were shipping, the volumes and mode of transportation employed, and to discuss whether and to what extent they feel that the availability of rail transport would benefit their operation for inbound inputs or outbound finished good.

This summation was provided at the end of Technical Appendix 5:

- Everyone interviewed was very positive on the return of the railway.
- They all indicated it would save their organization money.
- They all believe [the return of rail service] would be a major advantage to the growth of their firms.

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 6

RAIL MODEL FUTURE MARKET POTENTIAL

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Rail Demand Model

Purpose

The purpose of Technical Appendix 6 is to evaluate the Statistics Canada CFAF 2011-2017 average inbound and outbound truck and rail freight commodity mix associated with Halifax, the Rest of Nova Scotia and Newfoundland for the purposes of identifying potential export and domestic markets with a potential to be shipped intermodally from a site in Sydney.

Methodology, Data Limitations & Assumptions

There is no separate pool of truck and rail freight data for Cape Breton alone. Statistics Canada's CFAF truck and rail freight data for Nova Scotia is broken down into Halifax, and the Rest of Nova Scotia. The authors estimate that approximately one third of the CFAF truck traffic volumes for the Rest of Nova Scotia would be associated with Cape Breton. This is based on a GIS review of commercial business operations in Cape Breton that identified 111 manufacturers and processors that had some potential to utilize inbound and outbound truck freight. These companies constituted 31% of the total number of similar business concerns in Nova Scotia. Where possible the existing logistics channels were identified, and their impact considered. Other considerations included Cape Breton's economy which in 2015 saw 200 fisheries operations capturing 80% of seafood shipments by volume. This included aquaculture operations that would be shipping in feed and other inputs.

Freight converted from truck is assumed to be transloaded into refrigerated containers (53', 40' and 20') at a transload site in Sydney and six containers would be loaded onto an articulated flat railcar.

Freight Stream Analysis

The authors developed a Microsoft Excel-based Scenario Generator that contains Statistics Canada's CFAF truck and rail freight data that includes the commodity mix and origin/destination of shipments associated with the relevant freight streams which are presented herein. The Scenario Generator allows for market share assumptions to be changed as new information comes to light.

Newfoundland Inbound Truck

Commodity Mix

Newfoundland's top three outbound by truck commodities are Food (23%), Miscellaneous products (19%) and Base metals (19%), constituting 63% of total shipments by weight. Plastics are a commodity that can be delivered by rail and transloaded to 53ft intermodal unit.

Newfoundland Inbound Truck			
Commodity group	7-year average MT	%	Rank
Agricultural products	71,040	6%	6
Food	274,959	23%	1
Minerals	17,498	1%	10
Fuel oils and crude petroleum	45,249	4%	8
Plastic and chemical products	49,428	4%	7
Forest products	97,232	8%	5
Base metals and articles of base metals	202,550	17%	3
Automobiles and other transportation equipment	19,603	2%	9
Other manufactured goods	116,833	10%	4
Waste and scrap	1,476	0%	11
Miscellaneous products	229,819	19%	2
Grand total	1,125,688	93%	

Originating Jurisdiction

Newfoundland's top three inbound by truck commodity origins are Toronto (20%), Rest of Nova Scotia (16%) and New Brunswick (16%), constituting 52% of shipments by weight.

Newfoundland Inbound by Originating Jurisdiction			
	7-year average MT	%	Rank
Rest of Nova Scotia, origin of shipments	180,939	16%	2
New Brunswick, origin of shipments	177,406	16%	3
Rest of Quebec, origin of shipments	31,722	3%	5
Montréal, Quebec, origin of shipments	151,640	13%	4
Québec, Quebec, origin of shipments	123,181	11%	9
Oshawa, Ontario, origin of shipments	5,298	0%	13
Toronto, Ontario, origin of shipments	223,233	20%	1
Hamilton, Ontario, origin of shipments	20,773	2%	10
Windsor, Ontario, origin of shipments	2,662	0%	19
Rest of Ontario, origin of shipments	100,541	9%	6
Winnipeg, Manitoba, origin of shipments	4,099	0%	16
Rest of Manitoba, origin of shipments	1,331	0%	22
Saskatoon, Saskatchewan, origin of shipments	1,948	0%	21
Rest of Saskatchewan, origin of shipments	2,434	0%	20
Calgary, Alberta, origin of shipments	3,605	0%	17
Edmonton, Alberta, origin of shipments	6,108	1%	11
Rest of Alberta, origin of shipments	2,726	0%	18
Vancouver, British Columbia, origin of shipments	5,365	0%	12
Rest of British Columbia, origin of shipments	1,036	0%	23
United States and Mexico, origin of shipments	79,641	7%	8
Grand total	1,125,688	100%	

Originating Region

Quebec and Ontario and the top two originating jurisdictions for Newfoundland's inbound truck commodities, constituting 58% of inbound traffic by weight.

Newfoundland Inbound by Region	
Rest of Nova Scotia	180,939
New Brunswick	177,406
Quebec	306,544
Ontario	352,507
United States & Mexico	79,641
Western Canada	28,652
Total	1,125,688

Rail Scenario

In this scenario we assume that 12% of Newfoundland's inbound truck freight is converted to rail and conveyed to Sydney where it would be transloaded to intermodal chassis and delivered to Newfoundland this would entail 5,266 x 53 ft intermodal units and 878 articulated flat rail cars per year, or 17 cars per week.

Newfoundland Inbound by Truck Conversion to Railcar					
Origin	Inbound by truck Mt	% converted to rail	MT converted	53' Containers (25MT)	Articulated flatcars
Rest of Nova Scotia	MT				
New Brunswick	180,939	12.0%	21,713	869	145
Quebec	177,406	12.0%	21,289	852	142
Ontario	306,544	12.0%	36,785	1,471	245
United States & Mexico	352,507	12.0%	42,301	1,692	282
Western Canada	79,641	12.0%	9,557	382	64
Total	1,097,037	12.0%	131,644	5,266	878

Newfoundland Truck Outbound

Commodity Mix

Newfoundland's top three outbound by truck commodities are Food (34%), Base metals (19%), and Forest products, constituting 60% of outbound truck traffic by weight.

Newfoundland Outbound Truck			
Commodity group	7-year-average	%	Rank
Agricultural products	26,994	6%	6
Food	142,096	34%	1
Minerals	15,554	4%	8
Fuel oils and crude petroleum	7,126	2%	10
Plastic and chemical products	12,923	3%	9
Forest products	51,327	12%	3
Base metals and articles of base metals	58,030	14%	2
Automobiles and other transportation equipment	6,327	2%	11
Other manufactured goods	28,890	7%	5
Waste and scrap	16,283	4%	7
Miscellaneous products	50,974	12%	4
Total	416,524	100%	

Destination Jurisdiction

Newfoundland's top three inbound by truck commodity origins are Rest of Nova Scotia (65%), New Brunswick (27%) and USA & Mexico (15%), constituting ~72% of truck traffic by weight.

Newfoundland Outbound by Destination	7-year-average	%	Rank
Rest of Nova Scotia, destination of shipments	180,939	43%	1
New Brunswick, destination of shipments	74,904	18%	2
Québec, Quebec, destination of shipments	6,067	1%	8
Montréal, Quebec, destination of shipments	29,338	7%	6
Rest of Quebec, destination of shipments	21,590	5%	5
Oshawa, Ontario, destination of shipments	1,607	0%	9
Toronto, Ontario, destination of shipments	27,800	7%	4
Hamilton, Ontario, destination of shipments	2,879	1%	11
Windsor, Ontario, destination of shipments	1,961	0%	9
Rest of Ontario, destination of shipments	12,806	3%	7
Winnipeg, Manitoba, destination of shipments	1,548	0%	13
Rest of Manitoba, destination of shipments	745	0%	15
Saskatoon, Saskatchewan, destination of shipments	44	0%	18
Rest of Saskatchewan, destination of shipments	1,858	0%	12
Calgary, Alberta, destination of shipments	478	0%	17
Edmonton, Alberta, destination of shipments	2,957	1%	10
Rest of Alberta, destination of shipments	558	0%	16
Vancouver, British Columbia, destination of shipments	4,343	1%	8
Rest of British Columbia, destination of shipments	785	0%	14
United States and Mexico, destination of shipments	43,317	10%	3
Total	**416,524**	**100%**	

Destination Region

Rest of Nova Scotia and New Brunswick were the top two regional destinations for Newfoundland's outbound truck commodities, constituting 58% of outbound truck traffic by weight.

Newfoundland Outbound by Destination Jurisdiction	
Rest of Nova Scotia	180,939
New Brunswick	74,904
Quebec	56,996
Ontario	47,053
United States & Mexico	43,317
Western Canada	13,316
Total	**416,524**

Scenario

According to Fisheries and Oceans Canada publication entitled Canada's Fish and Seafood Trade in 2021: Overview, fishing and seafood processing contributes $6.113 billion in economic activity to the Atlantic region and supports nearly 25,300 jobs. Regionally, 389,000 Mt of seafood products are produced, ~90% of which are exported to the USA (70.3%), Asia (19.9%), Europe (7.2%) and Other (2.6%). A breakdown by province can be found in the table below.

2021 Seafood Production		
Province	Value ($ millions)	MT
Nova Scotia	2,480	159,000
New Brunswick	2,211	124,000
Newfoundland	1,422	106,000
Total	**6,113**	**389,000**

Newfoundland shipped 142,096 Mt of Food products off the island, and this would include the 106,000 Mt of seafood products as well as alcoholic and other beverages bound for export. These products are currently being trucked directly to domestic markets and to the USA or to Halifax where the freight is transloaded to rail and shipped to the Port of Vancouver where they are loaded on a ship bound for Asia.

ZIM Canada is an example of one integrated global shipping company who facilitates the shipment of refrigerated containers from Newfoundland by rail from the Port of Halifax to the Port of Vancouver with a 10-day transit time. Alternatively, the containers can be shipped by rail directly to US customers.

In this scenario we assume that 12% of Newfoundland's outbound truck freight amounting to 28,270 Mt is conveyed to Sydney in 1131 x 53' intermodal units on chassis to be loaded onto 188 articulated flat rail cars per year, or 4 cars week.

Newfoundland Outbound by Truck Conversion to Railcar					
Origin	Inbound by truck Mt	% Converted to rail	MT converted	53' Containers (25MT)	Articulated flatcars
Rest of Nova Scotia	43,838				
New Brunswick	74,904	12.0%	8,988	360	60
Quebec	56,996	12.0%	6,839	274	46
Ontario	47,053	12.0%	5,646	226	38
United States & Mexico	43,317	12.0%	5,198	208	35
Western Canada	13,316	12.0%	1,598	64	11
Total	279,424	12.0%	28,270	1,131	188

Halifax Truck Inbound

Commodity Mix

Halifax's top three inbound by truck commodities are Miscellaneous products (26%), Food products (22%) and Forest products (18%) constituting 66% of total truck shipments by weight.

Halifax Inbound Truck			
Commodity group	7-year-average MT	%	Rank
Agricultural products	19,205	1%	11
Food	374,676	22%	2
Minerals	80,911	5%	6
Fuel oils and crude petroleum	29,051	2%	8
Plastic and chemical products	61,105	4%	7
Forest products	308,261	18%	3
Base metals and articles of base metals	235,716	14%	4
Automobiles and other transportation equipment	28,292	2%	10
Other manufactured goods	113,876	7%	5
Waste and scrap	28,540	2%	9
Miscellaneous products	450,860	26%	1
Total	1,730,494	100%	

Originating Jurisdiction

Halifax's top three inbound by truck commodity originating jurisdictions were New Brunswick (46%), Toronto (14%) and Montreal (13%), constituting 74% of inbound truck by weight.

Halifax Inbound Truck	7-year-average MT	%	Rank
New Brunswick, origin of shipments	798,452	46%	1
Québec, Quebec, origin of shipments	10,886	1%	8
Montréal, Quebec, origin of shipments	232,902	13%	3
Rest of Quebec, origin of shipments	155,792	9%	4
Oshawa, Ontario, origin of shipments	4,649	0%	10
Toronto, Ontario, origin of shipments	249,698	14%	2
Hamilton, Ontario, origin of shipments	31,986	2%	7
Windsor, Ontario, origin of shipments	2,554	0%	14
Rest of Ontario, origin of shipments	93,752	5%	6
Winnipeg, Manitoba, origin of shipments	3,522	0%	12
Rest of Manitoba, origin of shipments	570	0%	
Saskatoon, Saskatchewan, origin of shipments	358	0%	
Rest of Saskatchewan, origin of shipments	456	0%	
Calgary, Alberta, origin of shipments	1,651	0%	15
Edmonton, Alberta, origin of shipments	4,912	0%	9
Rest of Alberta, origin of shipments	843	0%	
Vancouver, British Columbia, origin of shipments	4,099	0%	11
Rest of British Columbia, origin of shipments	3,062	0%	13
United States and Mexico, origin of shipments	130,353	8%	5
Grant total	1,730,494	100%	

Originating Region

New Brunswick (46%) and Quebec (23%), followed closely by Ontario (22%) were the top three regional destinations for Halifax's inbound truck commodities, constituting 58% of outbound truck traffic by weight.

Halifax Inbound Truck	MT
New Brunswick	798,452
Quebec	399,579
Ontario	382,638
United States & Mexico	130,353
Western Canada	19,471
Total	1,730,494

Halifax Truck Outbound

Commodity Mix

Halifax's top three outbound by truck commodities are Fuel oils and crude petroleum (27%), Miscellaneous products (17%), and Food products 16%, constituting 61% of outbound truck traffic by weight.

Halifax Outbound Truck			
Commodity group	7-year-average MT	%	Rank
Agricultural products	13,319	1%	11
Food	149,280	16%	3
Minerals	12,330	1%	12
Fuel oils and crude petroleum	252,405	27%	1
Plastic and chemical products	27,085	3%	9
Forest products	92,801	10%	5
Base metals and articles of base metals	99,478	11%	4
Automobiles and other transportation equipment	30,083	3%	7
Other manufactured goods	66,201	7%	8
Waste and scrap	24,339	3%	10
Miscellaneous products	160,426	17%	2
Total	927,746	100%	

Destination Jurisdiction

Halifax's top three outbound by truck commodity destinations are New Brunswick (43%), Toronto (20%), Rest of Nova Scotia (16%) and constituting 52% of shipments by weight.

Halifax Outbound Truck	7-yr-average MT	%	Rank
New Brunswick, destination of shipments	394,551	43%	1
Québec, Quebec, destination of shipments	7,000	1%	9
Montréal, Quebec, destination of shipments	65,646	7%	5
Rest of Quebec, destination of shipments	59,186	6%	6
Oshawa, Ontario, destination of shipments	15,381	2%	8
Toronto, Ontario, destination of shipments	199,533	22%	2
Hamilton, Ontario, destination of shipments	16,104	2%	7
Windsor, Ontario, destination of shipments	302	0%	18
Rest of Ontario, destination of shipments	74,842	8%	5
Winnipeg, Manitoba, destination of shipments	717	0%	15
Rest of Manitoba, destination of shipments	154	0%	19
Saskatoon, Saskatchewan, destination of shipments	258	0%	17
Rest of Saskatchewan, destination of shipments	476	0%	16
Calgary, Alberta, destination of shipments	1,164	0%	14
Edmonton, Alberta, destination of shipments	6,429	1%	10
Rest of Alberta, destination of shipments	1,729	0%	13
Vancouver, British Columbia, destination of shipments	2,605	0%	11
Rest of British Columbia, destination of shipments	2,437	0%	12
United States and Mexico, destination of shipments	79,232	9%	3
Total	927,746	100%	

Destination Region

New Brunswick (46%) and Ontario (23%) were the top two regional destinations for Halifax's outbound truck commodities, constituting 76% of outbound truck traffic by weight.

Halifax Outbound Truck	MT
New Brunswick	394,551
Quebec	131,832
Ontario	306,162
United States & Mexico	79,232
Western Canada	15,969
Total	927,746

Scenario

The data for Halifax outbound truck freight is presented but there is no assumption that any of these volumes would be shifted to the Sydney Subdivision.

Rest of Nova Scotia Truck Inbound

Commodity Mix

The Rest of Nova Scotia's top three inbound by truck commodities are Food products (34%), Miscellaneous products (22%) and Forest products (16%) constituting 71% of total truck shipments by weight.

Rest NS Inbound Truck			
Commodity group	MT	%	Rank
Agricultural products	83,445	5%	7
Food	578,833	34%	1
Minerals	29,863	2%	9
Fuel oils and crude petroleum	50,303	3%	8
Plastic and chemical products	103,848	6%	4
Forest products	277,770	16%	3
Base metals and articles of base metals	95,510	6%	5
Automobiles and other transportation equipment	23,135	1%	10
Other manufactured goods	87,946	5%	6
Waste and scrap	17,638	1%	11
Miscellaneous products	372,025	22%	2
Total	1,720,316	100%	

Originating Jurisdiction

New Brunswick (40%), the USA & Mexico 22% and Toronto (12%) were the top three regional destinations for the Rest of Nova Scotia's inbound truck commodities, constituting 71% of outbound truck traffic by weight.

Rest NS Inbound Truck	7-yr-average MT	%	Rank
New Brunswick, origin of shipments	686,388	40%	1
Québec, Quebec, origin of shipments	56,533	3%	7
Montréal, Quebec, origin of shipments	207,580	12%	4
Rest of Quebec, origin of shipments	104,857	6%	6
Oshawa, Ontario, origin of shipments	1,514	0%	15
Toronto, Ontario, origin of shipments	210,875	12%	3
Hamilton, Ontario, origin of shipments	20,683	1%	8
Windsor, Ontario, origin of shipments	1,655	0%	14
Rest of Ontario, origin of shipments	127,768	7%	5
Winnipeg, Manitoba, origin of shipments	2,281	0%	13
Rest of Manitoba, origin of shipments	838	0%	16
Saskatoon, Saskatchewan, origin of shipments	485	0%	17
Rest of Saskatchewan, origin of shipments	366	0%	18
Calgary, Alberta, origin of shipments	3,036	0%	12
Edmonton, Alberta, origin of shipments	5,153	0%	10
Rest of Alberta, origin of shipments	11,951	1%	9
Vancouver, British Columbia, origin of shipments	3,428	0%	11
Rest of British Columbia, origin of shipments	1,235	0%	14
United States and Mexico, origin of shipments	273,690	16%	2
Total	1,720,316	100%	

Originating Region

New Brunswick (40%) and Quebec (21%) followed closely by Ontario (21%) were the top three regional origins for the Rest of Nova Scotia's inbound truck commodities, constituting 82% of inbound truck traffic by weight.

Rest NS Inbound Truck	MT
New Brunswick	686,388
Quebec	368,970
Ontario	362,494
United States & Mexico	273,690
Western Canada	28,773
Total	1,720,316

Scenario

This scenario is based on a percentage of freight volumes inbound from jurisdictions that are further than 500 kilometers away, which is the distance where rail begins to make economic sense for many commodities. It assumes that a percentage of this freight is ultimately bound for Cape Breton and it would make more sense to convey it to Sydney than anywhere else. If 3.1% of the Rest of Nova Scotia's inbound truck volumes were converted to rail it would amount to 11,261 Mt and require 125 railcars.

Rest of NS Inbound by Truck Conversion to Railcar				
Origin	Inbound by truck Mt	% Converted to rail	MT converted	Railcars (90MT)
Rest of Nova Scotia	1,514	3.1%	47	1
New Brunswick	210,875	3.1%	6,537	73
Quebec	20,683	3.1%	641	7
Ontario	1,655	3.1%	51	1
United States & Mexico	127,768	3.1%	3,961	44
Western Canada	2,281	3.1%	71	1
Total	364,775	12.0%	11,261	125

Rest of Nova Scotia Truck Outbound

Commodity Mix

The Rest of Nova Scotia's top three outbound by truck commodities are Food products 26%, Forest products (16%) and Plastic and chemical products (16%), constituting 61% of outbound truck traffic by weight.

Rest NS Outbound Truck			
Commodity group	7-year-average MT	%	Rank
Agricultural products	203,051	13%	5
Food	406,749	26%	1
Minerals	51,219	3%	7
Fuel oils and crude petroleum	3,107	0%	11
Plastic and chemical products	247,075	16%	3
Forest products	253,335	16%	2
Base metals and articles of base metals	95,954	6%	6
Automobiles and other transportation equipment	9,354	1%	10
Other manufactured goods	32,673	2%	8
Waste and scrap	24,947	2%	9
Miscellaneous products	209,488	14%	4
Total	1,536,951	100%	

Destination Jurisdiction

New Brunswick (34%), the USA & Mexico (34%) and Toronto (10%) were the top three regional destinations for the Rest of Nova Scotia's outbound by rail commodities, constituting 78% of outbound truck traffic by weight.

Rest NS Outbound Truck	7-year-average MT	%	Rank
New Brunswick, destination of shipments	524,757	34%	1
Québec, Quebec, destination of shipments	31,041	2%	7
Montréal, Quebec, destination of shipments	106,762	7%	4
Rest of Quebec, destination of shipments	72,930	5%	6
Oshawa, Ontario, destination of shipments	4,150	0%	13
Toronto, Ontario, destination of shipments	150,029	10%	3
Hamilton, Ontario, destination of shipments	18,504	1%	8
Windsor, Ontario, destination of shipments	1,075	0%	16
Rest of Ontario, destination of shipments	78,492	5%	5
Winnipeg, Manitoba, destination of shipments	5,122	0%	10
Rest of Manitoba, destination of shipments	1,451	0%	15
Saskatoon, Saskatchewan, destination of shipments	863	0%	17
Rest of Saskatchewan, destination of shipments	308	0%	19
Calgary, Alberta, destination of shipments	8,200	1%	9
Edmonton, Alberta, destination of shipments	4,793	0%	11
Rest of Alberta, destination of shipments	2,762	0%	14
Vancouver, British Columbia, destination of shipments	4,648	0%	12
Rest of British Columbia, destination of shipments	836	0%	18
United States and Mexico, destination of shipments	520,230	34%	2
Total	**1,536,951**	**100%**	

Destination Region

New Brunswick (34%) and the USA & Mexico (34%) were the top two regional destinations for Halifax's outbound truck commodities, constituting 68% of outbound truck traffic by weight.

Rest NS Outbound Truck	MT
New Brunswick	524,757
Quebec	210,733
Ontario	252,250
United States & Mexico	520,230
Western Canada	28,982
Total	**1,536,951**

Scenario

If 5.2% of the Rest of Nova Scotia Outbound Rail Volumes were converted to intermodal units and loaded six to an articulated flat car it would amount to 8,8981 Mt of freight requiring 100 railcars per year which works out to 2 per week.

Rest of NS Outbound by Truck Conversion to Railcar				
Origin	Inbound by truck Mt	% converted to rail	MT converted	Railcars (90MT)
Rest of Nova Scotia	150,029	0.0%	-	-
New Brunswick	18,504	0.0%	-	-
Quebec	1,075	5.0%	54	1
Ontario	78,492	5.0%	3,925	44
United States & Mexico	5,122	10.0%	512	6
Western Canada	253,221	1.8%	4,490	50
Total	356,413	2.5%	8,981	100

Halifax Inbound Rail

Commodity Mix

Halifax's top three inbound by rail commodities are Miscellaneous products (56%), Automobiles & transportation equipment (9%), and Forest products (8%) constituting 73% of total rail shipments by weight.

Halifax Inbound Rail			
Commodity group	7-year-average	%	Rank
Agricultural products	94,241	6%	5
Food	61,009	4%	7
Minerals	5,004	0%	10
Fuel oils and crude petroleum	76,513	5%	6
Plastic and chemical products	60,493	4%	8
Forest products	125,713	8%	3
Base metals and articles of base metals	101,245	6%	4
Automobiles and other transportation equipment	141,655	9%	2
Other manufactured goods	19,980	1%	9
Waste and scrap	2,734	0%	11
Miscellaneous products	887,594	56%	1
Total	1,576,180	100%	

Originating Jurisdiction

Toronto (31%), the USA & Mexico 25% and Montreal (22%) were the top three origins for Halifax's inbound by rail commodities, constituting 77% of inbound truck traffic by weight.

Halifax Inbound Rail	7-yr-average MT	%	Rank
New Brunswick, origin of shipments	18,065	1%	10
Québec, Quebec, origin of shipments	7,922	1%	16
Montréal, Quebec, origin of shipments	340,531	22%	3
Rest of Quebec, origin of shipments	82,598	5%	4
Oshawa, Ontario, origin of shipments	2,753	0%	18
Toronto, Ontario, origin of shipments	491,427	31%	1
Hamilton, Ontario, origin of shipments	281	0%	19
Windsor, Ontario, origin of shipments	8,145	1%	15
Rest of Ontario, origin of shipments	49,303	3%	5
Winnipeg, Manitoba, origin of shipments	14,762	1%	12
Rest of Manitoba, origin of shipments	14,559	1%	13
Saskatoon, Saskatchewan, origin of shipments	46,958	3%	6
Rest of Saskatchewan, origin of shipments	18,639	1%	9
Calgary, Alberta, origin of shipments	5,108	0%	17
Edmonton, Alberta, origin of shipments	35,670	2%	7
Rest of Alberta, origin of shipments	8,220	1%	14
Vancouver, British Columbia, origin of shipments	23,455	1%	8
Rest of British Columbia, origin of shipments	17,812	1%	11
United States and Mexico, origin of shipments	389,972	25%	2
Total	1,576,180	100%	

Originating Region

Ontario and Quebec were the top two regional origins associated with Halifax's inbound rail freight.

Halifax Inbound Rail	MT
New Brunswick	18,065
Quebec	431,051
Ontario	551,909
United States & Mexico	389,972
Western Canada	185,183
Total	1,576,180

The data for Halifax inbound rail is presented but there is no assumption that any of these volumes would be shifted to the Sydney Subdivision.

Halifax Rail Outbound

Commodity Mix

Halifax's top three outbound by truck commodities are Automobiles and other transportation equipment (Food products 26%, Forest products (16%) and Plastic and chemical products (16%), constituting 61% of outbound truck traffic by weight.

Halifax Outbound Rail			
Commodity group 1	7-year-average MT	%	Rank
Agricultural products 2	4,480	0%	10
Food 4	32,126	2%	5
Minerals 5	3,086	0%	11
Fuel oils and crude petroleum 6	4,922	0%	9
Plastic and chemical products 7	98,483	8%	3
Forest products 8	29,804	2%	6
Base metals and articles of base metals 9	27,596	2%	7
Automobiles and other transportation equipment 10	141,740	11%	2
Other manufactured goods 11	8,563	1%	8
Waste and scrap	36,952	3%	4
Miscellaneous products	919,897	70%	1
Total	1,307,649	100%	

Destination Jurisdiction

Toronto (39%), the USA & Mexico (29%) and Montreal (18%) were the top three origins for Halifax's outbound by rail commodities, constituting 86% of inbound rail traffic by weight.

Halifax Outbound Rail	7-yr-average MT	%	Rank
New Brunswick, destination of shipments	23,672	2%	6
Québec, Quebec, destination of shipments	117	0%	13
Montréal, Quebec, destination of shipments	238,931	18%	3
Rest of Quebec, destination of shipments	13,546	1%	7
Oshawa, Ontario, destination of shipments	47	0%	16
Toronto, Ontario, destination of shipments	505,360	39%	1
Hamilton, Ontario, destination of shipments	91	0%	15
Windsor, Ontario, destination of shipments	167	0%	13
Rest of Ontario, destination of shipments	2,606	0%	11
Winnipeg, Manitoba, destination of shipments	10,482	1%	9
Rest of Manitoba, destination of shipments	8	0%	17
Saskatoon, Saskatchewan, destination of shipments	4,197	0%	10
Rest of Saskatchewan, destination of shipments	559	0%	13
Calgary, Alberta, destination of shipments	12,342	1%	8
Edmonton, Alberta, destination of shipments	85,211	7%	4
Rest of Alberta, destination of shipments	814	0%	12
Vancouver, British Columbia, destination of shipments	28,065	2%	5
Rest of British Columbia, destination of shipments	287	0%	14
United States and Mexico, destination of shipments	381,145	29%	2

Destination Region

Toronto (39%), United States and Mexico (29%) and Montreal (18%) were the top three regional destinations for Halifax outbound rail commodities, constituting 86% of outbound rail traffic by weight.

Halifax Outbound Rail	MT
New Brunswick	23,672
Quebec	252,594
Ontario	508,272
United States & Mexico	381,145
Western Canada	141,967
Total	1,307,649

The data for Halifax outbound rail freight is presented but there is no assumption that any of these volumes would be shifted to the Sydney Subdivision.

Rest of NS Rail Inbound

Commodity Mix

The Rest of Nova Scotia's top three inbound by rail commodities are Plastic and chemical products (46%), Agricultural products (25%), and Forest products (16%) constituting 53% of total rail shipments by weight.

Rest NS Inbound Rail			
Commodity group 1	7-year-average MT	%	Rank
Agricultural products	99,973	25%	2
Food	11,733	3%	5
Minerals	5,477	1%	7
Fuel oils and crude petroleum	22,108	5%	4
Plastic and chemical products	185,276	46%	1
Forest products	65,009	16%	3
Base metals and articles of base metals	10,765	3%	6
Automobiles and other transportation equipment	2,871	1%	8
Other manufactured goods	188	0%	10
Waste and scrap	1,903	0%	9
Miscellaneous products	-	0%	11
Total	405,302	100%	

Originating Jurisdiction

The USA & Mexico (29%), Rest of Quebec (17%) and Rest of Ontario (16%) were the top three origins for the Rest of Nova Scotia's inbound by rail commodities, constituting 62% of inbound truck traffic by weight.

Rest NS Inbound Rail	7-year-average MT	%	Rank
New Brunswick, origin of shipments	13,978	3%	9
Québec, Quebec, origin of shipments	2,011	0%	15
Montréal, Quebec, origin of shipments	12,401	3%	10
Rest of Quebec, origin of shipments	69,762	17%	2
Oshawa, Ontario, origin of shipments	-	0%	19
Toronto, Ontario, origin of shipments	422	0%	18
Hamilton, Ontario, origin of shipments	15,937	4%	8
Windsor, Ontario, origin of shipments	17,453	4%	6
Rest of Ontario, origin of shipments	66,126	16%	3
Winnipeg, Manitoba, origin of shipments	1,768	0%	16
Rest of Manitoba, origin of shipments	4,458	1%	14
Saskatoon, Saskatchewan, origin of shipments	22,823	6%	4
Rest of Saskatchewan, origin of shipments	8,302	2%	11
Calgary, Alberta, origin of shipments	1,372	0%	17
Edmonton, Alberta, origin of shipments	7,148	2%	12
Rest of Alberta, origin of shipments	16,735	4%	7
Vancouver, British Columbia, origin of shipments	5,420	1%	13
Rest of British Columbia, origin of shipments	22,425	6%	5
United States and Mexico, origin of shipments	116,761	29%	1
Total	405,302	100%	

Originating Region

The Rest of Nova Scotia's top inbound by rail origin is the United States and Mexico (29%) and Ontario (25%) followed closely by Western Canada (22%) and Quebec (21%) constituting 97% of shipments by weight.

Rest NS Inbound Rail	MT
New Brunswick	13,978
Quebec	84,175
Ontario	99,938
United States & Mexico	116,761
Western Canada	90,451
Total	405,302

Scenario

The assumption for the inbound scenario for the Rest of Nova Scotia involves converting 10% of the 31% of inbound freight that the writers have attributed to Cape Breton, which works out to 3.1%. This would amount to a potential for 53,330 Mt or 593 railcars.

Rest of Nova Scotia Inbound by Truck Conversion to Railcar				
Origin	Inbound by truck Mt	% Converted to rail	MT converted	Railcars 90MT
New Brunswick	686,388	3.1%	21,278	236
Quebec	368,970	3.1%	11,438	127
Ontario	362,494	3.1%	11,237	125
United States & Mexico	273,690	3.1%	8,484	94
Western Canada	28,773	3.1%	892	10
Total	**1,720,316**	**3.1%**	**53,330**	**593**

Commodity Mix

The Rest of Nova Scotia's top three outbound by rail commodities are forest products (47%), minerals (33%) and Fuel oils and petroleum products (9%), constituting 89% of outbound rail traffic by weight.

Rest NS Outbound	7-year-average MT	%	Rank
Commodity group			
Agricultural products	1,316	0%	8
Food	49,358	7%	4
Minerals	223,367	33%	2
Fuel oils and crude petroleum	63,259	9%	3
Plastic and chemical products	673	0%	9
Forest products	321,057	47%	1
Base metals and articles of base metals	11,275	2%	5
Automobiles and other transportation equipment	2,119	0%	7
Other manufactured goods	14	0%	10
Waste and scrap	8,529	1%	6
Miscellaneous products	-	0%	11
Total	**680,967**	**100%**	

Destination Jurisdiction

The top outbound by rail destinations associated with the Rest of Nova Scotia are the United States and Mexico (54%), New Brunswick (35%) constituting 89% of total outbound rail shipments.

Rest NS Outbound	7-yr-average MT	%	Rank
New Brunswick, destination of shipments	236,869	35%	2
Québec, Quebec, destination of shipments	3,036	0%	7
Montréal, Quebec, destination of shipments	22,008	3%	4
Rest of Quebec, destination of shipments	8,706	1%	5
Oshawa, Ontario, destination of shipments	410	0%	14
Toronto, Ontario, destination of shipments	7,651	1%	6
Hamilton, Ontario, destination of shipments	1,634	0%	9
Windsor, Ontario, destination of shipments	24	0%	17
Rest of Ontario, destination of shipments	23,923	4%	3
Winnipeg, Manitoba, destination of shipments	12	0%	18
Rest of Manitoba, destination of shipments	123	0%	15
Saskatoon, Saskatchewan, destination of shipments	-	0%	19
Rest of Saskatchewan, destination of shipments	934	0%	11
Calgary, Alberta, destination of shipments	93	0%	16
Edmonton, Alberta, destination of shipments	2,283	0%	8
Rest of Alberta, destination of shipments	1,581	0%	10
Vancouver, British Columbia, destination of shipments	753	0%	13
Rest of British Columbia, destination of shipments	820	0%	12
United States and Mexico, destination of shipments	370,108	54%	1
Total	680,967	100%	

The data for Halifax outbound truck freight is presented but there is no assumption that any of these volumes would be shifted to the Sydney Subdivision.

Destination Region

The United States and Mexico (54%) and New Brunswick (35%) are the top two destination regions.

Rest NS Outbound	MT
New Brunswick	236,869
Quebec	33,749
Ontario	33,641
United States & Mexico	370,108
Western Canada	6,599
Total	680,967

Scenario

In 2015, Inverness County is home to over 200 fishing operations that collectively generated ~$1.6 billion worth of lobster, snow crab, scallops, and northern shrimp that comprised over 80% of the landed value of seafood in Nova Scotia. In 2021, Nova Scotia produced 159,000 Mt of seafood products with a value of $2.48B. The commodity mix outbound rail for the Rest of Nova Scotia includes 49,353 MT of food products and

Rail Demand Summary

RAIL DEMAND SUMMARY				
	Lower end of Range		Upper end of Range	
Freight Stream	Railcars	Railcars per week	Railcars	Railcars per week
Newfoundland Truck Inbound	3,070	59	3,070	59
Newfoundland Truck Outbound	762	15	762	15
Halifax Truck Inbound	-	-	-	-
Halifax Truck Outbound	-	-	-	-
Rest of Nova Scotia Truck Inbound	593	11	1,159	22
Rest of Nova Scotia Truck Outbound	1,661	32	1,661	32
Halifax Rail Inbound	-	-	-	-
Halifax Rail Outbound	-	-	-	-
Rest of NS Rail Inbound	-	-	-	-
Rest of NS Rail Outbound	-	-	-	-
Sub-total	6,086	117	6,652	128
Cape Breton Rail Future (Interview results)				
Cape Breton Future Inbound	1,816	35	1,816	35
Cape Breton Future Outbound	1,131	22	1,131	22
Sub-total	2,947	57	2,947	57
GRAND TOTAL	9,033	174	9,600	185

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 7

REGIONAL GIS SECTOR ASSESSMENT NEWFOUNDLAND/ CAPE BRETON

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Scott's Directories

The data used to prepare the GIS maps herein was taken from Scott's Atlantic Directory. Scott's Directories Databases are a reliable source of current and accurate data on Canadian manufacturers, industrial companies, wholesalers, distributors, wholesale agents and brokers, manufacturers' sales offices, and B2B service firms such as transportation, contractors, accounting, financial, professional, insurance, legal, real estate, rental and leasing and retail head offices in all of Canada's major commercial centers as well as their respective surrounding markets. Nationally they can provide information on ~595,000 companies and their Atlantic Canada database contains information on ~30,000 companies.

The directory provides a listing of company by economic sector commodity, company size and export indicator, contact names and size of employment and annual sales revenues known. Using this dataset can identify the relevant products that would truck products to/from Atlantic Canada or that are railed and transloaded at other sites across the region. In addition, the dataset provides other listings for the service sector industries which were not profiled.

Economic Sector GIS Mapping

GIS Map of Newfoundland Companies in Key Sectors

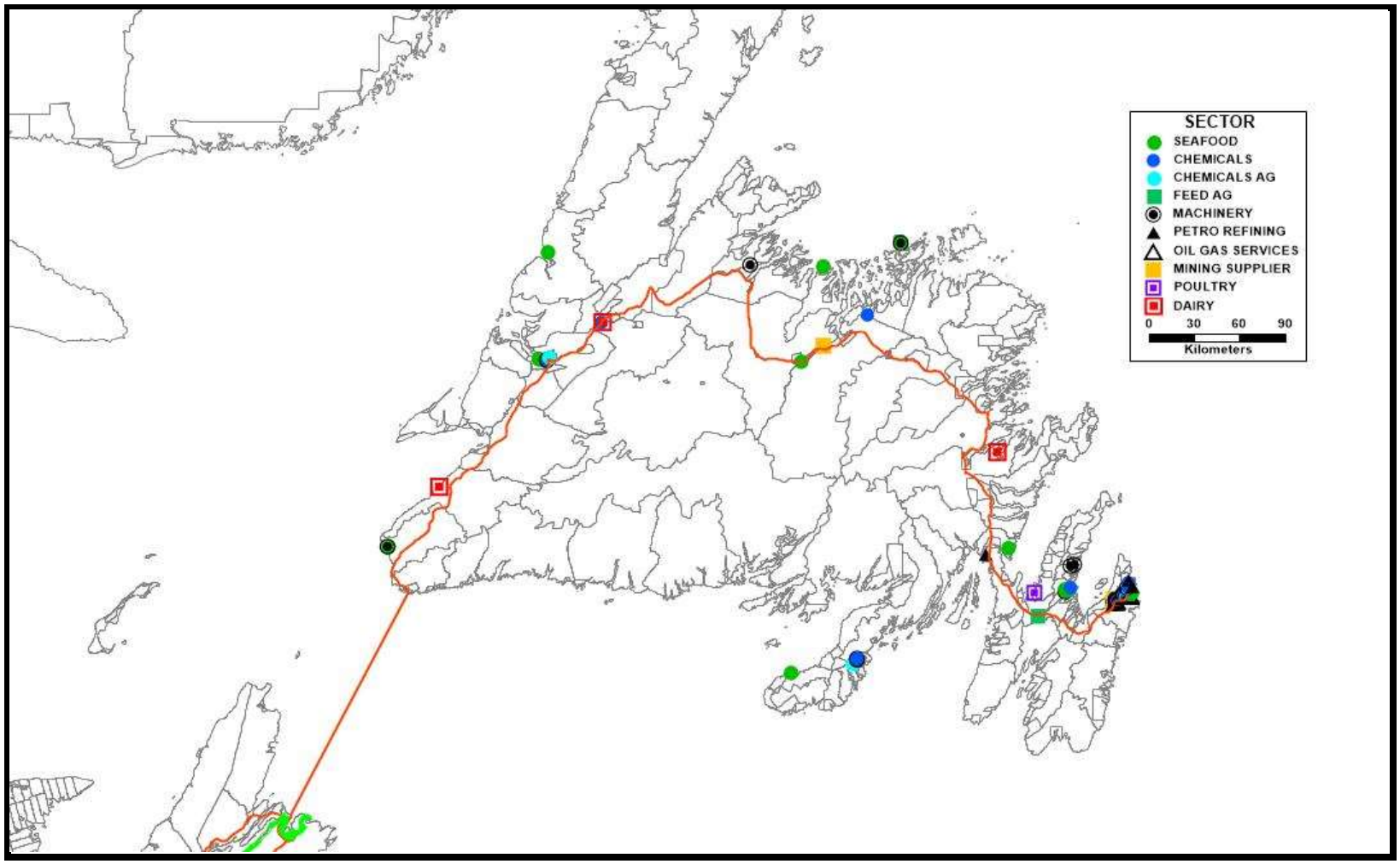


Figure 1 GIS Map Newfoundland - Businesses in Key Sectors

GIS Map of Mount Pearl/St John's Municipal Area

The Mount Pearl/St John's municipal area is home to a large industrial park in which there is a very large concentration of distribution centres and storage sites for different commercial goods and industrial service sector suppliers. The site features a cluster of >100 companies that provide both industrial and commercial services. A directory of Mount Pearl Industrial Park companies can be found in Appendix "A".

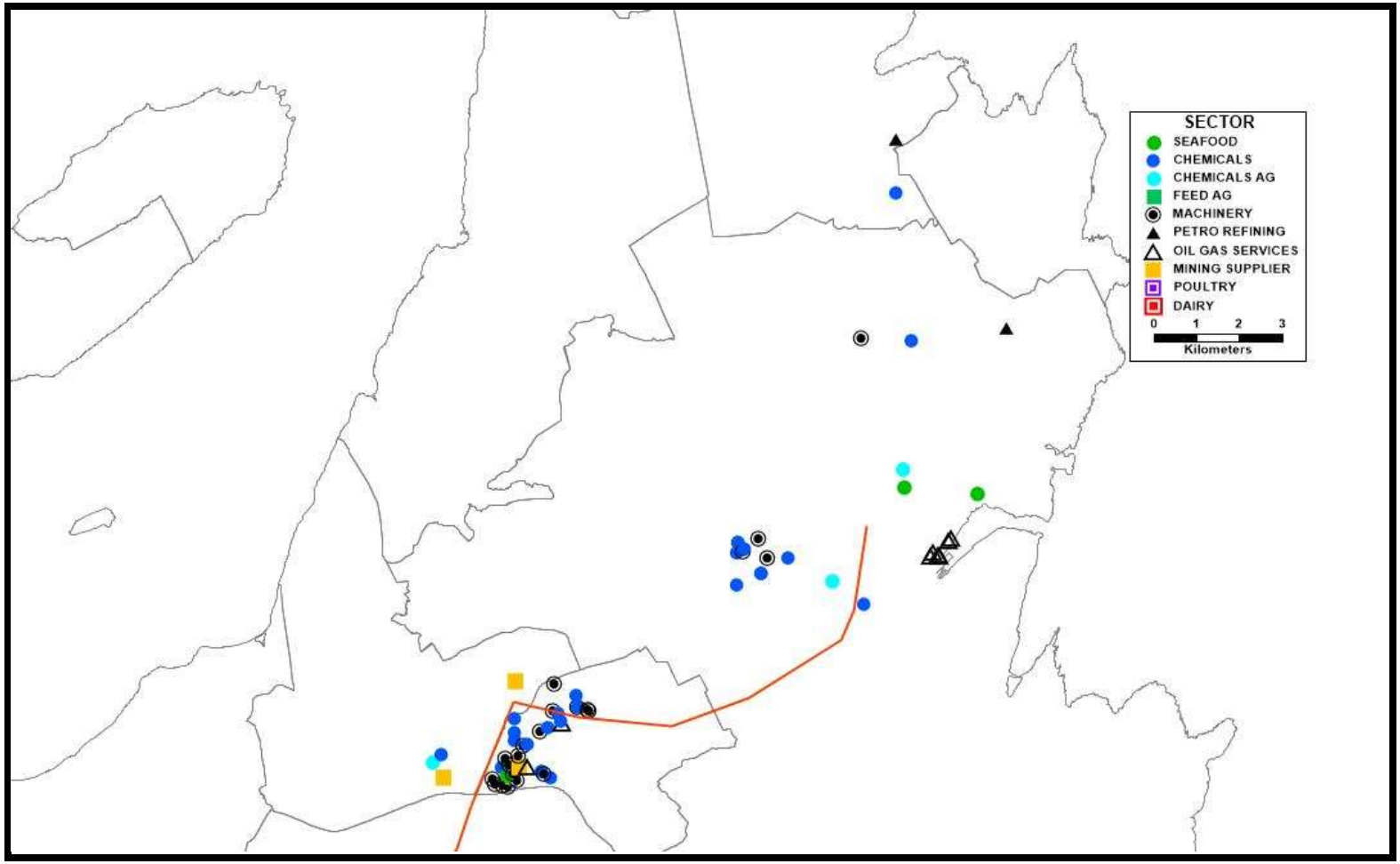


Figure 2 GIS Map Mount Pearl/St. Johns Municipal Area – Businesses in Key Sectors

Newfoundland Companies in Key Sectors

Seafood

There are 10 seafood companies operating at over 15 sites in Newfoundland as identified in the following table. The largest three companies include: Clearwater Seafoods, St Anthony's and Barry Seafood.

Company Name	Mail City	Postal Code	Jobs	Plant Size	Sales	Phone	Web
Notre Dame Seafoods	Twillingate	A0G4M0	--	--	N/A	709-884-1260	http://www.notredameseafoods.com/
Ice Water Seafoods Inc.	Arnold's Cove	A0B1A0	450	--	$75-100 Million	709-463-2445	
Cold North Seafoods	Mount Pearl	A1N4R7	375	--	Over $100 Million	709-368-9953	
Barry Seafoods Inc.	Corner Brook	A2H3E9	250	--	$50-75 Million	709-785-2879	www.barrygroupinc.com
St Anthony Seafoods	St. Anthony	A0K4S0	227	--	$50-75 Million	709-454-3854	
St. Anthony Seafoods Limited	St. Anthony	A0K4T0	165	--	$25-50 Million	709-454-2642	
Notre Dame Seafoods Inc.	Twillingate	A0G4M0	150	--	$25-50 Million	709-884-1260	notredameseafoods.com
Clearwater Seafoods Limited	Grand Bank	A0E1W0	121	--	$25-50 Million	709-832-1550	www.clearwater.ca
Barry Seafoods Inc	Corner Brook	A2H3E9	79	--	$25-50 Million	709-785-2879	https://barrygroupinc.com/
Harbour Seafoods Ltd	Rocky Harbour	A0K4N0	79	--	$25-50 Million	709-458-2083	
GreenSeafoods Ltd.	Winterton	A0B3M0	60	20000	$5-10 Million	709-583-2670	www.greenseafoods.com
Codroy Seafoods Inc.	Codroy	A0N1H0	50	--	$5-10 Million	709-955-2382	
Atlantic Treasure Seafoods	Bay Roberts	A0A1G0	6	--	Under $1 Million	709-786-6712	
The Seafood Shop Inc.	St. John's	A1B4J9	3	900	$1-5 Million	709-753-1153	
Merry's Seafood Ltd	Corner Brook	A2H6E3	2	--	Under $1 Million	709-639-3474	http://www.premiumseafoods.ns.ca/contact.html
Simply Seafood	Grand Falls-Windsor	A2A2R6	2	--	$1-5 Million	709-489-9345	http://www.doncherryssportsgrill.com/en/
Bay Roberts Seafoods Limited	Bay Roberts	A0A1G0	2	--	$5-10 Million	709-786-6712	
Assn of Seafood Producers Inc	St. John's	A1C1K4	2	--	N/A	709-726-3730	http://www.seafoodproducers.org/
Labrador Choice Seafoods Ltd	Charlottetown	A0K5Y0	2	--	$1-5 Million	709-949-0331	http://www.labshrimp.com/home/charlottetown-facility.htm
Leading Tickles Seafood	Leading Tickles	A0H1T0	0	--	N/A	709-483-2083	

Table 1 Newfoundland Seafood Companies

Aquaculture

Company Name	City	Province	Postal Code	Phone	Website	Jobs	Plant Size	Sales
St Anthony Seafoods	St. Anthony	NL	A0K4S0	709-454-3854	https://www.town.stanthony.nf.ca/mobile/Historic_Photo_Gallery.php	227		$50-75 Million
International Enterprises Ltd.	Herring Neck	NL	A0G2R0	709-628-7406	26		$5-10 Million	Y
Ampi	Isle aux Morts	NL	A0M1J0	709-698-3313	http://www.isleauxmorts.ca/	14		$5-10 Million
Spawn	Corner Brook	NL	A2H2Y6	709-634-3012	http://spawn1.ca/	14		$1-5 Million
Natures Sea Farms Inc.	St. Alban's	NL	A0H2E0	709-538-3772	www.seafarms.ca	4		$25-50 Million
Cold Ocean Salmon (Cooke)	Saint Alban's	NL	A0H2E0	709-538-3590	2		Under $1 Million	
North Atlantic Sea Farms Corp	Saint Alban's	NL	A0H2E0	709-538-3231	http://northernharvestseafarm.com/	2		Under $1 Million
Sapphire Sea Farms Ltd	Bay Bulls	NL	A0A1C0	709-334-2639	2		Under $1 Million	
Fogo Island CO-OP Fish Plant	Joe Batt's Arm	NL	A0G2X0	709-658-3413	0		N/A	

Table 2 Newfoundland Aquaculture Companies

Chemicals

Company Name	Mail City	Province	Postal Cod	Metro Area	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
Kel-Tech Laser Inc.	St. John's	NL	A1E2Z6	St. John's	709-726-2629	www.kel-tech.ca	10	3000	N/A	N
M-I Drilling Fluids Canada	St. John's	NL	A1A5C6	St. John's	709-739-9707	www.miswaco.com	75		$50-75 Million	Y
Orica Canada Inc.	Labrador City	NL	A2V2K5		709-944-2962	www.oricaminingservices.com	23		$1-5 Million	N

Table 3 Newfoundland Chemical Companies

Waste Treatment

Company Name	Location	Prov.	Postal Code	Metro Area	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
Atlantic Industrial Services	Conception Bay South	NL	A1X6B5		709-685-5066		32		$1-5 Million	
Gerry & Sons Garbage Clltn	St. John's	NL	A1C4M8	St. John's	709-738-8333		7		$1-5 Million	
Green Bay Waste Authority	South Brook	NL	A0J1S0		709-657-2233		6		Under $1 Million	N
Kyle Disposals Ltd	Harbour Grace	NL	A0A2M0		709-596-3019		2		Under $1 Million	
On Side Restoration Services	St. John's	NL	A1B4C1	St. John's	709-579-9038	www.onside.ca	13		$1-5 Million	N
PBO Industrial Disposal Inc.	Grand Falls-Windsor	NL	A2A2K6		709-489-9896		8		Under $1 Million	N
Phase Separation Solutions	St. John's	NL	A1C2H3	St. John's	709-726-5198	www.phaseparation.com			N/A	N
Pinchin LeBlanc Environmental	St. John's	NL	A1B4C3	St. John's	709-754-4490	www.pinchinleblanc.com	18		$1-5 Million	N

Table 4 Newfoundland Waste Treatment Companies

Oil & Gas

Company Name	Mail City	Province	Postal code	Metro Area	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
Chafe's Oils	St. John's	NL	A1C4Z7	St. John's	709-579-3869	http://www.chafesoil.ca/	2		$5-10 Million	
Emerleys	Joe Batt's Arm	NL	A0G2X0		709-658-3452		7		$25-50 Million	
Gnp Fuels	St. Anthony	NL	A0K4S0		709-454-2277		14		$50-75 Million	
Imperial Oil Ltd	Dunville	NL	A0B1S0		709-227-2871	http://www.imperialoil.ca/	2		$25-50 Million	
Penny's Aircraft Svc	St. Anthony	NL	A0K4S0		709-454-3839		2		$10-25 Million	
Tibbs Oil Delivery	St. John's	NL	A1C1A5	St. John's	709-579-7405		7		$25-50 Million	
Ultramar Ltd/Melvin Parsons	Gander	NL	A1V1A2	St. John's	709-651-2840		7		$25-50 Million	
Woodward Aviation	Happy Valley-Goose Bay	NL	A0P1C0		709-896-9348	http://woodwardaviation.com/	32		Over $100 Million	
Tapper's Oil	Torbay	NL	A1K1A6	St. John's	709-437-6027	http://www.tappersoil.ca/	14		$25-50 Million	

Table 5 Newfoundland Oil & Gas Companies

Oil Gas Exploration

Company Name	Mail City	Province	Metro Area	Postal Code	Phone	Web	Employment	PlantSize	Sales Range	Export Indicator
Aker Solutions	St. John's	NL	St. John's	A1C6C9	709-757-4500	www.akersolutions.com	80		N/A	N
Baker Hughes Canada	Mount Pearl	NL	St. John's	A1N4R6	709-748-4900	www.bakerhughes.com	18		N/A	Y
Exxonmobil Canada	St. John's	NL	St. John's	A1C6K3	709-724-4400	http://corporate.exxonmobil.com/en/company/worldwide-operations/locations/canada	2		$5-10 Million	
Halliburton Group Canada Inc.	Mount Pearl	NL	St. John's	A1N5B1	709-724-4300	www.halliburton.com	150		$75-100 Million	Y
Hibernia MgMt/Dev Co. Ltd.	St. John's	NL	St. John's	A1C6K3	709-273-1400	www.hibernia.ca	250		N/A	N
Husky Energy Inc.	St. John's	NL	St. John's	A1C1C2	709-724-3900	www.huskyenergy.ca	300		Over $100 Million	N
Statoil Canada Ltd.	St. John's	NL	St. John's	A1C6J5	709-726-9091	www.statoil.com	60	20000	N/A	N
Suncor Energy Inc.	St. John's	NL	St. John's	A1B0T2	709-778-3500	www.suncor.com	400		N/A	Y

Table 6 Newfoundland Oil & Gas Exploration Companies

Oil & Gas Services

Company Name	Mail City	Prov	Postal Code	Metro Area	Phone	Web	Employment	Plant Size	Sales Range
A Harvey Marine Base	St. John's	NL	A1C1A1	St. John's	709-570-7060	http://www.aharvey.com/marine/	14		N/A
Amec Black & McDonald Ltd.	St. John's	NL	A1C6C9	St. John's	709-724-3350	www.amecblackandmcdonald.com	43		N/A
Ameil Constructors Ltd	Come By Chance	NL	A0B1N0		709-701-0192	http://www.ameil.ca/	7		$1-5 Million
Atlantic Inspection Svc Inc	Mount Pearl	NL	A1N4S3	St. John's	709-576-3999	http://aosc.ca/atlantic-inspection-services	14		$1-5 Million
Cape Harrison Marine Corp	St. John's	NL	A1A5J7	St. John's	709-576-1201		7		$1-5 Million
Chevron Canada Ltd	St. John's	NL	A1C6C9	St. John's	709-757-6100	http://www.chevron.ca/	2		Under $1 Million
Churchill Construction Ltd	Happy Valley-Goose Bay	NL	A0P1E0		709-896-8521		7		$1-5 Million
Crosbie Group Limited	St. John's	NL	A1A0L9	St. John's	709-722-5280	crosbiegroup.com	90		N/A
Magna Services Ltd	St. John's	NL	A1C6K3	St. John's	709-739-8900	https://www.magna.com/	7		$1-5 Million
Newfoundland Transshipment	St. John's	NL	A1C1K4	St. John's	709-570-3200	http://ntl.net/	32		$5-10 Million
Offshore Recruiting Svc	St. John's	NL	A1C2A5	St. John's	709-576-8560	http://www.orsi.ca/	2		Under $1 Million
R P Noseworthy Surveys	Corner Brook	NL	A2H6V4		709-632-7439		2		Under $1 Million
Red Indian Surveys	Gander	NL	A1V1W7	St. John's	709-256-2648	http://www.risl.ca/	2		Under $1 Million
Richard G King Surveys Ltd	Portugal Cove-St Philips	NL	A1M2H1		709-895-6416	https://richard-g-king-surveys-ltd.business.site/	2		Under $1 Million
Richard Young & Assoc	St. John's	NL	A1E4M4	St. John's	709-745-8801		7		Under $1 Million
Score Eastern Canada Ltd	Paradise	NL	A1L3W2	St. John's	709-782-6333		7		$1-5 Million
Tuboscope Canada	Paradise	NL	A1L1K1	St. John's	709-782-5335	http://www.nov.com/tuboscope/	14		$1-5 Million
William Doyle & Assoc Ltd	St. John's	NL	A1E1R1	St. John's	709-753-5269		7		$1-5 Million
Workstrings Canada	Mount Pearl	NL	A1N4S2	St. John's	709-364-4342	http://workstringsinternational.com/contact/north-america/newfoundland_canada/	2		Under $1 Million

Table 7 Newfoundland Oil & Gas Services Companies

Forestry

Company Name	Mail City	Province	Metro Area	Postal code	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
A J Brophy Sales	St. John's	NL	St. John's	A1B1V9	709-579-5802		2		Under $1 Million	
Allied Label Ltd.	Mount Pearl	NL	St. John's	A1N4S4	709-747-9428	www.alliedlabel.ca	6	7000	$1-5 Million	N
Atlantis Business Forms Ltd	Mount Pearl	NL	St. John's	A1N1W3	709-364-9600	http://www.atlantisbusinessforms.com/	2		$1-5 Million	
B.C.M. Suppliers Inc.	Springdale	NL		A0J1T0	709-673-3314		9	5000	$1-5 Million	N
British Group	St. John's	NL	St. John's	A1B3P9	709-747-2377	www.britishgroup.ca	67		$25-50 Million	Y
Brown's Lumber Co. Ltd.	Lethbridge	NL		A0C1V0	709-467-2405		5		$1-5 Million	N
Clarence Butler & Son Ltd.	Conception Bay South	NL		A1X7A2	709-834-2499		1	1200	Under $1 Million	N
Corner Brook Pulp & Paper	Corner Brook	NL		A2H6B9	709-637-3000	http://www.cbppl.com/			N/A	
Corner Brook Pulp/Paper Ltd.	Corner Brook	NL		A2H6J4	709-637-3000	www.cbppl.com	400		Over $100 Million	Y
Gouldco Lumber Limited	Charleston	NL			709-462-3432		4		$1-5 Million	N
Kruger Inc.	Corner Brook	NL		A2H6J4	709-637-3000	www.kruger.com	400		$75-100 Million	N
Maritime Paper Products Ltd.	St. John's	NL	St. John's	A1N4S2	709-747-1200	www.maritimepaper.com	30	60000	$25-50 Million	Y
Newfoundland Hardwoods	Clarenville	NL		A5A1H2	709-466-7941	www.stella-jones.com	2		$1-5 Million	N
O'Reilly Brothers Ltd	Goulds	NL	St. John's	A1S1E9	709-745-6094		2		$1-5 Million	
Ranger Lake Forest Products	Labrador City	NL		A2V2J8	709-944-2081	www.rangerlake.ca	2	100	Under $1 Million	N
Wiltondale Lumber	Wiltondale	NL		A8A3L5	709-453-2552		7		$1-5 Million	

Table 8 Newfoundland Forestry Companies

Boat Builders

Company Name	Mail City	Province	Metro Area	Postal Code	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
Burin Peninsula Marine Svc Ctr	Fortune	NL		A0E1P0	709-832-0737		2		Under $1 Million	
Fermeuse Marine Ltd.	Fermeuse	NL		A0A2G0	709-363-2737	www.gd.marine.ca	5		Under $1 Million	N
Fiberglass Works Ltd.	Wareham-Centreville	NL		A0G4P0	709-678-6227	www.seabreezeboats.ca	12		$1-5 Million	N
Glovertown Shipyards Ltd.	Glovertown	NL		A0G2L0	709-533-6904	www.glovertownshipyard.com	21	20000	$1-5 Million	N
Grand Bank Harbour Authority	Grand Bank	NL		A0E1W0	709-832-0255		2		Under $1 Million	
Newdock St. John's Dockyard	St. John's	NL	St. John's	A1E6B5	709-758-6800	www.newdock.nf.ca	200		$50-75 Million	N
Platinum Builders	Glenwood	NL		A0G2K0	709-679-5680	www.geanges.ca	15		$1-5 Million	N
Universal Marine Ltd	La Scie	NL		A0K3M0	709-675-2345	http://www.mhsnl.com/	32		$1-5 Million	
Yates Boatbuilders Incorporate	Springdale	NL		A0J1T0	709-673-4378	www.oceanfisher.com	11	10000	$1-5 Million	Y

Table 9 Newfoundland Boat Builders

Construction

Company Name	Mail City	Province	Portal Code	Metro Area	Phone	Web	Employment	Plant Size	Sales Range	Export Indicator
Hatch	St. John's	NL	A1A0L9	St. John's	709-576-7376	www.hatch.com	780		$10-25 Million	
Belfor (Canada) Inc.	Paradise	NL	A1L0A7	St. John's	709-781-3264	www.belfor.ca	123		$50-75 Million	N
Iskueteu, A Limited	St. John's	NL	A1C5P5	St. John's	709-747-4209	www.iskueteu.com	100		$25-50 Million	N
Johnson's Construction Ltd.	Corner Brook	NL	A2H6E6		709-639-2303	www.johnsonconstruction.ca	100		N/A	N
Concord Paving Ltd	Carbonear	NL	A1Y1A5		709-596-3139		79		$25-50 Million	
M J Hickey Construction	Dunville	NL	A0B1S0		709-227-5877	http://www.mjhickey.ca/contact/	79		$25-50 Million	
Maurice's Service Ctr Ltd	St. Anthony	NL	A0K4S0		709-454-3434	http://www.maurices-service-centre.com/	79		$25-50 Million	
Redwood Construction Limited	Mount Pearl	NL	A1N3K1	St. John's	709-745-7888	www.redwoodconstruction.ca	75		$25-50 Million	
GFL	St. John's	NL	A1A5T8	St. John's	709-739-9302	www.newfound.ca	50		$25-50 Million	N
Weir's Construction Ltd.	Conception Bay South	NL	A1W3J1		709-368-4081		50		$25-50 Million	N
Bird Construction Company	St. John's	NL	A1B2C7	St. John's	709-579-4747	www.bird.ca	45		N/A	
Brook Construction Inc.	Corner Brook	NL	A2H7J4		709-634-9705	www.brookconstruction.ca	45		$5-10 Million	N
Bluebird Investments Ltd.	Grand Falls-Windsor	NL	A2A2K6		709-489-5403	www.bluebirdconstruction.ca	40		$5-10 Million	N
Infinity Construction Limited	St. John's	NL	A1C5W4	St. John's	709-237-6700	www.infinity-construction.ca	40		$5-10 Million	N
Karwood Contracting Ltd.	Paradise	NL	A1L2T8	St. John's	709-782-7707	www.karwood.com	35		$5-10 Million	N
Argentia Industrial Svc	Freshwater	NL	A0B1W0		709-227-2840		32		$10-25 Million	
Brook Enterprises Inc	Corner Brook	NL	A2H7J4		709-634-9705	http://www.brookconstruction.ca/	32		$10-25 Million	
Budgell's Construction	St. Anthony	NL	A0K4S0		709-454-7591		32		$5-10 Million	
Chimo Construction Ltd	St. John's	NL	A1B3K3	St. John's	709-739-5900	http://crosbiegroup.com/chimo-construction/	32		$10-25 Million	
Coady Construction & Excvtng	Torbay	NL	A1K1A6	St. John's	709-437-6767		32		$5-10 Million	
Floyd's Construction	Rocky Harbour	NL	A0K4N0		709-458-2582		32		$5-10 Million	
H & H Enterprises Ltd	Wabush	NL	A0R1B0		709-282-3453	http://www.handhenterprises.ca/	32		$10-25 Million	
Provincial Paving Ltd	St. John's	NL	A1A4G7	St. John's	709-754-0077		32		$10-25 Million	

Table 10 Newfoundland Construction Companies

Mining

Company Name	Mail City	Province	Postal Code	Metro Area	Phone	Web	Employment	Plant Size	Sales Range
Atlantic Minerals Ltd.	Corner Brook	NL	A2H6C7		709-634-8255	www.atlanticminerals.com	120		$25-50 Million
Cartwright Drilling	Labrador	NL	A0P1C0		709-896-4446	http://cartwrightdrilling.ca/	14		$5-10 Million
City Sand & Gravel Ltd	Paradise	NL	A1L1H7	St. John's	709-782-1000	14		$5-10 Million	
G. S. Hunt Enterprises	Bell Island	NL	A0A4H0		709-488-2083	20		N/A	N
Sweetland's Aggregates Ltd.	Bonavista	NL	A0C1B0		709-468-2260	4		$1-5 Million	N
Vulcan Minerals Inc	St. John's	NL	A1C1G9	St. John's	709-754-3186	https://vulcanminerals.ca/	0		N/A

Table 11 Newfoundland Mining Companies

Machinery

Company Name	Mail City	Province	Postal Code	Metro Area	Phone	Web	Employment	Sales Range	Export Indicator
East Coast Hydraulics	Mount Pearl	NL	A1N4P8	St. John's	709-747-2121	www.eastcoasthydraulics.ca	20	N/A	N
Hercules SLR Inc.	Wabush	NL	A0R1B0		709-944-3691	www.herculesslr.com	4	$1-5 Million	N
Hiscock Rentals & Sales	St. John's	NL	A1C5W2	St. John's	709-726-1597	www.hiscockrentals.ca	9	$1-5 Million	N
Liebherr-Canada Ltd.	St. John's	NL	A1B4N2	St. John's	709-748-7829	www.liebherr.ca	13	$5-10 Million	N
Nortrax Canada Inc.	Mount Pearl	NL	A1N0A3	St. John's	709-368-9660	www.nortrax.com	18	$25-50 Million	Y
Nortrax Canada Inc.	Corner Brook	NL	A2H6T2		709-634-3161	www.nortrax.com	10	N/A	
Nortrax Canada Inc.	Grand Falls-Windsor	NL	A2A2J9		709-489-2561	www.nortrax.com		N/A	
Nortrax Canada Inc.	Happy Valley-Goose Bay	NL	A0P1C0		709-896-1429	www.nortrax.com		N/A	
Pianowise	Goulds	NL	A1S1S5	St. John's	709-745-8127		2	Under $1 Million	
Smithy's Road Service Ltd.	Bishop's Falls	NL	A0H1C0		709-258-5601		13	$1-5 Million	N
The Cylinder Shoppe Inc.	Grand Falls-Windsor	NL	A2B1B4		709-489-9384	www.thecylindershoppe.ca	5	Under $1 Million	N

Table 12 Newfoundland Machinery Companies

Cape Breton Companies in Key Sectors

GIS Map of Cape Breton Companies in Key Sectors

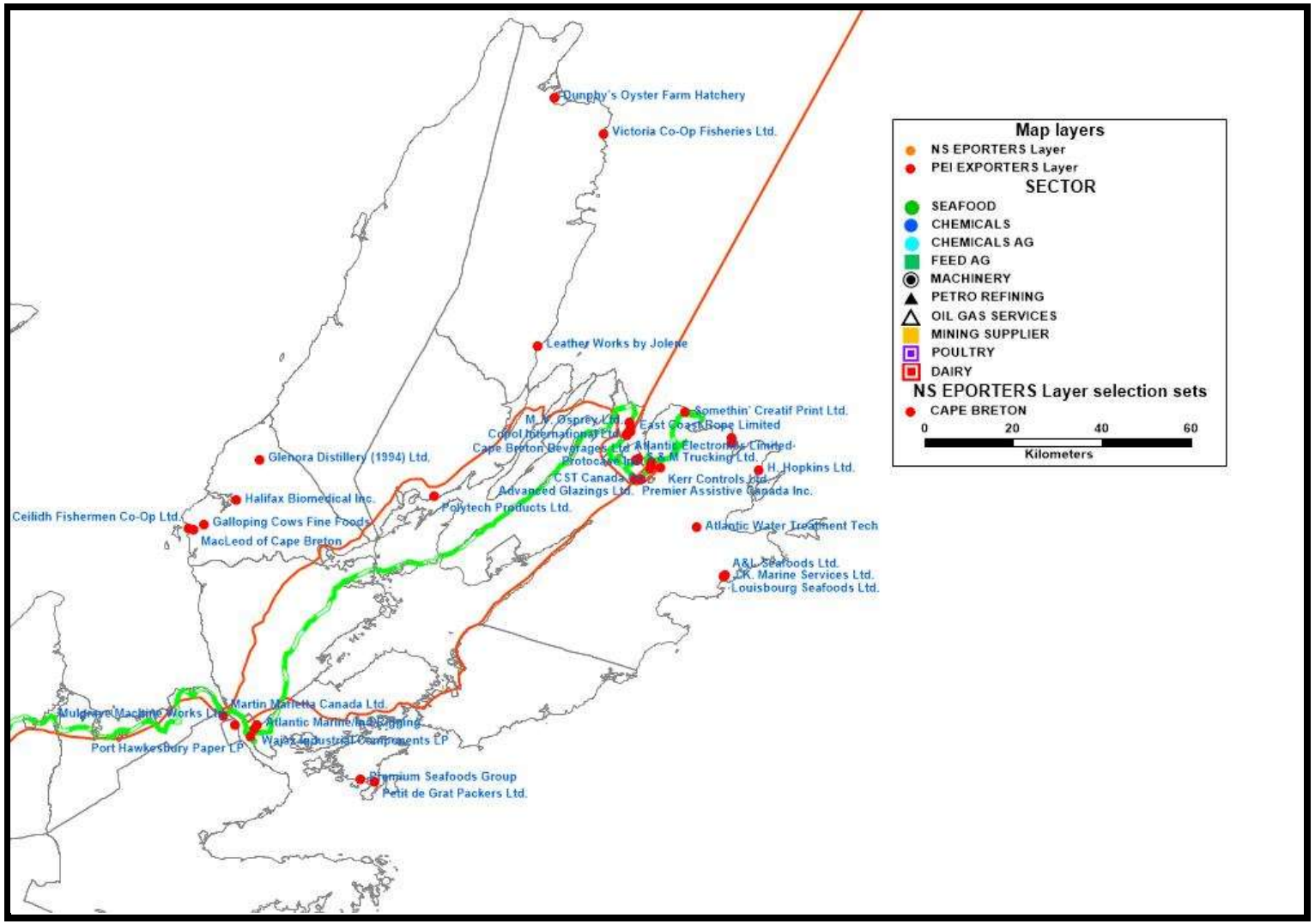


Figure 3 GIS Map of Cape Breton Businesses by Sector

Company Seafood

The following table and figure show the locations of seafood companies and wholesalers which may provide an opportunity to utilize a facility at Sydney.

Company Name	City	Province	Postal Code	Telephone	Web Site	Jobs	Square Footage	Estimated Sales	Export Country 1
M. V. Osprey Ltd.	North Sydney	NS	B2A3M3	902-794-1600	www.mvosprey.com	55	--	$75-100 Million	Worldwide
Northside Processing Limited	North Sydney	NS	B2A1A9	902-794-8501	www.louisbourgseafoods.ca	50	--	$5-10 Million	Worldwide
Ka'Le Bay Seafoods Ltd.	Glace Bay	NS	B1A5V4	902-842-9454	www.louisbourgseafoods.ca	80	--	$5-10 Million	United States
Premium Seafoods Group	Arichat	NS	B0E1A0	902-226-3474	www.premiumseafoods.ns.ca	90	--	$25-50 Million	Worldwide
Petit de Grat Packers Ltd.	Arichat	NS	B0E1A0	902-226-0029	www.premiumseafoods.nf.ca	100	15000	$25-50 Million	
Louisbourg Seafoods Ltd.	Louisbourg	NS	B1C2L8	902-733-2079	www.louisbourgseafoods.ca	90	--	$25-50 Million	United States
A&L Seafoods Ltd.	Louisbourg	NS	B1C1L1	902-733-2900		100	--	$25-50 Million	United States
Highland Fisheries	Glace Bay	NS	B1A6C9	902-849-6016	www.clearwater.ca	130	--	$25-50 Million	Worldwide
J.K. Marine Services Ltd.	Louisbourg	NS	B1C1B5	902-733-2739		170	10000	$25-50 Million	Worldwide
Ceilidh Fishermen Co-Op Ltd.	Port Hood	NS	B0E2W0	902-787-2666		20	15000	$1-5 Million	Japan
H. Hopkins Ltd.	Port Morien	NS	B1B1Y5	902-737-2243		20	--	$1-5 Million	United States
Dunphy's Oyster Farm Hatchery	Dingwall	NS	B0C1G0	902-383-2701	www.campingcapebreton.ca	5	--	Under $1 Million	United States

Table 13 Cape Breton Seafood Companies

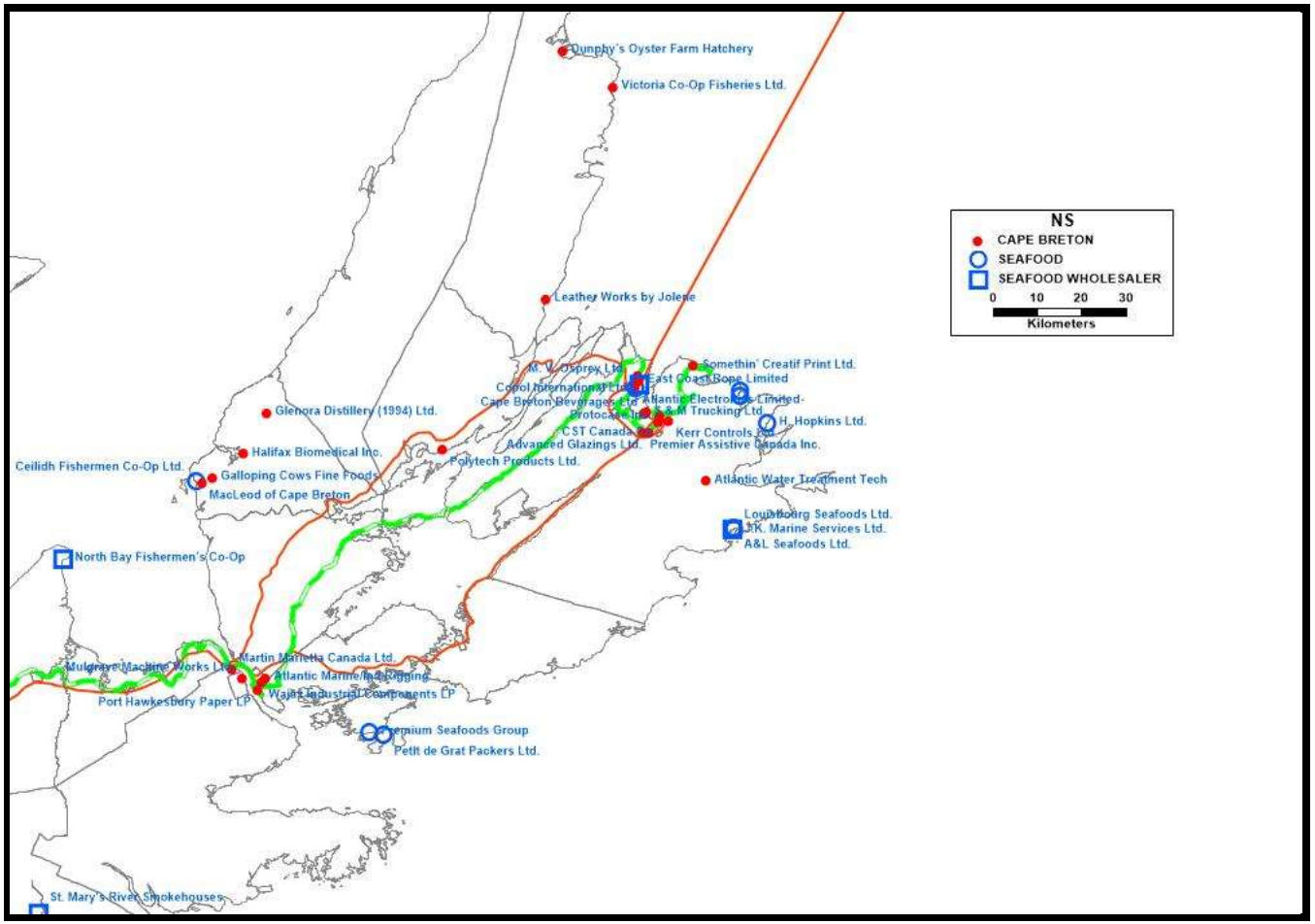


Figure 4 GIS Map of Cape Breton Companies in Key Sectors

The following companies may provide the greatest opportunity to utilize a transload facility based upon size and current transport needs.

1. M. V. Osprey Ltd.
2. Premium Seafoods Group

3. Petit de Grat Packers Ltd.
4. Louisbourg Seafoods Ltd.
5. A&L Seafoods Ltd.
6. Highland Fisheries
7. J.K. Marine Services Ltd.

The following table is a list of contact names

Company Name	Last Name	First Name	Salutation	Title	Function	Telephone
M. V. Osprey Ltd.	Nichols	Scott	Mr	Controller/Man Dir	Financial	902-794-1600
Northside Processing Limited	Nicholson	David	Mr	Production Manager	Manager	902-794-8501
Ka'Le Bay Seafoods Ltd.	Macleod	Jennifer	Ms	Accounting Clerk	Financial	902-842-9454
Premium Seafoods Group	Samson	Edgar	Mr	Pres/Gen Mgr	President	902-226-3474
Petit de Grat Packers Ltd.	Leblanc	Lisa	Ms	Mgr	General Manager	902-226-0029
Louisbourg Seafoods Ltd.	Kennedy	James	Mr	Co-Owner	Owner	902-733-2079
A&L Seafoods Ltd.	Anthony	Joe	Mr	Pres/Owner	Owner	902-733-2900
Highland Fisheries	Cosnick	Kelly	Ms	Quality Control Coordinator	Quality Control	902-849-6016
J.K. Marine Services Ltd.	Kennedy	James	Mr	Pres	President	902-733-2739
Ceilidh Fishermen Co-Op Ltd.	MacDonald	Bernie	Mr	Gen Mgr	Senior Management	902-787-2666
H. Hopkins Ltd.	Jeffries	Rod	Mr	Pres	President	902-737-2243
Dunphy's Oyster Farm Hatchery	Dunphy	Alex	Mr	Mgr	General Manager	902-383-2701

Figure 5 Cape Breton Seafood Company Contacts

Manufacturing

Company Name		City	Province	Postal Code	Location City	Location Postal Code	Telephone	Web Site
Copol International Ltd.		North Sydney	NS	B2A3M1	North Sydney	B2A3M4	902-794-9685	www.copolinternational.com

Table 14 Cape Breton Manufacturing Companies

Oil & Gas Services

Company Name	City	Province	Postal Code	Location City	Location Postal Code	Telephone	Web Site
CST Canada Co	Sydney	NS	B1P5K6	Sydney	B1P5K6	902-539-7580	www.ultramarcst.ca

Table 15 Cape Breton Oil & Gas Services Companies

Forestry

Company Name		City	Province	Postal Code	Location City	Location Postal Code	Telephone	Web Site
Port Hawkesbury Paper LP		Port Hawkesbury	NS	B9A1A1	Point Tupper	B9A1A1	902-625-2460	www.porthawkesburypaper.com

Table 16 Cape Breton Forestry Companies

Machinery Manufacturing

Company Name	City	Province	Postal Code	Location City	Location Postal Code	Telephone	Web Site
Protocase Inc.	Sydney	NS	B1P6G9	Sydney	B1P0B9	902-567-3335	www.protocase.com
Atlantic Water Treatment Tech	Albert Bridge	NS	B1K2R4	Albert Bridge	B1K2R4	902-567-6677	atlanticwatertreatment.ca

Table 17 Cape Breton Machinery Manufacturing Companies

Appendix "A" Mt Pearl Business Park Directory

UPDATED APRIL, 2016
FOR MORE CURRENT INFORMATION, PLEASE SEE THE CITY OF MOUNT PEARL WEBSITE AT
www.mountpearl.ca
(Atlantic Hardchrome Limited), 82 Glencoe Drive
(Formerly Avalon Microelectronics), 58 Glencoe Drive Altimax Courier, 51 Sagona Avenue
(Formerly Diesel Injection), 141 Glencoe Drive
(Global Windows & Doors), 10 Dundee Avenue
Bren-Kir Industrial Supplies Ltd., 15 Glencoe Drive
Brenntag Canada Inc., 90 Clyde Avenue
(Newfoundland Container Storage Yard), 172 Glencoe Drive Reefer Repair Services Ltd. (The Container Terminal),
(Power and Process Sales Inc.), 82 Clyde Avenue Industrial Rubber Newfoundland, 44 Clyde Avenue
(TKN Investments Ltd.), 22 Sagona Avenue Terra Nova Marketing Inc., 119 Clyde Avenue The Bulb Man, 50 Glencoe Drive
50383 NF & Lab Ltd. (Vachon - Purity Factories), 93 Glencoe Drive
Acklands Grainger Inc., 13 Corey King Drive
Active Fibreglass, 9 Sagona Avenue
Advanced Woodwork & Designs Ltd., 82 Glencoe Drive
AFA Forest Products Inc., 9 Glencoe Drive
AGF Steel Inc., 115 Glencoe Drive
Agility Global Integrated Solutions, 9 Corey King Drive
Air Liquide Canada (Canadian Liquid Air), 52 Dundee Avenue
Akita Equipment, 96 Clyde Avenue
All Canada Cranes & Aerials, 111 Glencoe Drive All Graphic Supplies, 43 Sagona Avenue
Allied Label Ltd. (10961 Nfld. Ltd.), 15 Glencoe Drive Allswater Marine Consultants Ltd., 123 Clyde Avenue Al-Pack Enterprises, 117 Clyde Avenue
Altera Newfoundland Technology Centre
Amca Sales & Marketing, 157 Glencoe Drive
AMI Offshore (Subsea Service Centre Ltd.),

AMI Offshore (Subsea Service Centre Ltd.), 12 Corisande Drive
Anchorage Contracting Ltd. (Division of Moss Group of Companies), 16 Thomas Byrne Drive
Anixter Canada Inc., 26 Beclin Road
Ariva Paper to Pixels, 14 Clyde Avenue Armour Transport Inc., 35 Glencoe Drive
Arrow Games Corp. (Formerly Island Bingo & Nevada), 51 Sagona Avenue
Asco Canada Inc., 7 Clyde Avenue Asco Canada Ltd., 10 Corisande Drive Asco Canada Ltd., 14 Corisande Drive
Association of Engineering Technicians &
Atlantic Crane Storage & Materials Handling, 17 Dundee Avenue
Atlantic Hose & Fittings Ltd., 56 Clyde Avenue Atlantic Industrial & Marine Supplies Ltd. (AIMS), 17 Kyle Avenue
Atlantic Inspections Services Inc., 130 Clyde Avenue Atlantic Metal Coatings Ltd., 25 Dundee Avenue
Atlantic Oilfield & Industrial Support
Atlantic Oilfield Service Centre (Atlantic Hardbanding Technology), 138 Clyde Avenue
Atlantic Powertrain & Equipment Inc., 30 Glencoe Drive Atlantic Propeller Repairs Ltd., 12 Kyle Avenue
Atlantic Recreation Ltd. (Yamaha), 17 Corey King Drive Auto Parts Network (Canadian Auto Recycling Ltd.),
Atlantic Spirts & Wines Limited, 126 Glencoe Drive Atlantic Trailer & Equipment Repair, 8 Lintrose Place Atlantica Diversified Trans. Systems (ADTS) (Formerly D.D. Transport), 27 Glencoe Drive
Avalon Controls Ltd., 12 Panther Place
Award Flooring, 41 Sagona Avenue
Awnpar Awning & Sign Fabrication, 17 Dundee Avenue
B.J. Process & Pipeline Services Division, 20 Kyle Avenue Baker Hughes Upstream Chem., 16 Kyle Avenue
Baker Hughes, 33 Dundee Avenue
Basil Fearn (1993) Ltd., 51 Clyde Avenue Bell Aliant, 68 Glencoe Drive
Battlefield Equipment Rentals, 6 Beclin Road
Beclin Business Park
Bell Logistics, 126 Glencoe Drive Billard's Trucking Ltd., 24 Kyle Avenue
Bird Stairs Ltd. (J.W. Bird & Co. Ltd.), 153 Glencoe Drive
Black & McDonald, 19 Dundee Avenue
Blackhawk Industrial Services Inc., 158 Glencoe Drive Blue Water Newfoundland Ltd./Blue Water Home Heat, 85 Glencoe Drive
Blue Water Marine & Equipment, 16 Allston Street Coastal Marine Limited, 5 Corey King Drive
Bob LeDrew & Sons Inc., 78 Glencoe Drive Boncor Building Products Company
Brinks Canada , 88 Glencoe Drive

Brown Offshore Ltd., 130 Clyde Avenue
Bruce Enterprises Ltd., 6 Kyle Avenue
Bunzl Canada Inc., 22 Beclin Road
C & W Offshore Ltd., 16 Lintrose Place Cadillac Services, 97 Clyde Avenue
CAE (Canadian Aviations Electronics) Inc., 35 Beclin Road Can Par Transport Limited, 10 Beclin Road
Cahill Instrumentation, 2 Southern Cross Road
Cameron Canada Corporation, 14 Corisande Drive Campia Gymnastics Club Inc., 60 Clyde Avenue Canada Revenue Agency, 117 Glencoe Drive
Canada Revenue Agency, 132 Glencoe Drive Canadian Coast Guard Environmental Response, 1 Southern Cross Road
Canadian Industrial Services, 25 Dundee Avenue Canadian Linen & Uniform Service, 103 Glencoe Drive Can-Am Construction, 105 Clyde Avenue
Canwel Building Materials, 42 Sagona Avenue
Capital Crane Ltd. (CGI Development Inc.), 20 Sagona Avenue
Capital Fleet Repair & Collision Centre Inc., 30 Sagona Avenue
Capital Springs Ltd., 20 Sagona Avenue Cargocan Agency Ltd., 21 Glencoe Drive Carlson Stanley Ltd., 110 Glencoe Drive
Central Dairies (Farmer's Dairy Co-Op), 12 Bruce Street
Centura Floor & Wall Fashions, 2 Bruce Street Century 2K Cabling Systems, 19 Old Placentia Road Challenger Construction Limited, 41 Dundee Avenue
Chandler (A division of J.D. Irving Ltd.), 10 Lintrose Place Charles R. Bell Limited, 126 Glencoe Drive
Chartered Accountants, 119 Clyde Avenue Cornerstone Resources Inc., 26 Kyle Avenue Crane Supply, 31 Clyde Avenue
City Thermo Pane Ltd. (Northfield Glass Group), 21 Sagona Avenue
Clarke Road Transport Inc., 20 Old Placentia Road CMH Construction, 96 Clyde Avenue
CMT Inc. (BMS North America), 19 Old Placentia Road Coast Broadcasting, 126 Glencoe Drive
Coastal Door & Frame Inc., 146 Glencoe Drive Coca Cola Refreshments, 51 Sagona Avenue Cohen's Home Furnishings, 126 Glencoe Drive Cole International Inc., 2 Southern Cross Road
Concord National (Mitchell Agencies), 93 Glencoe Drive Coombs & Associates (Dupree & Associates)
Crawford & Company (Canada) Inc., 96 Clyde Avenue
Cre8iv Design Studio, 84 Clyde Avenue Crossfit Islander Inc., 127 Clyde Avenue
Cummins Eastern Canada Ltd., 122 Clyde Avenue
Cycle City & Recreation Ltd. (Mile One Harley Davidson), 12 Allston Street
D. Kelsey Auto Repairs, 4 Corisande Drive
Dairy Farmers of Nfld. & Labrador, 27 Sagona Avenue Dave Edison Agency Ltd. (DEAL), 17 Dundee Avenue Davis Strait Management Ltd., 26 Old Placentia Road Day & Ross Inc., 79 Glencoe Drive
Dance Studio East, 28 Allston Street
Del Contracting Ltd., 17 Dundee Avenue Dental Supplies Limited, 40 Dundee Avenue

Dept. of Fisheries & Oceans (Federal), 121 Glencoe Drive Dept. of National Defence, 117 Clyde Avenue
Distribution Brunet Inc., 5 Kyle Avenue
DOF Subsea Canada Corp., 26 Allston Street
Donovans Business Park
Donovans Irving Convenience Store, 65 Clyde Avenue
Donovans Irving Gas Bar, 65 Clyde Avenue Donovans Irving Restaurant (Kariss Enterprises Ltd.), 65 Clyde Avenue
Donovans Personnel Services Limited, 17 Sagona Avenue
Double H. Electrical , 157 Glencoe Drive
Draught Pro NL Inc., 17 Dundee Avenue
Drycore Eastern Inc., 10 Panther Place
Dulux Paints, 32 Allston Street
Eassons Transport Ltd., 45 Dundee Avenue East Coast Converters, 24 Clyde Avenue
East Coast Hydraulics Nfld. Ltd., 9 Sagona Avenue
East Coast Mobile Medical Inc. & ECMM Innu Inc.,
Eastern Canada Response Corporation, 3 Old Placentia Road
Eastern Contracting (Tyson Properties Inc.), 32 Allston Street
Eastern Edge Credit Union, 31 Corey King Drive
Eastern Health, Special Assistance & Emergency Preparedness, 127 Clyde Avenue
Eastern Industrial Sales & Service, 109 Clyde Avenue
Eastern Siding Systems Inc. , 5 Thomas Byrne Drive
Eastern Valve & Control Specialties, 2 Southern Cross Road Kancote Enterprises Inc., 17 Dundee Avenue
Economy Drywall Supplies (C.N.G. Limited), 50 Sagona Avenue
Electro Mechanical Services, 92 Glencoe Drive Elite Productions, 20 Glencoe Drive Emberley's Transport, 114 Glencoe Drive Emco Offshore/Westlund, 36 Dundee Avenue Emco Retail Services, 18 Bruce Street
Emco Supply, 18 Bruce Street
Energy Management Services Ltd., 54 Glencoe Drive Engineered Energy Corporation, 19 Clyde Avenue Environment Canada, 6 Bruce Street
Enviroshred, 38 Dundee Avenue
ESL Marine Supplies Ltd, 51 Clyde Avenue EXP Services Inc., 22 Sagona Avenue
Extreme Window & Entrance Systems, 41 Sagona Avenue
F.I. Oilfield Services Canada, 2 Dundee Avenue
F.J. Wadden & Sons Ltd., 51 Glencoe Drive

Factory Direct Insulators, 38 Dundee Avenue Fastenal Canada Co., 41 Sagona Avenue
Falck Safety Services, 35 Beclin Road
Fast Signs (Canasign Inc.), 9 Allston Street Fleetwood Motors, 6 Corey King Drive Flynn Canada Ltd., 26 Corey King Drive
Fire Tech Systems Ltd. (Division of Vipond Inc.), 84 Clyde Avenue
FMC Technologies - Subsea Services Canada, 46 Dundee Avenue
Four Quest Energy, 86 Clyde Avenue
Furniture House Liquidation Centre, 109 Clyde Avenue
G.J. Shortall Ltd., 107 Clyde Avenue
Gale's Accounting Services Inc., 51 Clyde Avenue Gas Tops Ltd. (NL Service Centre), 146 Glencoe Drive
GE Oil & Gas (Vetco Gray), 27 Dundee Avenue Genoa Design International Ltd., 117 Glencoe Drive Gentek Building Products, 126 Clyde Avenue
Geo Glass & Aluminum Ltd., 32 Dundee Avenue GFI Composites Ltd., 9 Sagona Avenue Guardian Homes, 96 Clyde Avenue
Guildfords Ltd., 54 Clyde Avenue
H & F Electrical Limited, 105 Clyde Avenue
H.J. Bartlett Electric, 51 Dundee Avenue Halliburton Group Canada, 16 Panther Place
Health Canada, 26 Kyle Avenue
Heddle Marine Service (NL) Inc., 30 Dundee Avenue Hercules SLR/Stellar Industrial, 173 Glencoe Drive Hinz, A Rockwell Automation Company, 26 Kyle Avenue
Hitech Communications Ltd., 15 Glencoe Drive
Horizon Laminates, 47 Sagona Avenue
Horizon Machining Inc., 82 Glencoe Drive
Hot Tub Pros (Sun Heating & Air Conditioning Ltd.), 189 Glencoe Drive
Household Movers & Shippers (North American Van Lines), 60 Clyde Avenue
Household Movers & Shippers (North American Van Lines), NL Construction Safety Association, 80 Glencoe Drive
Image Wear (Jacobssons Enterprises Limited),
Impact Signs (R.W. Parrott's Signs), 22 Sagona Avenue Import Tool Corp. Ltd., 20 Kyle Avenue
Independent Dockside Grading Inc., 19 Old Placentia Road Industrial Engineering & Automation Solutions Ltd.
Industrial Systems Management Inc., 2 Southern Cross Road Old Dutch Foods Ltd., 93 Glencoe Drive
Infinity Construction Ltd., 60 Clyde Avenue
Inmarsat (Stratos Global Corporation Inc.), 34 Glencoe Drive Interex Systems Ltd., 34 Dundee Avenue
Interior Specialties Ltd., 28 Allston Street Island Hose & Fittings Ltd., 22 Allston Street
International Association of Bridge, Structural,

Interstate Batteries Atlantic Canada, 51 Sagona Avenue
Intria Corporation (A Division of CIBC), 38 Beclin Road IPEX Atlantic, 16 Beclin Road
Iron Mountain Canada Corporation, 45 Sagona Avenue
Ironworkers Local 746, 38 Sagona Avenue Ironworkers Realty Inc., 7 Kyle Avenue Irving Energy, 26 Old Placentia Road Irving Propane, 63 Clyde Avenue
Island Construction & Environmental Ltd., 18 Dundee Avenue Pearl Springs, 20 Glencoe Drive
Island Furniture, 11 Kyle Avenue
Island Furniture, 9 Sagona Avenue
J & T Construction Ltd., 58 Glencoe Drive
J.W. Lindsay Enterprises Limited, 22 Beclin Road
K & D Pratt Group Inc., 126 Glencoe Drive K C Industries, 152 Glencoe Drive
KayCan Ltd., 22 Dundee Avenue
Keltic Steelworks Ltd. , 37 Dundee Avenue Keltic Transportation Inc., 50 Glencoe Drive Killick Group Ltd., 19 Dundee Avenue
Kenmount Business Park
KMA Pharmaceuticals, 96 Clyde Avenue
Lawton's Drug Store (Wholesale Division), 1 Home Street LeDrew's Express Ltd., 127 Clyde Avenue
Life Safety Systems (Atlantic Mechanical Contractors Inc.), 78 Clyde Avenue
Lighting & Traffic Systems Ltd., 12 Kyle Avenue Loblaw Atlantic, 35 Clyde Avenue
Loomis Express (DHL Express Canada Ltd.), 117 Clyde Avenue
LVM Maritime Testing Ltd., 39 Sagona Avenue
Madsen Construction Equipment
Madsen Construction Equipment, 141 Glencoe Drive Madsen Power Systems, 141 Glencoe Drive
Marine Industrial Lighting Systems Ltd., 51 Sagona Avenue Maritime Paper Products, 14 Clyde Avenue
Martin's Fire Safety Ltd. (EMS Services Ltd.), 20 Allston Street
McKesson Canada, 5 Glencoe Drive
Mechanical Components Limited, 119 Clyde Avenue Mechano Construction, 18 Dundee Avenue
Medical Mart Supplies Ltd., 127 Clyde Avenue Metabolic Meltdown, 2 Bruce Street
Metal World Inc., 48 Glencoe Drive
Metrie Canada , 189 Glencoe Drive Midland Courier, 200 Glencoe Drive
Midland Transport, 200 Glencoe Drive Mikan Inc., 43 Sagona Avenue
Molson Properties Inc., 60 Clyde Avenue

Morris Foods Ltd. (Country Pride), 2 Kyle Avenue Mount Pearl Recycling Depot (Scotia Recycling), 5 Old Placentia Road
Mount Pearl Business Parks
Multi-Chem (Division of Halliburton), 16 Panther Place Multiglass Insulation, 54 Clyde Avenue
National Energy Equipment Inc., 18 Dundee Avenue National Heat Treating Inc., 109 Clyde Avenue
National Oilwell Varco Canada, 153 Glencoe Drive
New Glass Ltd. (Division of Economy Glass), 21 Sagona Avenue
New Lab Oxygen Limited, 19 Sagona Avenue
New Valve Services & Consulting Inc., 2 Southern Cross Road SeaForce Diving, 44 Dundee Avenue
Newfoundland and Labrador Employers Council,
Newfoundland Electrical Ltd. (Division of Moss Group
Newfoundland Hard-Rok Inc., 41 Beclin Road
Newfoundland Marine Safety Systems, 8 Kyle Avenue Newterm Logistics (Oceanex), 35 Glencoe Drive
Norampac NL (A Division of Cascades Canada Ulc.), 110 Clyde Avenue
Nord Marine Services, 42 Dundee Avenue North Atlantic Lining Ltd., 12 Kyle Avenue North Atlantic Petroleum, 23 Kyle Avenue NRG Electrical Ltd., 26 Dundee Avenue NuQuest Distribution, 96 Clyde Avenue
Nortrax (John Deere), 15 Allston Street
O.K. Tire Store (OMB Parts & Industrial Ltd.), 13 Sagona Avenue
Oakland Enterprises Limited, 5 Glencoe Drive Oceaneering Canada Limited, 23 Dundee Avenue O'Keefe Agencies, 86 Glencoe Drive
of Companies), 16 Thomas Byrne Drive Newfoundland HVAC Limited (Division of Moss Group of Companies), 16 Thomas Byrne Drive
OMNI Laboratories, 26 Old Placentia Road
OP Fiberglass & Marine Supplies, 22 Sagona Avenue Overhead Door (Nfld) Ltd., 99 Clyde Avenue
Ornamental and Reinforcing Iron Workers, 38 Sagona Avenue P.S. Atlantic Ltd. (Benjamin Moore Warehouse),
Paperlinx Canada Limited (Spicers Paper), 157 Glencoe Drive 54 Glencoe Drive
Pardy's Waste Management, 30 Kyle Avenue Parts for Trucks, 4 Corisande Drive
PBA Industrial Supplies Ltd., 84 Clyde Avenue PBS Services Ltd., 18 Dundee Avenue
Penav Company Limited, 93 Glencoe Drive Pepsi-Co Foods Canada, 5 Glencoe Drive Peter Pan Sales, 36 Clyde Avenue
Penney Pre-Owned Used Cars & Trucks, 27 Corey King Drive
Petroleum Measurement Integrators, 26 Old Placentia Road Phoenix Transportation & Logistics Inc., 152 Glencoe Drive Pik-Fast Express Inc., 20 Glencoe Drive
Pinnacle Agencies (Amercoat Canada) (Belzona Atlantic),
Pioneer Enterprises Ltd. (Electric Motor & Pump Division), 26 Glencoe Drive
Port Electric Solutions Inc., 119 Clyde Avenue Praxair Canada Inc., 123 Clyde Avenue

Pouch Cove
Prime Fasteners Maritimes Ltd., 2 Bruce Street ProArc Fabricating Ltd., 28 Dundee Avenue Procanna Building Materials, 47 Clyde Avenue Pro-Dive Marine Services, 17 Sagona Avenue ProTek Industries Ltd., 152 Glencoe Drive Provall Parts Ltd., 43 Sagona Avenue
Pumps Plus, 10 Panther Place
PW Windows, Doors Hardware, 161 Glencoe Drive
Reefer Repair Services Ltd.
Regal Confections, 93 Glencoe Drive Reliant Transport Ltd., 12 Bruce Street
RGR Enterprises (Freight Forwarding), 117 Clyde Avenue RJB Warehouse, 103 Clyde Avenue
RJS Terminals (Armour Transportation Systems), 9 Glencoe Drive
Rockwater Professional Products (Bilroc Industries Ltd.), 5 Panther Place
Rolls-Royce Canada Ltd., 142 Glencoe Drive Royal Freightliner, 26 Sagona Avenue
Royal Canadian Mounted Police, 31 Allston Street
Royal Newfoundland Constabulary, 59 Clyde Avenue Russel Metals Inc., 11 Panther Place
Ryder Truck Rentals, 21 Glencoe Drive
Ryder Truck Rentals, 27 Glencoe Drive
S.M.E. Ltd., 116 Glencoe Drive
Safway Services Canada Inc., 10 Panther Place Sameday Right-O-Way Courier (Div. Of Day & Ross), 79 Glencoe Drive
Scale Shop (1985) Ltd., The, 88 Clyde Avenue Schlumberger Canada Limited, 7 Panther Place Schlumberger Canada Ltd., 2 Panther Place School Milk Foundation of Nfld. & Labrador,
Scientific Drilling International (Canada) Inc., 84 Glencoe Drive Weston's Bakery Ltd., 17 Bruce Street
Scotia Insulations (Polr Enterprises), 134 Clyde Avenue Scotsburn Dairy Group, 22 Clyde Avenue
Scotsburn Ice Cream, 22 Glencoe Drive
Seaboard Liquid Carriers (Shannon Trucking), 31 Allston Street
Seaforce Technologies Inc., 46 Dundee Avenue Sears Canada Inc., 9 Glencoe Drive
Service Master, 24 Old Placentia Road Service NL, OHS Division, 15 Dundee Avenue
Setpoint AE Inc., 9 Allston Street Shamrock Truss, 20 Corey King Drive
Sheehan's Holdings, 84 Glencoe Drive Shred-It International Inc., 109 Clyde Avenue
Signature Kitchens & Bath, 11 Lintrose Place Simplex Grinnell (A division of Tyco Fire & Security), 153 Glencoe Drive
Sleipnir Logistics Inc. (Sleipnir Lift Management & Simulation Center), 43 Sagona Avenue
Smith, Bussey, Muir Accountants, 2 Bruce Street Sobeys District Office, 63 Glencoe Drive
Sooley and White, 82 Clyde Avenue

Source Atlantic Limited , 38 Beclin Road
Source Energy Atlantic Inc., 127 Clyde Avenue Source Medical (Cardinal Health), 19 Clyde Avenue Southern Shore Hydraulics Inc., 84 Glencoe Drive Spectra Premium Industries, 102 Clyde Avenue Sperry Marine Canada, 17 Dundee Avenue
Speed Pro Signs (Annmar Holdings), 28 Allston Street
Stabil Drill, 106 Clyde Avenue
Stacey Agencies Ltd. (10961 Newfoundland Ltd.), 15 Glencoe Drive
Steers Ltd., 103 Glencoe Drive
Stellar Industrial Sales Ltd., 173 Glencoe Drive
Stoncor Group, 56 Clyde Avenue
Strongco Equipment (formerly Sheridan Equipment),
SULIS Subsea Corporation, 17 Dundee Avenue Surface Experts, 109 Clyde Avenue Sustainable Windows , 9 Glencoe Drive
Superior Woodworking Ltd. , 23A Corey King Drive
Sysco Food Service of St. John's, 10 Old Placentia Road
TAM International Oil Services Ltd., 22 Beclin Road Telecommunications Technology Canada Inc.,
TEAM Industrial Services (TISI Canada), 41 Sagona Avenue Tempo Construction Management Inc.
Technologists of NL (AETTNL), 22 Sagona Avenue Atlantic Cold Seafoods (Cold North Seafoods), 157 Glencoe Drive
The Toy Box, 15 Old Placentia Road
Thinkware Limited (My Telescope.com), 96 Clyde Avenue
Thomas Glass, 21 Sagona Avenue
Tire Craft, 116 Glencoe Drive
TKN Investments, 22 Sagona Avenue TLC Wholesale, 51 Sagona Avenue TNT Office Group, 5 Glencoe Drive
Tobin's Auto Sales & Service, 4 Lintrose Place TRA-Sobeys Newfoundland Ltd., 63 Glencoe Drive TRC Hydraulics Inc., 84 Glencoe Drive
Trane Atlantic, 22 Beclin Road
Tri Star Mechanical, 26 Dundee Avenue Trident Construction, 21 Dundee Avenue
Trimac Transportation & National Tank Services, 21 Kyle Avenue
Troy Life & Fire Safety Ltd., 150 Glencoe Drive TTL Supply, 51 Sagona Avenue
Tulk Tire & Service Ltd., 15 Clyde Avenue Twin City Financial, 96 Clyde Avenue
Ultramar Truck Stop (Young's Truck Stop), 116 Glencoe Drive St. John Ambulance, 8 Thomas Byrne Drive
Unalloy-IWRC (Samuel Manu-Tech Inc.), 111 Glencoe Drive Unisource Canada Inc., 60 Clyde Avenue
United Association of Journeymen & Apprentices, Local 740 Training Centre, 48 Sagona Avenue

United Association of Plumbers & Pipefitters Local 740, 48 Sagona Avenue
United Parcel Services (UPS) Canada, 134 Clyde Avenue United Rentals of Canada, Inc., 31 Sagona Avenue Urban Flooring Contractors Ltd., 12 Lintrose Place
Versacold Logistics (Services) Canada Inc., 96 Glencoe Drive Apex Construction Specialties Inc., 41 Beclin Road Viking Fire Protection Inc., 51 Dundee Avenue
Vipond Fire Protection Inc., 51 Sagona Avenue
Vision Packaging Supplies Ltd., 13 Old Placentia Road Visions Employment, 58 Glencoe Drive
W.C. Hull Products Inc., 22 Allston Street
Wajax Equipment, 1 Panther Place
Wajax Power Systems (Formerly Detroit Diesel Allison), 1 Panther Place
Wal-Mart Canada, 97 Glencoe Drive Wartsila Canada Inc., 27 Sagona Avenue Waterworks, 18 Bruce Street
Well Control Group, 80 Clyde Avenue
Western Hydraulic 2000 Ltd., 10 Sagona Avenue
Window Pros Ltd. (Sunserve), 21 Sagona Avenue Window Shop Inc., The, 129 Glencoe Drive Wing'n'It Corporate Office, 157 Glencoe Drive
Window World (Division of Eastern Siding Systems Inc.), 5 Thomas Byrne Drive
WLH Contracting Limited, 10 Panther Place
Wolseley Canada Inc., 9 Corey King Drive
Workstrings Canada, 106 Clyde Avenue

Table 18 Mount Pearl Business Park Directory

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 8
ENVIRONMENTAL CARBON BENEFITS

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Summary

Our tabletop analysis of rail vs truck carbon emissions suggests that a shift from truck to a Class I carrier would result in a decrease of 5573.5 tonnes of CO2, an increase of 7.8 tonnes of NOx and an increase of .6 tonnes of particulate matter. Using tabletop emission factors the author's conclude that the change in CO2 emissions for truck vs rail in Cape Breton would be a reduction of 4593.8 tonnes.

Carrier type	Emissions factor	CO2 Emissions
Truck	52.93	5,906.00
Rail	11.76	1,312.20
Change Mt		- 4,593.80

This is equivalent to removing ~100 cars from the road. At $50 per Mt for carbon emissions the cost would be in the range of $230K to $250K.

Introduction

Diesel fuel (refined from crude oil) produces many harmful emissions when it is burned, and diesel-fueled engines are major sources of greenhouse gas emissions, including carbon emissions and other harmful pollutants, such as ground-level ozone and particulate matter. Diesel-fueled freight transportation makes up 8% of global greenhouse gas emissions and its carbon emissions are projected to double by 2050. Long-run average per tonne-kilometer results show that ocean going vessels emit the fewest emissions, followed by rail, then trucks, and that the inclusion of life cycle processes can increase impacts by up to 32% for energy and greenhouse gas (GHG) emissions and 4,200% for conventional air pollutants.

The environmental impacts of diesel fuel would justify public policies aimed at reducing its consumption even if the cost at the pump was zero. However, the fact is that diesel fuel represents the single largest cost for both rail and truck carriers, and this is a major motivating factor in terms of implementing new technologies and finding operational efficiencies that reduce fuel consumption and the associated emissions. Diesel fuel is reported to represent 25-30% of a Class 1 rail carrier's operating costs and, as the table below indicates, over the past decade fuel operating costs for trucks have ranged from 21% to 38% of total operating costs, with the percentage moving in tandem with crude oil prices.

Transport Truck Fuel Operating Cost as % of Total Operating Cost										
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fuel cost % of total operating cost	38%	34%	26%	21%	22%	24%	24%	19%	22%	?
Average closing price of crude oil	97.98	93.17	48.66	43.29	50.8	65.23	56.99	39.68	68.17	94.82

Table 1 Truck Fuel Operating Cost % 2013-2021

These costs are passed on to price-sensitive producers, processors, and manufacturers who in turn pass the cost on to price-sensitive consumers. Consequently, companies and economic sectors that can find ways to reduce fuel costs and improve efficiency can generate sustainable competitive advantages.

Both rail and truck carriers are adopting leading edge technologies that reduce emissions, however the operating life of a semi-tractor is ~15 years while the life of a locomotive is ~25 years and this impacts their respective adoption rate for the latest technologies. The reality is that there are many factors that shippers consider in choosing to ship by rail or truck besides carbon and fuel costs and it is unlikely that either mode will disappear anytime soon. More likely they will continue to function together – as Josué Velázquez Martínez, a research scientist at the MIT Center for Transportation and Logistics suggests, perhaps the best way to reduce freight's carbon footprint is to focus on the "first and last mile" by focusing on the trucks and vans that carry goods from regional distribution hubs to local stores or directly to people's homes due to the rise of e-commerce.

Truck vs Rail Emissions Factors

Based on a Tabletop Calculation

Natural Resources Canada (NRCAN) estimates that diesel engines emit 2.68 kg of CO_2 per litre of diesel fuel consumed, and diesel-powered heavy trucks in had average fuel economy of 39.5 L/100 km (~7 imperial mpg). If we assume that trucks and railcars are loaded to 20 and 90 tonnes respectively, the Emissions Factors for each would be as follows:

0.395	liters consumed per kilometer
2680	CO_2 grams emitted per liter of diesel
1058.6	Total grams CO_2 emitted per kilometer
20	tonnes of cargo truck
90	tonnes of cargo rail
52.93	Emissions grams per tonne per kilometer truck
11.76	Emissions grams per tonne per kilometer rail

Table 2 Tabletop Calculation Emission Factors

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., kilograms of CO2 emitted per tonne-kilometer). Such factors facilitate estimation of emissions from various sources of air pollution. In most cases, these factors are simply averages of all available data of acceptable quality and are generally assumed to be representative of long-term averages for all facilities in the source category (i.e., rail carriers, truck carriers).

Based on Data Provided by Truck and Rail Carriers

SmartWay is a program sponsored by the US Environmental Protection Agency (EPA) that helps transportation, freight, and logistics companies advance supply chain sustainability by measuring, benchmarking, and freight transportation efficiency. Natural Resources Canada (NRCAN) has adopted the application and has created The SmartWay Transport Partnership to provide a range of tools and information to help companies make better decisions about their energy performance.

Carriers become SmartWay Partners by using a SmartWay Tool to submit their data and the tool calculates and aggregates company-specific emissions rates according to the fleet category. Contributing partners get value from the application by being able to calculate, analyze and monitor their carbon footprint on a continuous basis, and they can use the benchmarking data to gauge their performance against competitors and industry averages. Detailed data for each carrier is available on the NRCAN website[i]. In 2020, the SmartWay Tool was used by 30 rail carriers, 3108 truck carriers and 15 intermodal carriers (truck and rail).

Notably, one of the carriers reporting their emissions data to The SmartWay Transport Partnership is Genesee and Wyoming (G&W), the owners of the Cape Breton & Central Nova Scotia Railway (CBNS). G&W is an American short line railroad holding company that owns or maintains an interest in 122 railroads in the United States, Canada, Belgium, Netherlands, Poland and the United Kingdom and have 7,300 employees serving 3,000 customers.

SmartWay gathers fuel, distance, and payload data of carriers to calculate carrier emissions rates using six distinct emissions categories, three of which are reflected in Table 1 below. These emission factors are averaged with the exception of G&W which is based on their actual reported data.

Carrier Type (# reporting)	**CO2 g/t-km**	**NOx g/t-km**	**PMg/t-km**
Class 1 Rail (7)	14.19	0.1984	0.0056
Class 2 Rail (4)	62.64	1.0954	0.0387
Class 3 Rail (18)	260.05	4.5584	0.1618
Genesee & Wyoming	33.69	0.7624	0.0198
Truck (3108)	64.14	0.1282	0.0006
Multimodal (15)	34.37	0.1987	0.0053

Table 3 Emission Factors based on Carrier Reported Data

Table 1 illustrates the challenge in using a standard emission factor for all classes of railways. Class I railroads are primarily involved with long-haul transportation of commodities with as few stops in between as possible, whereas Class II & III railways operate a greater percentage of switching and terminal locomotives that might be geared for a different purpose, travel shorter distances, and are more likely to feature older, less efficient engine technology compared to the locomotives being operated by Class I railways. Even those shortlines that have a decent stretch of track will tend to have older and/or smaller less performant locomotives pulling fewer cars with less freight and will require more switching and idling time.

Tonne Miles

The tonne-kilometers in were calculated using the freight volumes and distances shipped inbound and outbound from/to both Newfoundland and Cape Breton and the North Shore. Emissions are based on a shift of 15% of freight from truck to rail.

NEWFOUNDLAND TRUCK					
GHG			Tonne Km		
O/D		Km	Inbound	Outbound	Total
ON		1996	105,540,714	14,087,803	119,628,516
QC		1448	66,581,663	12,379,440	78,961,103
NS		399	15,978,901	8,556,874	24,535,775
NB		619	16,472,121	6,954,809	23,426,930
USA		1519	18,150,917	9,869,805	28,020,722
W CDN		5025	17,552,082	8,823,971	26,376,053
Sub-total			**240,276,397**	**60,672,702**	**300,949,099**
NS NORTH SHORE CAPE BRETON TRUCK			Tonne Km		
O/D		Km	Inbound	Outbound	Total
Halifax		399	62,583,268	12,037,491	74,620,759
New Brunswick		619	63,731,184	15,104,338	78,835,522
USA		1519	62,360,486	36,745,642	99,106,128
Toronto		1996	63,135,941	13,924,832	77,060,773
Montreal		1448	45,086,350	7,188,525	52,274,875
Rest Ontario		1996	38,253,623	0	38,253,623
Rest Quebec		1,448	22,774,996	0	22,774,996
Newfoundland		NA	0	0	0
Sub-total			**357,925,848**	**85,000,828**	**442,926,676**
Total Tonne Kilometers Nfld & CB Northshore			**598,202,245**	**145,673,530**	**743,875,775**
15% shift from truck to rail			**89,730,337**	**21,851,030**	**111,581,366**

Table 4 Total Tonne Kilometers

Emissions by Carrier Type

Multiplying 15% of total tonne kilometers (111,581,366) by the emission factors in Table 2 provides the emissions for each carrier type as well as for G&W based on their average reported emissions.

Carrier Type (# reporting)	CO2 tonnes	NOx tonnes	PM tonnes	
Class 1 Rail (7)	1,583	22.1	0.6	
Class 2 Rail (4)	6,989	122.2	4.3	
Class 3 Rail (18)	29,017	508.6	18.1	
Genesee & Wyoming	3,759	85.1	2.2	
Truck (3108)	7,157	14.3	0.1	
Multimodal (15)	3,835	22.2	0.6	

Table 5 GHG Emissions by Carrier Type

Analysis

Using G&W and Truck emissions factors, the net change in GHG emissions associated with shifting 15% of truck volumes to rail is indicated in Table 5 below.

CO2 tonnes	NOx tonnes	PM tonnes
- **3,397.7**	70.8	2.1

Table 6 Change in GHG Emissions Afforded by Shifting 15% of truck traffic to G&W

The foregoing suggests that there would be a decrease of 3397.7 tonnes of CO2 and an increase of 70.8 tonnes of NOx and 2.1 tonnes of particulate matter.

Using Class I and Truck emissions factors, the net change in GHG emissions associated with shifting 15% of truck volumes to rail is indicated in Table 6 below.

CO2 tonnes	NOx tonnes	PM tonnes
- **5,573.5**	7.8	0.6

Table 7 Change in GHG Emissions Afforded by Shifting 15% of freight volumes to Class I carrier

The foregoing suggests that a shift from truck to a Class I carrier would result in a decrease of 5573.5 tonnes of CO2, an increase of 7.8 tonnes of NOx and an increase of .6 tonnes of particulate matter.

Using the tabletop emission factors from Table 1 the change in CO2 emissions for truck vs rail would be a reduction of 4593.8 tonnes.

Carrier type	Emissions factor	CO2 Emissions
Truck	52.93	5,906.00
Rail	11.76	1,312.20
Change MT		- 4,593.80

Table 8 Emissions Truck vs Rail

This is equivalent to removing ~100 cars from the road. At $50 per tonne for carbon emissions the cost would be in the range of $230K to $250K.

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 9
IMPLICATIONS RAIL SERVICES

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

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Purpose

The purpose of this section is to discuss some of the importance of supply chain relationships and to raise examples of recent developments that might impact the re-emergence of the Sydney Subdivision.

Introduction

"Change is the only constant in life" (Heraclitus of Ephesus c. 535 BC – 475 BC)

The logistics world is complex and in a constant state of change, as carriers offer new services and shippers continually seek out lower cost alternatives to meet their customers' needs. There are a multitude of operational efficiency and cost factors to consider in logistics decision making. The shippers' quest for better and cheaper alternatives often leads to the avoidance of the long-term, all-encompassing, end-to-end contractual commitments that carrier alliances would prefer.

Critical Success Factors

Upstream and Downstream Supply Chain Relationships

Canada's two Class I railways represent natural monopolies which is a distinct type of monopoly that exists when the barriers to entry for new competitors is exceedingly high. Each owns an extensive network of rail infrastructure in relation to which they exert control over a "captive" market, enabling them to be price/terms makers in control the price, terms and conditions of service. This enables them to raise and maintain price above the level that would prevail under competition and the consequence is that shippers who are reliant on a single carrier tend to face higher freight rates, reduced efficiency, and challenges in accessing the railcars they prefer. The fact that shortlines typically interchange with only one Class 1 carrier and are responsible for hauling freight for the first few or last few kilometers of a longer journey causes and them to face similar challenges. This makes shortlines and shippers with access to a single Class 1 carrier price/terms takers who face higher costs and strategic risks associated with their dominant partner's evolving business operation. Shippers who have access to more than one Class 1 carrier operate in a competitive environment and can negotiate better terms.

Close collaboration between logistics supply chain participants enables them to offer seamless solutions involving multiple logistics modes that convey freight from its originating point to its destination. Supply chain collaboration is about different entities working together toward shared objectives, and sometimes it is in their shared interest to resist competition from entities seeking to participate in an existing supply chain or establish a new supply chain. To some extent this perspective is a case of "if it's not broken, don't fix it". Accordingly, there must be a

compelling reason for a Class 1 carrier to enthusiastically participate in the development of a new logistics supply chain. The most compelling reason for a Class 1 carrier to collaborate with a shortline to create a new supply chain would be a strong potential for high traffic density. For rail to be attractive, customers need access to their desired railcar type and to reliable train service at a price that enables them to remain competitive. Shortlines can excel at providing effective services and being innovative, but they are reliant on Class 1 carriers to provide access to the types of equipment the shortline's customers desire and on the frequency of train service.

To provide effective service without sacrificing efficiency, the Class 1 carrier needs the shortline to consistently generate high volumes of rail freight and to have railcars assembled and ready to go when the train arrives at the interchange. The shortline has control over services like switching and assembling cars, but they are reliant on their customers to generate the freight volumes that interest the Class 1 carrier.

Traffic/Freight Density

When Genesee & Wyoming terminated service on the Sydney Subdivision they indicated that their profitability threshold was 10,000 railcars per year. As a rough estimate, if we assume that each car was loaded to 90Mt it would amount to ~900K tonnes of freight annually, and if that sum is divided by ~100 miles of track it equals ~9,000 tonnes of freight per mile of track. By comparison, in 2019 Canada's railways collectively hauled ~333M tonnes over 26,635 miles of track or 12,499 tonnes of freight per mile of track. Given that shortlines are price/terms takers with higher overhead than Class 1 carriers it seems possible that the 10,000-railcar estimate could underestimate the threshold traffic volume required for shortline profitability. Although this is outside the scope of this study, identifying the capital and operating requirements for a shortline and developing some basic financial projections would help determine the breakeven points for freight tonnage, number of railcars and so on.

Competition

The different logistics modes each have their own strength and weaknesses, and this leads them to specialize in different market segments. For example, trucking costs significantly more than rail but it is also faster and more responsive. Companies that ship massive freight volumes over long distance would not be effectively served by trucking as their sole logistics mode.

Class I carriers spend a significant percentage of their gross revenue on maintaining their rail infrastructure, whereas the trucking industry operate on publicly owned and maintained infrastructure. Rail carriers claim that publicly funded highways represent a subsidy to the trucking industry and while this claim may hold some merit in relation to shortlines, the fact that Class I railways enjoy monopolies weakens their argument. In the US, this disparity is recognized and shortlines receive a range of public supports, but this is not the case in Canada. Together these factors make trucking an existential threat to shortlines.

There is also competition between communities in the Atlantic region that are trying to improve their economic conditions, and; Class 1 carriers often experience internal competition as local managers attempt to increase their freight traffic. All these factors have implications for a restoration of rail services in Cape Breton.

Regional Logistics Developments

This section lists several actual or planned logistics developments in Nova Scotia that could impact the reinstatement of the Sydney Subdivision.

CN Moncton Intermodal Service

May 22, 2020, Press Release: CN Announces New Intermodal Rail Service Between Moncton and Halifax
Canadian National announced today that, in collaboration with the Halifax Port Authority, stakeholders, ocean carriers, and customers, it will now offer integrated solutions through its Moncton yard aimed at reducing short-haul trucking in Halifax. "This intermodal service will play a key role in overall integrated solutions that drive value and support growth in the Atlantic region," said JJ Ruest, president and chief executive officer at CN. "We are pleased to be moving forward with this initiative that will benefit all of our partners and customers." "The CN Intermodal Ramp in Moncton continues to have a positive impact on truck traffic as containers are loaded and unloaded onto rail at that point as opposed to being trucked to and from Halifax," explained Captain Allan Gray, president and Chief executive officer, Halifax Port Authority. "Expanding the existing CN Intermodal Ramp in Moncton is showing positive results during this initial development phase, and we will continue working with CN, terminal operators and ocean carriers to find new ways of developing a more sustainable supply chain."

PSA International Pte Ltd

In April 2022, PSA International Pte Ltd ("PSA") and Halifax Port Authority announced PSA's acquisition of second of two container terminals in Halifax, namely Atlantic Hub and Fairview Cove, which are now jointly branded under PSA Halifax. PSA Halifax's Atlantic Hub terminal is located at the south end of the city of Halifax and new investment in mega vessel handling capability over the past two years have future-proofed its long-term competitiveness, allowing it to handle the largest vessels ever to call at Canada's ports to date. PSA Halifax's Fairview Cove terminal, at the north end of the city, will complement Atlantic Hub's existing operations for vessels of up to 8,000-TEU capacity as part of its integrated offerings. According to the Port of Halifax website: *"With fast and efficient CN Rail service, backed by a unique and growing network of coastal feeder opportunities, PSA Halifax' Atlantic Hub and Fairview Cove will offer superior logistical support and environmentally-beneficial options for a broad range of shippers."*

PSA International Pte Ltd is a port operator and supply chain company, with flagship operations in Singapore and Antwerp. One of the largest port operators in the world, they are owned by Temasek Holdings (Private) Limited, or simply Temasek, which is a Singaporean state holding company owned by the Government of Singapore. Temasek owns and manages a total of $680B in assets under management as of December 2022.

MSC Container Ship Services Newfoundland Corner Brook 2022

In May 2020, a new direct container ship services from Corner Brook NL to Europe was developed by MSC carrier. The service was developed between the various parties involved in the supply chain. Direct bulk shipping of pulp was not chosen due to larger volumes required to charter a full vessel and so a smaller container service was offered in which MSC delivers 350 empty containers and picks up loaded newsprint containers from the pulp mill in Corner Brook for shipment to customers in Europe. The pulp was exported previously using trucks to ship it to Halifax, where it was transloaded into containers and then loaded on the container vessel.

Supply chain partners have identified the potential to handle containers of seafood but that will require shippers to have access to cold storage facilities. In 2020, the Corner Brook Harbour Authority issued a Request for Interest for the construction of a refrigerated warehouse capable of storing 5-6,000 Mt of seafood with a cost estimate of $10 million.[1] This initiative may have been delayed by the pandemic but it is believed to be going forward. If it does go forward this would erode the potential for shortline involvement in shipping seafood from Sydney.

Scotiaport

ScotiaPort is a joint venture between the Economic Development Corporation of the Millbrook First Nation Community and Town Centre Properties Inc. to build an inland logistics terminal at the ScotiaPort is a joint venture between the Economic Development Corporation of the Millbrook First Nation Community and Canadian-owned Town Centre Properties Inc. at the intersection of Highways 104 and 102 near Onslow, Nova Scotia. Drawings have been developed for a CN Certified Rail Ready Site with plans to construct a 500-acre inter modal rail yard to serve as a transportation hub directly connecting to the Port of Halifax. The rationale for the project is to alleviate truck traffic bound for the Port of Halifax. The project appears to be on hold pending a request for public investment in highways infrastructure, without which the project would not be viable.

First Catch Fisheries Inc Halifax Airport Cold Storage Expansion 2022

First Catch Fisheries Co. Ltd. Is a Chinese-owned company who have been operating from the Halifax Stanfield International Airport since 2016. The company claims to have 75% of the Chinese market for Canadian exports of lobster, oyster, scallop, king crab and snow crab that they ship in a chartered Boeing 747. They have constructed a 29,000 square foot live seafood transfer warehouse and have an average daily volume of more than 200 tons of seafood products. The site now offers 40 Mt of cold storage of lobster to reduce mortality of lobsters before shipping to China. The amount of lobster shipments by air will increase from 1-3 flights a week for First Catch and Cargojet will also increase their shipments of seafood from Halifax to Europe and ASIA from 160 Mt to 500 Mt per week. Last year, 12,757 tonnes of live lobster worth $293 million was flown out of Halifax.

[1] www.cornerbrookport.com

ECONOMIC OPPORTUNITIES

CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY SYDNEY SUBDIVISION

CAPE BRETON RAILWAY FREIGHT ECONOMIC OPPORTUNITIES STUDY

TECHNICAL APPENDIX 10
DATA GAPS, LIMITATIONS, ASSUMPTIONS

January 2023

Prepared by: Logistic Marketing Services Inc.
Prepared for: The Cape Breton Partnership in collaboration with the Scotia Rail Development Society.

Contents

Data Sources

Canadian Freight Analysis Framework (CFAF)

The data used to complete the underlying analysis for this report came from Statistics Canada's Canadian Freight Analysis Framework (CFAF), which integrates data from several sources to create a comprehensive picture of freight flows across the country by geography, commodity, and mode of transport. The framework database estimates tonnage, value, and tonne-kilometers by origin and destination, by commodity type, and by mode. The database is used in a variety of analyses including, for example, assessing highway capacity and forecasting traffic, evaluating investments in infrastructure, examining trade flows, and analyzing policies such as road pricing and multimodal freight programs. The data used is for the period of 2011-2017 which was released by Statistics Canada on May 14, 2020 StatsCan's Trucking Commodity Origin Destination (TCOD) survey is mandatory under the Statistics Act and the agency utilizes digital reporting by Canada's major air, rail, and truck carriers.

Economic multipliers impact analysis is the most common method used in the EA process to assess economic impacts, but the models used (input-output and regional income/employment multipliers) have serious limitations: they assume static relationships between sectors, they place no constraints on labour and capital, and they omit opportunity and other project costs. As a result, the models overestimate employment, economic output and fiscal impacts of projects, and exaggerate economic benefits.[1]

Other Data Sources

- Statistics Canada Canadian Freight Analysis Framework
- Nova Scotia Ministry of Highways
  - Port Competitiveness Report (PDF 870Kb)
  - Due Diligence Assessment of Plans for Second Berth at the Sydney Marine Terminal (PDF 3.7MB)
  - The Nova Scotia Transportation Sector: Global Market Challenges and Opportunities (PDF 3.7MB)
  - Charting the Course: Atlantic Canada Transportation Strategy 2008-2018
  - Traffic Control Person Training Manual
  - Traffic Volumes - Primary Highway System - 2012 to 2021
  - Traffic Volumes - Secondary Roads Book - 2012 to 2021
- Port of Sydney
  - Marine Traffic
- Nova Scotia Finance and Treasury Board Economics and Statistics
- Economic Profile Series: Cape Breton, Nova Scotia

[1] Evaluating methods for analyzing economic impacts in environmental assessments, Social Sciences & Humanities Research Council

- Statistics Canada Input-output multipliers, provincial and territorial, summary level
- Statistics Canada Census Profile, 2021 Census of Population - Cape Breton, Regional municipality

Assumptions

Assumption #1

Two calculations representing the lower and upper ranges of potential demand for railcars and intermodal containers is used in this report. The lower range involves loading all modal units to their maximum capacity and the assumptions are:

- The load capacity for trucks is 30 Mt in Canada and 21 Mt in the USA & Mexico.
- The load capacity of a 53-foot intermodal container is 25 Mt.
- The load capacity for railcars is 90 Mt.
- Six 53' containers would be loaded onto an articulated flat container railcar.

The upper end of the range is based on CFAF's freight synopsis for 2017 Includes the following two points that mention Canada's average truck and railcar weights for 2017:

- Each mode of transportation caters to a certain segment of the freight transportation market in terms of distance and type of commodity shipped. In 2017, for example, the average shipment for the for-hire trucking industry weighed just over **11 tonnes**, had an average shipment value of $33,786 and travelled an average distance of 584 kilometres.
- In 2017, each rail shipment or rail car weighed an average of just over **46 tonnes** and was transported about 2,212 kilometres. Agricultural products were the top commodity by weight, followed by plastic and chemical products, coal, minerals, and forest products. Together, these commodities accounted for over two-thirds (69%) of the total weight moved by rail.

Assumption #2

As indicated in the table below, Cape Breton has 10.7% of Nova Scotia's overall population and 21.8% of the Rest of Nova Scotia's population along with 18.7% of the province's land area. The Rest of Nova Scotia generates 56.2% of the province's GDP and it is likely that Cape Breton generates a substantial portion of that in light of the fact that this is historically an area with a strong industrial focus and Sydney is Nova Scotia's second largest city. GIS analysis indicates that businesses in Cape Breton's industrial zone make up 31% of the companies in the province that are likely to utilize rail freight.

	Nova Scotia	Halifax	Rest of Nova Scotia	Cape Breton	Sydney	Res NS % NS	CB % of NS	CB % Rest NS
Population	923,598	470,980	452,618	98,722	29,904	49.0%	10.7%	21.8%
GDP (billions)	46.9	20.5	26.4			56.2%		
GDP per capita	50,726	43,526	58,217			114.8%		
Land area (sq km)	55,284	97	55,187	10,311			18.7%	

Assumption #3

Economic impact is based on Statistics Canada's economic impact and indirect jobs multipliers for Nova Scotia as noted below

- StatsCan Economic impact multiplier per dollar of output (x.879)
- StatsCan Indirect jobs multiplier (4.577 per $1M spent)
- Operations Phase: $10 per tonne gross revenue x total tonnes shipped x multipliers
- Construction Phase: $100M cost to refurbish rail line ÷ $1M x multipliers

Data Gaps

Data Gap #1

The data was released two years ago but it is 5-years old. Nevertheless, CFAF provides 7 years of data for 11 commodities being shipped to and from 26 jurisdictions and there is considerable insight to be gained from it. A comparison of total freight movements associated with Newfoundland and Nova Scotia for 2011-2017 with Canada's GDP for the period indicates there is a correlation between the two and the GDP data for 2018-2021 provides a sense for how freight movements might have changed since 2017.

Canada GDP 2011-2022 vs Freight Movements NS & NFLD 2011-2017											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Canada GDP (billions)	1,793	1,828	1,847	1,806	1,557	1,528	1,649	1,725	1,752	1,645	1,991
ALL Inbound & Outbound Truck & Rail Freight Mt (thousands)	11,439	12,080	10,854	10,394	11,229	11,019	12,034				

Data Limitations

Data Limitation #1

The quality and accuracy of this data set is excellent, however with hundreds of carriers enrolled in the program there is a potential for human error in relation to data entry or data categorization and this issue appears to be evident in some of the charts in Appendix 1 & 2. The challenge is that what might seem like a false entry may not be an error at all because large changes in annual freight volumes of commodities are not uncommon. This can make it very difficult to determine the validity of a seemingly incongruent entry. This can be dealt with in different ways depending on whether the entry could have a material effect on the analysis.

Data Limitation #2

The participation of major truck carriers in the CFAF program is mandatory, however, own-account or private trucking as well as smaller for-hire establishments with annual revenues below $1.3 million are excluded from the reporting requirement, with the result being that truck freight volumes are under-reported in the data set by an unknown amount. In attempt to determine how this might impact our analysis we conducted some further analysis. According to the Railway Association of Canada 70 per cent of all intercity surface freight and half of Canada's exports are moved by rail. The table below identifies the actual data reported to Statistics Canada by truck and rail carriers relating to inbound and outbound truck and rail freight volumes along with a percentage calculation for the market shares of the two modes. As the table indicates, for the Rest of Nova Scotia trucks had an inbound market share of 78% and an outbound market share of 70% which are reasonably close to the national market share percentages. Halifax had an inbound market share for trucks of 56% and an outbound market share of 40%, and the higher level of rail reflects the role of the Port of Halifax as an export corridor. Given that the geographic focus of the study is Cape Breton the analysis in the report is based on the data for the Rest of Nova Scotia with no adjustment made to freight volumes.

Mode & Direction	StatsCan Reported Data		
	Halifax	Rest NS	ALL NS
Rail Inbound	1,576,180	405,302	1,981,482
Rail outbound	1,307,649	680,967	1,988,616
Truck inbound	1,967,157	1,429,199	3,396,356
Truck outbound	884,304	1,597,451	2,481,756
All inbound	3,543,337	1,834,500	5,377,837
All outbound	2,191,954	2,278,418	4,470,372
Truck market share inbound %	56%	78%	63%
Truck market share outbound %	40%	70%	56%

Data Limitation #3

There is no rail or truck data for Cape Breton only as it is included in the Rest of Nova Scotia statistics.