Final Report

Assessment of Rail / Truck Shipping Between Cape Breton and Mainland Nova Scotia

Prepared
for
Minister's Rail Advisory Committee (MRAC)

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Glossary

53’ domestic container	A container that is the same size as a highway trailer and can be shipped by truck or rail
ADTS	Atlantic Diversified Trucking Systems
BNSF	Burlington Northern Santa Fe
CAD	Canadian dollar
CBNS	Cape Breton and Central Nova Scotia Railway
CN	Canadian National Railway
CP	Canadian Pacific Railway
CSX	CSX Transportation
Dray	To haul
Drayage	The transport of goods over a short distance
FSC	Fuel surcharge
G&W	Genesee and Wyoming Inc.
Interline	Where rail cars are switched between railways
Intermodal	Involving two or more different modes of transportation i.e. rail and truck
MAI	Marine Atlantic Inc.
PHP	Port Hawkesbury Paper
Rack rates	Publicly posted rates for one shipment
Transshipment	The transfer of a shipment from one carrier to another, or the shipment of goods or containers to an intermediate destination, then to yet another destination.
UARB	Utilities and Review Board
UP	Union Pacific
USD	United States dollar

1. Background

The Cape Breton and Central Nova Scotia Railway (CBNS)[1] is the operator of a 245-mile short line railway between Truro and Sydney, with spurs at Stellarton, Point Tupper and Sydney. This railway (initially sold to RailTex in 1993, and then to RailAmerica in 2000) is now owned by Genesee and Wyoming (G&W), a holding company that owns 120 railways in six countries including the United States, Canada, Bolivia, Australia, Mexico, and the Netherlands.

The Sydney Subdivision, a portion of the overall Truro to Sydney line, comprises a 98-mile section between St. Peter's Junction (at Point Tupper) and Sydney.

Even though it has Class 3 track, G&W had most recently operated at Class 2 and Class 1 track speeds: up to 25 mph (40 km/h) for Class 2 and 10 mph (15 km/h) for Class 1 rail.[2]

Based on estimates from G&W, the breakeven volume for the Sydney Subdivision is 10,000 return carloads per year. For the past 10 years, the Province of Nova Scotia has been providing the owners with an annual subsidy to offset losses resulting from reduced traffic volumes.

A previous study[3] conducted in 2003, indicated that in 2002, there were 520 outbound carloads of cargo per year originating east of St. Peter's. These included shipments of coal, steel, logs and scrap. Inbound, there were 767 carloads of building supplies, petroleum products, resins, scrap, bulk cement, feed, logs and intermodal cargo. At that time, it was expected that the businesses that would be most affected by closure of the rail line would be those engaged in the transhipment of building supplies destined for Newfoundland and Labrador as well as feed grain to Cape Breton. Outbound, shipments of round wood (logs) would be most impacted.

[1] G&W's internal promotional material and connecting carrier info from CN and other railways refers to the acronym "CBNS".

[2] Within Transport Canada's Rules Respecting Track Safety – TC E-54 – Part II – Track Safety Rules, Subpart A - Classes of Track, Transport Canada classifies track based on operating speeds as follows, with the maximum allowable operating speeds as follows (in miles per hour):

Over track that meets all of the requirements prescribed in this part for-	The maximum allowable operating speed for freight trains is -	The maximum allowable operating speed for passenger trains is -
Class 1 track	10	15
Class 2 track	25	30
Class 3 track	40	60
Class 4 track	60	80
Class 5 track	80	95*

* For LRC Trains, 100

Source: https://www.tc.gc.ca/eng/railsafety/rules-tce54-832.htm

[3] KPMG, "Cape Breton Island Transportation Services and Infrastructure Market Analysis", ECBC, 2003.

By 2014, traffic on the line had declined to about 500 carloads in total (see Table 1). This has led to the owners applying to the Nova Scotia Public Utilities and Review Board (UARB) to discontinue service. G&W has indicated that they plan to submit an application to the Province of Nova Scotia for abandonment of the line.

This current study will provide an assessment of the impacts of cargo diversion from rail to trucking for inbound and outbound shipments between Sydney and mainland Nova Scotia and points beyond. The project is expected to provide an analysis of the benefits and disincentives to trucking these products, including relative costs in terms of both time and dollar value. (For a complete description of the methodology, see Appendix C.)

2. CBNS Rail Volumes

Over the past 10-12 years, the primary use that has been made of the Sydney Subdivision has been the transport of bulk commodities. These have included, resin, petroleum, propane, cement, feed grain, scrap metal and coal. In 2002, the UARB had identified 24 users of rail service on the Sydney Subdivision, 14 of which were based in Cape Breton, including Sysco and Devco. By 2014, the number of users had gone down to 15 and by December 2014, the number was six. (See Table 1 below.) UARB hearings in 2014 provided the following data with respect to volumes over the period of 2011 to 2014.

Table 1. CBNS Carload Traffic
2011–2014 (units)

	Shipper	Commodity	2011	2012	2013	2014 (Nov)
	Inbound					
1.	Breton (AFA)	n/a	31	36	24	4
2.	CanWel Building Supplies	Plywood	298	320	261	164
3.	Copol International	Resin	47	48	54	46
4.	East Coast Rope	Resin	22	29	30	32
5.	Imperial Oil	Petroleum	15	3	5	0
6.	Superior Propane	Propane	130	64	43	80
7.	Quality Concrete	Cement	68	56	35	30
8.	Atlantic Preforms	Resin	107	91	67	71
9.	Irving Oil	Petroleum	11	6	30	30
10.	Hilly Acres	Feed grain	39	28	36	29
	Outbound					
11.	Hamilton Scrap	Scrap metal	0	0	16	7
12.	John Ross & Sons	Scrap metal	3	1	0	0
13.	PEV	Coal	230	164	0	0
14.	JDI (Logs)	Logs	0	0	81	0
15.	NSPI	Coal	0	0	160	0
	Total		**1001**	**846**	**842**	**493**

Source: Genesee & Wyoming (Cape Breton and Central Nova Scotia Railway)

In Table 1 above, all commodities except coal, scrap metal and logs were shipped inbound to Cape Breton, some for local consumption and some for processing. After delivery in Sydney, building supplies were transloaded from rail to truck, for onward shipment to Newfoundland and Labrador. All of the commodities except building supplies are considered bulk commodities. Building supplies are typically shipped on flat cars.

By late 2014, only six of the companies listed above continued to use the Sydney Subdivision of the CBNS. These were:

- Polysteel Atlantic Ltd. / East Coast Rope Ltd.;
- Copol International;
- Atlantic Preforms;
- Superior Propane;
- Hilly Acres; and
- CanWel Building Supplies.

In November 2014, the CBNS instituted a significant rate increase and all of the companies that were previously using the railway into Sydney stopped using the service.[4] All of the companies that were using the service in 2014 confirmed they are now transloading their inbound cargo from rail to truck at Port Hawkesbury Paper in order to complete the journey to Sydney. (Hilly Acres expects to begin transloading their feed grains in Truro in the fall of 2015.)

3. Rail and Trucking Rates

3.1 Bulk Cargo

As noted above, bulk commodities that were previously shipped by rail on the Sydney Subdivision included resin, petroleum, propane, cement, feed grain, scrap metal and coal. The most recent shippers using the line were moving bulk resin, building supplies and feed grains.

Generally speaking, the cost-benefit of shipping bulk commodities by rail versus truck depends on the distance to market; if it is less than 500 miles, shipping by truck tends to be more economical; whereas, if over 500 miles, rail is usually the better option. However, as will be shown below, other factors will influence the decision. These include: the number of transfers between modes of transport that the goods must undergo, if timeliness of delivery is crucial, and the volume and weight of the cargo.

The current type of equipment used to transport bulk resin on the CBNS (as far as Port Hawkesbury) is a covered hopper car (see below.)

[4] Note: As of May 2015, CBNS is still offering the service but no companies are using it.

Figure 1. Covered Hopper Car

Source: http://www.steelcar.com/products/covered-hopper

Trackage on the Sydney Subdivision is rated to handle rail cars that do not exceed 263,000 lbs., whereas the Hopewell Subdivision can handle 286,000 lbs, or the heaviest cars in North America. As the weight of the standard rail car (tare weight) is 60,000 lbs, the carload capacity on the Sydney Subdivision is therefore only about 200,000 lbs. As a result of this load restriction, the shippers of bulk resin indicated they were shipping about 190,000–195,000 lbs. per carload.

Resin can also be loaded in either “super sacks” or “Gaylord” boxes, and transported either by truck or a combination of truck and rail, commonly referred to as “intermodal” transportation.

Figure 2. CN Intermodal Containers

Source: www.cn.ca

However, it is important to note that, in order to accommodate receiving resin by either of the latter two modes, some modifications at each of the three plants that import this commodity would be required. The cost to do so is unknown at this time but the Sydney-area manufacturers that were consulted are reluctant to switch modes unless it is unavoidable.

3.2 Inbound Shipping cost comparison prior to CBNS Rate Increase

The consultants obtained bulk, intermodal and trucking rates for resin from two points of origin in Texas and Montreal to Sydney, as well for building supplies from British Columbia. (The carload rates for resin are from prior to CBNS rate increases.) Building supplies are shipped on flat cars, and it is not clear whether they can also be shipped in containers or container flat racks, but they were priced out nonetheless for comparison purposes.

Shipping bulk commodities by rail from Texas all the way to Sydney was the least expensive – 6.5 cents per pound by carload versus 15-16 cents per pound by intermodal and 16 cents per pound by truck. Rates for carload, intermodal and trucking ranged from 4 cents to 6.2 cents for shipments from Montreal East.

3.3 Inbound Shipping cost comparison after CBNS Rate Increase

As noted above, most CBNS Sydney Subdivision rail users are now using a combination of the originating railway (BNSF, UP, CSX, CN) and CBNS to ship their inbound cargo by rail to Port Hawkesbury, and then transferring (or transloading) the shipment to trucks. This method of operation imposes additional costs that must be taken into account when comparing rates.

Transloading at Port Hawkesbury Paper (PHP) and trucking to the final destination in Sydney adds to the overall shipment costs. Depending on the shipper, these additional costs range from $1,200–$5,000 per carload. Even with the additional costs of transloading at Port Hawkesbury, the cost of shipping in bulk by rail to Port Hawkesbury and transloading for onward shipment to Sydney is still less than both intermodal or trucking options.

The potential of shipping plywood, (which is the product that was previously being shipped by Canwel), using either containers or flat racks, on an intermodal basis from Vancouver to Sydney was also examined, but it is not yet (as of writing) clear whether or not this is feasible. If it is, shipping by this method would avoid the necessity and expense of transloading at Port Hawkesbury.

3.4 Outbound Shipping Cost Comparison

Atlantic Canada is, on balance, an inbound market, i.e., more goods come into the region than are shipped out. Goods come from Ontario, Quebec and the US, with carriers depending on local manufactured product such as newsprint or seafood produced in the region, for backhaul cargoes. In Newfoundland & Labrador and eastern Nova Scotia, Kruger Paper, Port Hawkesbury Paper (PHP), Northern Pulp and Michelin are major outbound shippers, as are the manufacturers in the Sydney area.

A large number of trucking firms operating in Eastern Canada service Newfoundland and the Maritime Provinces. Available capacity to service Cape Breton outbound shippers would include an estimated 80% of the units crossing from Port-aux-Basques to North Sydney and a large portion of trucks serving the Sydney market because they are otherwise returning empty. Some of these firms have their own terminals in the Sydney area or use the services of third party depots.

Due to the lack of backhaul cargo and the abundant supply of trucks coming back empty from Newfoundland, none of the rail users interviewed indicated any concerns with long haul outbound shipping costs (from Sydney to destination). This is due to the fact that trucking companies offer very competitive rates in order to avoid, as much as possible, moving empty units.

Shippers have several options to move cargo out of Cape Breton to destinations in North America. One long haul trucking firm serving the Atlantic region indicated they take advantage of CN's intermodal service via Moncton. They load 53' domestic containers, which are trucked to Moncton and shipped by rail across the continent. Other shippers only use trucking because of the time sensitive nature of their business.

Trucking rates were obtained from a number of carriers and compared to CN's intermodal "rack" rates in order to determine whether shippers could potentially find some savings.

For long haul shipments, outbound shipping by truck or the intermodal option offers fairly comparative rates for shippers although, in some cases, such as Portland, OR, Seattle, WA, and Vancouver, BC, intermodal is cheaper. However, shippers may still choose to use trucking for longer distances if timeliness to market is a prime consideration. This is because trucking times are better for long hauls.

3.5 Short Haul Trucking

Short haul trucking is readily available in the Cape Breton region, for both trailer loads and bulk shipping.

Interviewees indicated they are either using RST Industries (Irving Group) or Trimac to move resin from Moncton or Port Hawkesbury to Sydney. Another firm uses Atlantic Diversified Trucking Systems (ADTS) flatbeds to move building products from Port Hawkesbury to Sydney.

4. Transit Times Truck vs Rail

There are three modes of shipping to consider in this transit time analysis – bulk shipping inbound and either trucking or intermodal shipping outbound from Cape Breton.

4.1 Bulk Shipping

For the purposes of this analysis, bulk shipping using covered hopper cars to move plastic resin petroleum products, was considered. Sample inbound transit times from points in the US (for resin) and Canada (for resin and building products) are provided below.

Table 2. Sample Inbound Transit Times to Sydney

Origin	CN Carload	Intermodal	Truck
Montreal, QC	5–6 days	3 days	3 days
Vancouver, BC	10 days	7 days	7 days
Point Comfort, TX	14-21 days	9-10 days	4 days
Pasadena, TX	14-21 days	9-10 days	4 days
Lake City, SC	n/a	n/a	4 days

Source: CN Transit Time Tool; Day & Ross Transit Time Tool

Transit times by truck or intermodal transportation are generally faster than bulk carload by rail. Intermodal transit times from U.S. origins reflect the fact that containers need to be transferred between the originating railway and CN, probably in Memphis or Chicago. This usually involves a truck haul from one facility to the other. The transload operation in Port Hawkesbury is adding 2-3 days to the overall bulk carload transit time.

4.2 Intermodal Service

For the outbound cargo analysis, only truck and intermodal are compared as rail has not been used recently by shippers of outbound cargo from Sydney. CN's online tool provided the following intermodal transit times, which were compared with estimated trucking times:

Table 3. Sample Outbound Transit Times from Sydney

Destination	CN Intermodal (Moncton)	Truck
Montreal, QC	1.5 days	2 days
Toronto, ON	2 days	3 days
Winnipeg, MN	5.5 days	5 days
Vancouver, BC	8.5 days	6 days
Chicago, IL	3.5 days	4 days
Louisville, KN	n/a	4 days
Boston, MA	n/a	3 days
Miami, FL	n/a	5 days

Source: CN and Day & Ross

As can be seen by Tables 2 and 3, intermodal and truck are faster than rail inbound and, in the case of outbound cargo, intermodal and truck times are almost the same – Vancouver being the one exception where intermodal is faster by 2.5 days. That said, these transit times must be considered within the context of cost, as shown by Table 3 above. Rates for bulk rail shipments are less costly than intermodal or truck options. Therefore, shippers will likely only use intermodal or truck for inbound cargo if timeliness is the prime consideration.

Generally, intermodal shipping transit times are not very competitive with trucking on north–south routes, particularly into Massachusetts, New York and further south. CN does not offer intermodal service to those areas and service would have to be provided by a combination of short lines via Saint John to Montreal and then CP to the Delaware and Hudson, a CP subsidiary that operates in the northeast US. Another connection to CSX is now available at Valleyfield, QC, but a truck haul from CN or CP in Montreal would be required. This combination would likely be costly and time-consuming compared with trucking straight from Sydney.

5. Impacts of Transloading and Shipping by Truck

In order to provide an analysis of the impacts of cargo diversion from rail to trucking for inbound and outbound shipments between Sydney and mainland Nova Scotia and points beyond, four factors must be considered:

- the impact of increased volumes of truck traffic;
- timeliness of delivery;
- additional costs; and
- capital investments needed.

5.1 Increased Volumes of Truck Traffic without Rail Service

Total annual volumes of truck traffic at four locations in Nova Scotia, including the Cobequid Pass, Auld's Cove, Hay Cove (St. Peter's), and South Haven (Baddeck) are shown below. Marine Atlantic handles about 100,000 commercial units per annum (50,000 each direction), which would likely be included in the South Haven totals.

Table 4. Volume of Truck Traffic Units at Selected Locations

Location	2014
Cobequid Pass	705,536
Auld's Cove	479,620
Hay Cove	50,759
South Haven	221,825

Source: NS TIR

All rail users indicated that the conversion from rail to truck movements would be a factor of 1:3; in other words, 500 inbound carloads by rail in 2014 would convert to 1,500 truckloads traveling between Port Hawkesbury and Sydney, or an increase of less than 1%, based on the South Haven location on the Trans-Canada Highway. For one user, which would have to transload in Truro rather than Port Hawkesbury, there would be an additional 60 truckloads per year traveling between Truro and Sydney.

Overall, the data in Table 4 above indicates that a shifting of inbound cargo from rail to truck based on the rail volumes in 2014 (500 carloads) would have little impact on the total truck volume.

5.2 Timeliness

In addition to capacity, timeliness must be considered. Added time and coordination are required to transload cargo from rail to truck. To date, shippers have been using facilities at Port Hawkesbury Paper (PHP) but the process is time-consuming and requires a great deal of co-ordination. Positioning cars on a timely basis has been challenging as has coordinating the operation amongst 3–4 users. In addition, PHP has a priority with its own business.

Several shippers indicated that the extra time ranges between 2–3 days, which adds up to additional cost and less efficiency. Another estimated the whole change in operation is taking an extra 7–10 days.

5.3 Additional Costs & Capital Investment

Several interviewees indicated they anticipated significant cost increases as a result of having to transload at either Port Hawkesbury or Truro.

For example, two rail users indicated they may have to build a storage facility at their sites to augment the silos they already have at their plants. They may also have to store more inventory on site, which will add to costs. The full cost implications of these options are not yet known.

Also uncertain is the cost to store product at Port Hawkesbury Paper, as well as the full cost of the transload operation.

Other anticipated incremental costs include sending tanker trucks back to Moncton to be washed in order to de-contaminate them before being used for another commodity, and this adds both time and extra expense.

G&W also charges for storage on their tracks and for extra shunts that they may have to do.

These additional costs are usually added to overhead and are not easily passed on to customers. The companies involved have global competitors (including in one case, Korea and Portugal), and need to keep costs as low as possible to remain competitive.

Another company indicated it may have to close its Sydney transload facility and move it to Dartmouth, where it would have the option of shipping to Newfoundland by Oceanex or over the road to North Sydney. If cost effective rail service is not available to Sydney, it would prefer to have a transload facility in Port Hawkesbury because its Newfoundland distribution facility is located in Deer Lake, which is closer to MAI's ferry terminal in Port-aux-Basques.

6. Conclusions

Study findings can be summarized as follows:

- The increase in G&W rates to ship over the Sydney Subdivision and subsequent decisions by former users to stop their shipments at Port Hawkesbury have had a big impact on those shippers.

- Sydney-area shippers are now shipping by rail to Port Hawkesbury and transloading at the Port Hawkesbury Paper (PHP) facility before completing the journey to Sydney by truck. There are logistics and cost implications with this approach, e.g., timeliness and possible conflicts with PHP priority shipments, but the cost per pound is higher than shipping by rail all the way. Having to transload means that in addition to higher shipping costs, shippers may also have increased capital costs, to build extra storage needed at PHP or on their own premises.

- Additional costs that shippers must bear are added to their overhead and come off the bottom line, thus impacting the companies' profitability.

- A comparison of the possible modes of inbound bulk transport shows that shipping by rail to Port Hawkesbury and transloading to truck is more expensive than shipping all the way by rail. The next best option is intermodal transport, which is more expensive than shipping directly by rail or rail plus transloading, but less expensive than trucking. It is quicker than shipping directly by rail and would also avoid transloading from rail to truck in Port Hawkesbury.

- For outbound shipments, there seem to be few issues, and companies are generally happy with both rates and service. There is also lots of capacity in the marketplace.

- The additional truck traffic as a result of the loss of train service, based on 2014 volumes, amounts to 1,500 one-way moves, which represents a very small percentage of the traffic on the highway between Port Hawkesbury and Sydney.

Appendices

Appendix A.
List of Interviews

Company	Representative
CBCNSR	Gareth Martin
Copol International	Denis Lanoe
Polysteel/East Coast Rope	Sean Burke
CanWel International	John Brookbank
TransAtlantic Preforms	John Maclean
Hilly Acres	Chris Eyking
Superior Propane	Tony Bleakley
PEV	Jim Graham
NSPI	Brian Stanford
CN	Andrew Fuller
Armour Transportation	Rodney Hamilton
Clarke Transport	Jim Langille
Eassons Transport	Peter Easson
Day & Ross	John MacDonald
Seaboard	Jim Dibbin
Maritime–Ontario	Steve Snow
Norfolk Southern	Jason Foote
Schneider Transport	Jessica Kulas
Union Pacific	Grace Elliott

Appendix B
Interview Guide

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ERDT Rail / Truck Study

INTERVIEW GUIDE

This interview guide is intended to solicit information from current and past users of rail service between Port Hawkesbury and Sydney (Sydney subdivision).

Consultations will take place by telephone or, as appropriate, in person. All responses will remain confidential, will not be disclosed to other respondents, and will not be attributed unless permission to quote is otherwise granted.

All analysis will be presented in aggregate and not attributed to individual companies.

PART A – INTERVIEW RECORD

Organization name:	
Participating representative(s) name and title:	
Representative contact details (telephone and email):	
Permission to quote or otherwise reference in study report?	

PART B – CURRENT BUSINESS

1. Please describe your business (# employees, processor, marketer, shipper, transportation service, etc)

2. When did you last use CBCNSR?

3. What volume and types of commodities and major products are you currently shipping?

4. What volumes? Bulk or break bulk?

5. Import or Export from Nova Scotia? Origin / Destination?

6. Can you provide a “Ball park” shipping cost?

7. Per tonne or cwt?

Part C - FUTURE BUSINESS

8. Without rail service how much additional trucking do you anticipate shipping?

9. What are your anticipated trucking costs? Per tonne, per truckload, etc?

10. Do you expect there to be a time / service differential between rail and trucking?

11. What impacts will switching to truck have on your business? Timeliness, condition of product, additional investment in new equipment etc.?

12. Do you have any other comments related to this subject?

Appendix C
Methodology

Scope

This project is intended to assess the impacts of cargo diversion from rail to trucking for inbound and outbound shipments from Sydney to mainland Nova Scotia. The project is expected to provide detailed analysis of the benefits and disincentives to trucking these products, including relative costs in terms of both time and dollar value.

The project has two phases.

Phase I

Phase I includes a survey of current and past users of rail service. The survey is intended to determine:

- Commodities shipped by rail;
- Volumes shipped by rail; and
- Rail shipping costs.

Phase II

Phase II includes a survey of recent and past users of rail service and provides the following information:

- Anticipated increased trucking volumes without rail service;
- Anticipated truck shipping costs;
- Anticipated time differential of truck vs rail; and
- Any impacts of shipping by truck (timeliness of service, deterioration of product, capital investment required).

This phase also provides a high level analysis of current trucking capacity in the region. It does not include an assessment of the impact of increased truck traffic on the road infrastructure or potential environmental impacts.

Approach and Methodology

The project was carried out as described below.

Phase I

The consultants met with users of the rail service on the Sydney Subdivision. For those that were not met in person, telephone interviews were conducted. Companies contacted and interviewed are listed in the Appendix.

The consultant also met with the CBNS. Commodity and customer data, which were provided at the UARB hearings in 2014, are summarized below.

Phase II

Phase II information requirements were obtained during Phase I interviews.

In addition, the major trucking firms that transport cargo into the Cape Breton region were contacted, to determine their capacity to handle what is currently rail-based cargo, and at what rate and service level. These carriers included the following:

- Clarke Transport;
- Armour Transportation Group;
- Day & Ross;
- Eassons Transport; and
- CN Intermodal.

The raw materials used by three Cape Breton manufacturers are sourced in the southern US, and require at least three rail carriers to interline in order to reach Sydney. The originating railways were contacted to obtain rate and routing information. These included Burlington Northern Santa Fe (BNSF), Union Pacific (UP), Norfolk Southern (NS), and CSX.