

Final Report

Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services

Prepared for:
Minister's Rail Advisory Committee

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- Canadian National;
- Department of Transportation and Infrastructure Renewal (TIR)
- Kameron Collieries (Donkin Mine);
- Port of Sydney;
- Provincial Energy Ventures (PEV);
- Nova Scotia Power (NSP);
- Port Hawkesbury Paper (PHP);
- Atlantic Industrial Minerals (Glencore Resources Inc.);
- Scotia Rail Development Society;
- Provincial officials of the former ERDT Department and of Nova Scotia Business Inc.;
- Atlantic Canada Opportunities Agency (ACOA) - Sydney and Halifax Offices;
- Cape Breton Regional Municipality (CBRM);
- Officials of Business Cape Breton;
- The Cape Breton Partnership; and
- The Prosperity Framework.

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Key Highlights

In 2014, Genesee and Wyoming Incorporated, which operates the rail line between Truro and Sydney, indicated its desire to abandon the track between Sydney and St. Peter's Junction – the Sydney Subdivision.

In August 2014, the Government of Nova Scotia, through the Departments of Transportation and Infrastructure Renewal, and the former Department of Economic and Rural Development and Tourism, established an advisory body – the Ministers' Rail Advisory Committee.

This committee includes federal and provincial transportation officials, as well as the chief administrative officers of the five municipal units in Cape Breton and business owners who used the rail service along the Sydney Subdivision. Its five-part mandate includes advising local stakeholders on the abandonment process in general, and advising the provincial government on potential options to maintain the Cape Breton rail line.

Group ATN Consulting Inc. (GATN), was contracted to undertake an *Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services*.

Project Scope and Methodology

The focus of this study has been on identifying increased rail use for the Sydney Subdivision. The planning horizon is 3-5 years. Separate studies are being undertaken concurrently on the use of trucks as an alternative to rail, and on the condition of rail infrastructure on the Sydney Subdivision. Taken together, these three studies will assist the MRAC in making a recommendation on the best path forward.

The primary objective associated with the completion of this study has been to provide a detailed inventory of the potential major developments identified for Cape Breton in the next 3-5 years. These were detailed in the *statement of work* for the study and included the following:

- Donkin Mine;
- Provincial Energy Ventures (PEV);
- International Iron Beneficiation Group Ltd. (IIBG);
- Intermodal traffic with a potential to convert to rail;
- Sydney Container Terminal; and
- Other projects identified by the Cape Breton Regional Municipality (CBRM) and the consultants.

Following the initial assessment of these projects, the focus was on analyzing the information gathered to undertake a realistic appraisal of the potential of these projects to proceed and their potential dependence and/or utilization of rail.

Consultation

The project also included an extensive consultation process with key stakeholders including project proponents, senior officials of the municipal, provincial and federal governments, railway officials, port officials, economic development organizations and the Chairperson of the community-based group, the Scotia Rail Development Society.

The methodology utilized in the consultation phase included key informant interviews – in person and by teleconference; group interviews and several site visits including to the Marine Atlantic terminal in North Sydney and to the site of a potential limestone mine near River Denys in Glencoe.

The consultation also included three sessions with the MRAC Committee for purposes of briefing the committee and soliciting their feedback on emerging issues and findings during the completion of the study.

The results of the stakeholder engagement process, the consultation process and the adjoining research and validation undertaken form the basis of the findings and conclusions arising from this study.

Benchmarking

As part of this study, GATN also undertook an examination of short lines in other jurisdictions which have short line railways similar to the CBNS. Analogues examined included the Vermont Railway, Mississippi, Moses Lake, Washington, Quebec Gatineau/St Lawrence & Atlantic/Huron Central and New Brunswick Southern (Irving). The focus was on lessons learned.

This also included an examination of emerging industry trends and how they are impacting rail traffic broadly and the short line sector in particular.

Project Profiles

The study provides a comprehensive summary of the major industrial developments and other potential developments identified for Cape Breton, including the following:

- The Donkin Mine development;
- Provincial Energy Ventures;
- International Iron Beneficiation Group Ltd.;
- Intermodal traffic with a potential to convert to Rail;
- The Sydney Container Terminal; and
- Other projects as identified during the study.

In summarizing these projects and others identified during the completion of this study a common template was developed utilizing the following headings:

- Project,
- Project Description,
- Proponent(s),
- Proposed dollar value of the project,
- The modes of shipping identified for the project and whether the project, if developed, is likely to contribute to increased rail traffic,
- The estimated amount of rail traffic,
- The current status of the project,
- An examination of known factors that may impact this development,
- The proposed time frame for proceeding with the project,
- Whether access to rail is a requirement for the project,
- An assessment of the likelihood of the project proceeding and

- Conclusions

In addition to the projects identified in the original *statement of work*, three other potential rail traffic generators were identified and examined. These include Atlantic Industrial Minerals, a proposed project involving the mining of limestone at Glencoe and the potential development of a cement plant in Point Tupper, a rail car refurbishment opportunity and possible opportunities arising from a tourism-related passenger service.

Cargo Volume Analysis

The study provides an analysis of potential rail volumes arising from the review of the designated projects initially identified, as well as other projects examined during the study. In considering this analysis, an important caveat is that potential rail traffic volumes are estimates only and are, ultimately, entirely dependent on how specific projects might be developed.

Conclusions

This study sought to determine whether there might be sufficient rail traffic to create a viable base load on the Sydney Subdivision. To this end, the analysis of several major projects that have potential for development within the planning horizon for this study (three to five years) reveals that there are possible opportunities.

However, the timelines and manner in which these projects could proceed is less certain. As fully explored in the analysis, how these projects are developed and the ability of key project stakeholders to influence their development path will impact their potential utility in increasing rail traffic. It is entirely possible that the most promising projects could be developed in a manner that would not substantially contribute to enhanced rail traffic on the Sydney Subdivision.

The projects that seem most likely to proceed within the planning horizon – Donkin, PEV and Atlantic Industrial Minerals - could, if developed in a particular manner, potentially generate an increased level of rail traffic, though not over the entire Sydney Subdivision. However, there are a lot of ‘ifs’ associated with this finding which are detailed in the conclusions section of this report.

The presence of the newly-dredged Sydney Harbour, with some decided geographic advantages, is seen as offering an opportunity to sustain the Sydney Subdivision if a container terminal were built. Without information on what that potential opportunity might entail, it has not been possible, in the context of this study, to either confirm or discount this potential opportunity. The study does however, examine industry information related to this possible development.

Notwithstanding the status of the container project, the study concludes that the PEV project, if it were to proceed as envisioned, could have a significant impact on the Port of Sydney and establish Sydney as a potentially significant port for bulk shipping. As an anchor project, and through a focussed marketing effort, this project could help develop the port infrastructure and serve as a potential draw for other bulk shipping interests which might bring with them the capacity to make use of the rail.

Discussions early in the study, with officials of CN and G&W, provided some promise of the potential to convert traffic that is now moving by truck from Moncton to the Marine Atlantic ferry terminal in North Sydney to rail. As discussions advanced during the study, this possibility seems less likely, although, ultimately, this will need to be confirmed by CN, G&W, government officials and other stakeholders.

While these discussions will, ideally, continue, given transit time requirements, the condition of the line and other factors, it now appears that very competitive trucking rates render this option not feasible.

Another very promising development - from both the perspective of its potential impact in contributing to increased rail traffic and as an economic development project - is the opportunity that Atlantic Industrial Minerals might present in the establishment of a limestone mining operation and a cement manufacturing plant. With a potential investment approaching \$500 million, if both aspects of this project were undertaken in tandem, this development would necessarily be seen as an important opportunity, notwithstanding the fact that it needs to be considered as very early stage at this time.

Besides the 500 carloads previously moved prior to the CBNS rate increase in December 2014, the study has found 500 incremental carloads of traffic, assuming the cement plant gets built in Port Hawkesbury and their fuel supply is coal from Donkin. All other traffic identified (unless the container terminal is built), is for a portion of the CBNS at both ends (Donkin-Sydney and Glencoe-River Denys) and depends on the construction of spur lines. The costs of these potential spur lines are not yet known, nor is the potential revenue or bottom line impact.

In summary, the projects reviewed are all in early stages of development. When and how they might evolve is indeterminate at this time. While it is clear that there are 'green shoots' and that if there was a compelling business case to develop certain projects in a manner that would optimize rail use, it is possible that increased rail volumes might be able to be achieved. Ultimately, however, within the context of this study that could not be determined with certainty.

Acronyms

2M	Maersk, MSC
ACOA	Atlantic Canada Opportunities Agency
CAOs	Chief Administrative Officers
CBNS	Cape Breton and Central Nova Scotia Railway
CBRM	Cape Breton Regional Municipality
CKYHE	Cosco, K Line, Yang Ming, Hanjin, Evergreen
CN	Canadian National
DEVCO	Cape Breton Development Corporation
ERDT	Former Department of Economic and Rural Development, and Tourism
G&W	Genesee and Wyoming
G6	Hapag-Lloyd, NYK, OOCL, APL, MOL, Hyundai
GHG	Greenhouse Gases
HBI	Hot Briquetted Iron
IIBG	International Iron Beneficiation Group
JRA	Joint Railway Authority
MAI	Marine Atlantic Inc.
MRAC	Ministers' Rail Advisory Committee
NSBI	Nova Scotia Business Inc.
NSP	Nova Scotia Power
NSUARB	Nova Scotia Utility and Review Board
O3	UASC, China Shipping, CMA CGM
PEV	Provincial Energy Ventures
PHP	Port Hawkesbury Paper
SEDA-COG	Susquehanna Economic Development Association Council of Governors
TEU	Twenty-Foot Equivalent Unit
TIR	Department of Transportation and Infrastructure Renewal
TOFC	Trailer on Flatcar
U.S.	United States

Glossary of Terms

“Live unit”	Driver, tractor and trailer which is loaded onto a ferry in combination
Chassis	Container Chassis specially designed to load 20 ft., 40 ft. or 53 ft. containers
Domestic Container	53 ft. containers that are carried on rail and on trucks They are not suitable to be carried in container ships Note: Oceanex, the Newfoundland carrier, also has its own fleet of marine-grade 53 ft. containers which can be carried in marine mode, as well as by rail or truck
Drops	A trailer that is “dropped” at the terminal and loaded onto a ferry by a yard tractor
Colliery	Mining operation: a coal mine and the buildings/facilities that are included with it
Continuous Miner	Large mining machine that uses a rotating steel drum equipped teeth that scrape coal from the seam being mined
Marine Container	Typically a 20 ft. or 40 ft. container carried in world-wide trade onboard “container vessels”
Piggyback	Trailers on flat car or TOFC (Trailer on Flatcar)
Straight Trucks	A truck in which all axles are attached to a single frame
TEU	Twenty foot equivalent unit (a 20’ container)
Van	A trailer towed by a highway tractor

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1. Project Overview

In 2014, Genesee and Wyoming Incorporated, which operates the rail line between Truro and Sydney, indicated its desire to abandon the track between Sydney and St. Peter's Junction – the Sydney Subdivision.

In August 2014, the Government of Nova Scotia, through the Departments of Transportation and Infrastructure Renewal, and the former Department of Economic and Rural Development and Tourism, established an advisory body – the Ministers' Rail Advisory Committee.

This committee includes the chief administrative officers of the five municipal units in Cape Breton, representative business owners who, prior to a November rate increase, were using the rail service on the Sydney Subdivision, as well as federal and provincial officials. Federal officials have observer status.. Its five-part mandate includes advising local stakeholders on the abandonment process in general, and advising the provincial government on potential options to maintain the Cape Breton rail line.



Figure 1: Map showing the CBNS Line, Source: AECOM

Specifically, the *terms of reference* establish the committee's mandate as follows:

- Review previous studies prepared on the Sydney Subdivision for the province;
- Inform Cape Breton stakeholders on the current situation;
- Review the business case, consider the likelihood of increasing rail traffic /client base;
- Advise on the likelihood of Sydney Port development and potential increases in traffic;
- Advise on the likelihood of a new, experienced rail operator acquiring the Sydney Subdivision;
- Scope out the opportunity to fund a new operator or buyer for the Sydney Subdivision.

The committee was asked to report back to the province on their findings.

The advisory committee provided ministers with an interim report in January 2015.¹ Among other findings, it expressed support for the government of Nova Scotia's initiative in the fall sitting of the Legislature to make amendments to the *Railway Act* through Bill 65, addressing gaps in the legislation and clarifying the processes respecting rail line abandonment, including liability for environmental considerations.

An important role of the advisory committee is to determine those environmental costs and to conduct three important studies, including this one, to support future decision making in respect to the overall response to the potential abandonment of the line.

As one of three studies commissioned to support the work of the committee, Group ATN Consulting Inc. (GATN), was contracted to undertake an *Assessment of the Upcoming Economic Opportunities in Cape Breton in Relation to Rail Services*.

The focus of this project was on providing a detailed inventory of the potential major developments identified for Cape Breton in the next 3-5 years that might serve to increase rail traffic on the Sydney Subdivision.

This included gathering information from project investors and proponents relating to:

- The status of the projects;
- The time frame for proceeding with the projects;
- The importance of rail transportation to those projects.

Specifically, GATN was asked to assess the following projects:

- Donkin Mine;
- Provincial Energy Ventures (PEV);
- International Iron Beneficiation Group Ltd. (IIBG);
- Intermodal traffic with a potential to convert to rail;
- Sydney Container Terminal; and
- Other projects identified by the Cape Breton Regional Municipality (CBRM) and the consultants.

Following the initial assessment of these projects, the focus was on analyzing the information gathered to determine where realistic projects exist and their potential dependence and/or utilization of rail.

As a further added-value component to its work plan, GATN undertook secondary research and an examination of analogues similar to the situation in Cape Breton with the Sydney Subdivision. The focus was on lessons learned. This review also examined current trends relative to rail transport and associated policy issues.

This report outlines the results of the research undertaken on these and other projects identified and assessed during this project.

¹<http://novascotia.ca/tran/rail/MRAC%20Interim%20Report%20FINAL%20January%2014%202015.pdf>

Background & Context

As described by the Railway Association of Canada, the Canada Transportation Act (1996) spurred dramatic growth in short lines. The sector originated more than 22 per cent of all freight carload traffic for the Class I railways in 2009.² Short lines moved the equivalent of 15 per cent of domestic trucking activity. Short lines have become integral to the transportation network and provide vital services to regional and remote markets. They operate on lower density rail lines, feeding traffic into and delivering traffic from mainline railways.³

The Cape Breton and Central Nova Scotia Railway (CBNS) is a shortline railway, which operates a 395 km (245.4 miles) short-line in Nova Scotia between Truro and Sydney.

This rail service has been operated by Genesee and Wyoming (G&W) since 2012 and offers daily freight service between Truro and Point Tupper, with weekly service to the Sydney Subdivision, operating between St. Peter's and Sydney, or, as required, based on traffic volume. Service is still offered on the line, but since rates were significantly increased in late 2014, no traffic has been moved on the line.

Overall, the CBNS rail line is profitable. However, research shows that the Sydney Subdivision has had a challenging history. It has been operating at a financial loss since 2001. In 2002, the company (under a previous owner) filed for the abandonment of the Sydney Subdivision due to sustained losses suffered after the closure of Devco and Sysco. The company continued to offer rail service with subsidization from the Province of Nova Scotia.

Over time, the Sydney Subdivision has undergone a significant decline in traffic and freight volumes. Rail traffic in 2014 was less than 500 carloads. G&W estimates that 10,000 railcar movements annually would be required to maintain the line. The Province has conducted studies with the short line operator to identify potential new customers. Despite best efforts, volumes continued to decline.

In completing this project, extensive background research has been undertaken, going back as far as the 2003 KPMG Market Analysis Report, in order for the consultant team to become fully acquainted with the history of this rail line and the challenges it has encountered along the way. These challenges culminated in the operator filing an application in October 2014 with the Nova Scotia Utility and Review Board (NSUARB) to decommission and abandon the portion of the rail line between Sydney and Point Tupper.

Local reaction to this announcement by the operator has been vociferous, with advocates for continued rail service expressing a keen interest in obtaining an objective assessment of the role for rail in the near and medium term. A local community-based committee has been established. Led by the Dean of Cape Breton University's Shannon School of Business, Dr. David Rae, the group has members from businesses, community organizations and academia - united in the concern that abandonment of this portion of the rail line could have a significant effect on future development prospects in eastern Nova Scotia.

Project Scope and Methodology

The primary objective associated with the completion of this project has been to provide a detailed inventory of the potential major developments identified for Cape Breton in the next 3-5 years.

² A Class I railway in Canada is one that had minimum revenues of \$250 million in 2004.

³ http://www.railcan.ca/rac/member_railways?type=Freight+-+Short+Line%2FRegional

The focus of this project has been on completing an up to date inventory of the major industrial developments and other potential developments identified for Cape Breton and outlined above. The information gathered included the following information:

- Name and location of project;
- The financial and other interests involved;
- Proposed dollar value of the project;
- Modes of shipping identified for the project; and
- The current status of the project.

The project also included an extensive consultation process with key stakeholders including project proponents, senior officials of the municipal, provincial and federal governments, railway officials, port officials, economic development organizations and the Chairperson of the community-based group, the Scotia Rail Development Society.

Following compilation of the information arising from the consultation and project assessment phase, analysis has been undertaken. Its focus is on providing the MRAC with a realistic assessment of:

- The feasibility of these projects;
- Their likelihood of proceeding;
- Whether they are expected to proceed, the likely development trajectory, with a focus on the next 3-5 year; and
- Whether these developments have the potential to produce significant volumes of new traffic for the rail line.

The following provides a summary of the key elements of the project work plan.

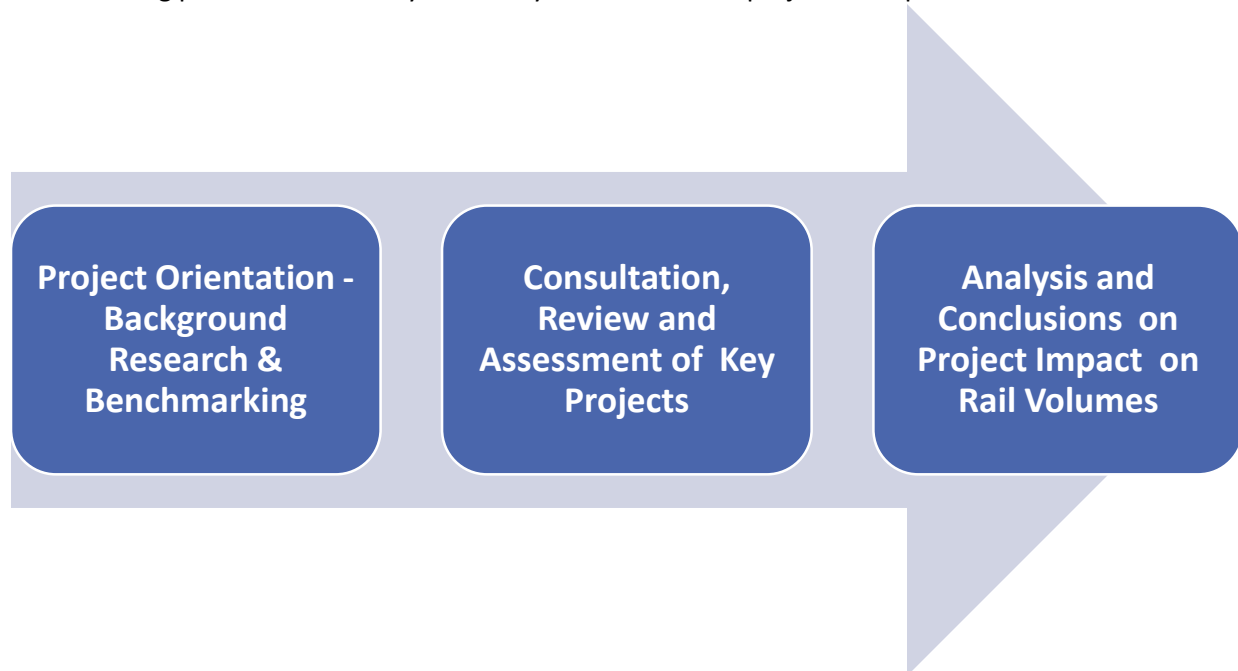


Figure 2: Key Elements of the Project Work Plan

Report Organization

This report is organized in 6 sections as outlined below:

- Section 1 provides a **Project Overview** and the context under which it is being undertaken;
- **Section 2** reports on the stakeholder consultations undertaken;
- **Section 3** outlines the results of the benchmarking exercise, profiles several case studies and outlines key contemporary trends in the rail business in North America;
- **Section 4** summarizes the findings related to each potential major development project, including those listed in the original *statement of work* and others identified during the study;
- **Section 5** provides analysis; and
- **Section 6** offers conclusions based on the results of this review.

2. Consultation and Stakeholder Perspectives

In completing this project, extensive outreach and consultation was undertaken with both key project proponents, as well as collateral sources. The primary purpose of the outreach and consultation was to gather information from potential project investors and proponents relating to:

- The current status of the designated projects;
- The proposed time frame for proceeding with the projects;
- The importance of rail transportation to those projects; and
- The identification of other potential projects that could have the impact of increasing rail traffic.

At the outset of the project, the deputy ministers supporting the MRAC wrote to project proponents advising them of the project and its focus and introducing the consultant team.

The methodology utilized in the consultation phase included key informant interviews – in person and by teleconference; group interviews and several site visits including to the Marine Atlantic Terminal in North Sydney and to the site of a potential limestone mine in River Denys.

Interviews were undertaken with:

- Major project proponents;
- Officials of municipal, provincial and federal departments; and
- Collateral interviews with key informants and a variety of senior officials with knowledge of or an interest in the Sydney Subdivision and its future.

Project proponents with whom outreach and consultation were undertaken included the following:

- Canadian National;
- Kameron Collieries (Donkin Mine);
- Port of Sydney;
- Provincial Energy Ventures (PEV);
- Nova Scotia Power (NSP);
- Port Hawkesbury Paper (PHP);
- Outreach to International Iron Beneficiation Group (IIBG);
- Atlantic Industrial Minerals (Glencore Resources Inc.);

Other stakeholders interviewed included:

- The Chairperson of the Scotia Rail Development Society;
- Provincial officials of the former ERDT Department and of Nova Scotia Business Inc.;
- Atlantic Canada Opportunities Agency (ACOA) – Sydney and Halifax Offices;
- Senior officials of Cape Breton Regional Municipality (CBRM);
- Officials of Business Cape Breton;
- A representative of the International Longshoreman's Association (ILA);
- The Cape Breton Partnership; and
- The Prosperity Framework.

The consultation also included three sessions with the MRAC Committee for purposes of briefing the committee and soliciting their feedback on emerging issues and findings.

The first was a conference call held on March 23, 2015. It focused on reviewing the *statement of work* for the project and inviting input on other potential projects that might be considered in the analysis phase, as well as other key informants with whom the consultant team could speak.

The second was an in-person briefing of the MRAC at its April 23, 2015 meeting in Sydney. This meeting included a profile of the early findings arising from the consultation phase and the analysis undertaken to that date on key projects. It was also designed to solicit feedback and input from the MRAC.

The third session offered the opportunity for the consultant team to present the overall findings of the project and the resulting report.

The results of the stakeholder engagement process, these interviews and the adjoining research and validation undertaken form the basis of the findings and conclusions arising from this study.

More broadly, an important consideration was to understand the views of key stakeholders on the potential loss of the Sydney Subdivision. Stakeholders consulted during this study clearly understand that economic growth, community prosperity and opportunity development are inextricably linked to investments in infrastructure, including transportation infrastructure.

The recent challenging history of the Cape Breton economy in the latter 20th and early 21st centuries is well-known. However, this history and the perception that the loss of the rail line will significantly impede future economic opportunities and further marginalize the Cape Breton economy was a recurrent theme in the assessment by stakeholders of the potential impact of the abandonment of the Sydney Subdivision.

While there are a variety of perspectives on the best path forward, key local informants generally make the point that the economic development impact associated with the potential loss of the Sydney Subdivision could have a further deleterious impact on the Cape Breton economy.

Some stakeholders point to the fact that, overall, the line is profitable overall and feel that increasing the volume on the Sydney Subdivision should be able to be accommodated through developmental effort among the partners and with shippers, over time.

Most stakeholders did not raise the issue of the condition of the Sydney Subdivision rail line and, while those who did realize that investments to address deficiencies will be required, there is not an awareness of the rough order of magnitude of the required investments. This is the subject of the third study that the MRAC has underway, which is evaluating the condition of the line. Its findings, particularly in respect to any upgrades required should be influential in MRAC's decision-making.

Overall, there is a view that retention of the rail and the rail corridor is important for future economic development opportunities. Frequently cited views by stakeholders during the consultation include the following:

- If the rail is removed, the cost of replacement would be prohibitive and, as such, it will likely be lost forever;
- Beyond freight, the corridor is seen as having high value for other potential developments, including recreational/tourism attraction and usage. Notwithstanding this view, a 2009 study notes several issues that would need to be addressed in relation to utilizing the Sydney Subdivision for passenger traffic, including the operator's added burden of insurance related to passenger services and the capacity of the line to support higher speeds that could support service to cruise vessel passengers while in port for relatively short periods;
- Although unsubstantiated and inconsistent with the public assertions of the operator, some stakeholders expressed the view that the net value of removing the rail lines for scrap has been over-stated⁴ and, after taking into account the full range of environmental liabilities may, in fact, be much less.⁵

Some stakeholders expressed the view that more should have been done to secure the rail line's future during the period in which the Sydney Subdivision was being subsidized, by more aggressive marketing and maintaining the line to a higher standard.

Stakeholder views, coupled with the findings of the benchmarking exercise immediately below, underscore the complexity of this issue.

⁴ Josee Danis, Assistant Vice President, G&W, to David Oxner, Executive Director, Nova Scotia Gateway Secretariat, 7 May 2014 – UARB Information Request File MO6442, Nov. 04, 2014. The net salvage value was estimated at \$15-\$25 million.

⁵ The value of the rail as scrap material can be estimated based on the estimated weight of the rail lines and current values for scrap steel/rail. Our calculations put the rail salvage value in the vicinity of US\$4.3 million to US\$4.9 million. This does not including the salvage value of spikes, plates, and joints and the value does not include the value of property, other infrastructure that may be part of the line and which could be sold for salvage value (e.g., steel bridges, outbuildings), the cost of lifting and cutting the rail, or any costs associated with site remediation and waste disposal. The value range is calculated as: 98 miles x 2 tracks x 1,760 yards = 344,960 yards x an average of 100 lbs per yard ÷ 2,202 lbs = 15,665 metric tonnes x estimated scrap value per tonne. Prices are subject to change based on market conditions and are converted from price per ton to price per tonne using rates published by www.ScrapIndex.com as follows: No.1 Scrap Rail: US\$312.6; No.2 Scrap Rail: US\$304.5; No.3 Scrap Rail: US\$293.8; No.4 Scrap Rail: US\$277.7 The rate per tonne assumes full truckloads of steel for the buyer. Estimates are provided for comparative purposes and should be verified once the forthcoming engineering study is made available.

3. Results of Benchmarking Exercise

As part of this study, GATN undertook an examination of short lines of other jurisdictions which have railways similar to the CBNS. Analogues examined included the Vermont Railway, Mississippi, Moses Lake, Washington, Quebec Gatineau/St Lawrence & Atlantic/Huron Central and New Brunswick Southern (Irving).

This also included an examination of emerging industry trends and how they are impacting rail traffic broadly and the short line sector in particular. The focus was on lessons learned.

Summary findings arising from this review of comparable analogues include the following:

- Generally, a common finding is that much of the infrastructure acquired by short line railways in the past three decades, both in the U.S. and Canada, has received little investment by previous owners and must now be upgraded, often at significant cost. This is a factor that is being examined in the third study of the Sydney Subdivision – i.e., determining the condition of the line. The literature points to the need for both public and private investment in this regard.
- Short lines tend to refer to the threshold or base load as a basic requirement in making them financially sustainable. This is the focus of this study on the Sydney Subdivision, i.e., is there enough prospective rail traffic to be generated through the target projects being examined in this study to meet this threshold over the next 3-5 years?
- Universally, economic development interests dominate the dialogue around retention of short line rail capacity. Ultimately, this is to be expected, as site selectors often point to the presence of diversified, cost-competitive transportation infrastructure, including rail, as a key criterion in considering where to locate new industrial and business investments.
- There has been a movement away from the view that railways represent an old paradigm linked to industries of yesterday. In fact, the environmental benefits of rail, in an era where the reduction of GHG emissions has become paramount for governments everywhere, is one of the prominent factors cited as being at the heart of this changing perception of rail.
- In all of the analogues reviewed, particularly with those that have experienced crisis, a key and essential element of the successful resolution of the challenges has been through effective public/private collaboration, leveraging the unique capabilities of each.
- De-regulation of the rail industry in both the U.S. (Staggers Rail Act of 1980) and Canada (changes to the Canada Transportation Act in 1996) are seen as having resulted in increased rationalization and, in some cases, line abandonment.
- Within the U.S., there has been greater public investment in railways, as illustrated in the recent excerpt from the United States Transportation Department:

*The **GROW AMERICA Act** will invest \$29 billion over six years to improve rail safety and invest in a National High-Performance Rail System, as states and local communities need the certainty of sustained funding to make the transportation investments necessary to improve our infrastructure and support our economic growth. The GROW*

*AMERICA Act will establish the Rail Service Improvement Program, which will provide competitive grants to drive development of high-performing passenger rail networks. This will include funding for the implementation of PTC— technology designed to stop trains to avert collisions— for commuter railroads, support for the mitigation of adverse impacts associated with rail operations in local communities, **upgrades for short-line freight operations**, and local and regional planning efforts.*

(Section 9102)⁶(March 2015).

- Similar levels of financial support are not available in Canada. A February 2015 study completed by CPCS for the Railway Association of Canada, includes the following recommendation:⁷

“Transport Canada build in a dedicated shortline rail grant component into the existing capital funding program(s) ...in the amount of \$200-\$300M over five years.”

From a Canadian perspective, the value of the short line rail sector is significant:

- \$650 million in revenue in 2010,
- 3,000 employees,
- 20% of total track miles,
- 5% of net tonne-km,
- 28% of originated tonnage, and
- \$30 million in taxes.

The Railway Association of Canada notes that short lines need upgraded infrastructure. However, their financial capacity limits the short line railways in upgrading their infrastructure to meet the car-loading standard for the North American railway industry.⁸

Closer to home a recent study in New Brunswick entitled, *Revitalizing New Brunswick’s Rail Sector*⁹ offers an interesting perspective on short line development and an examination of current issues, trends and challenges the sector is facing.

Initiated in part because of the CN announcement of the potential abandonment of the Newcastle Subdivision, and the bankruptcy of New Brunswick’s Industrial Rail Services Inc. (a rail car repair facility), the study suggests that the traditional North American railroad model is in transition.

⁶ <http://www.dot.gov/grow-america/by-mode/railroads>

⁷ http://www.railcan.ca/assets/images/CTA_Review/Submission_2/Appendix_E_-_Canadian_Shortline_Rail_Funding_Needs_and_Opportunities.pdf

⁸ http://www.railcan.ca/rac/member_railways?type=Freight+-+Short+Line%2FRegional

⁹ http://atlantic.transport-action.ca/TAA_REPORTS_2014/Revitalizing%20New%20Brunswick%E2%80%99s%20Rail%20Sector%20Report.pdf

The adjoining text box, drawn from this New Brunswick study, reinforces the findings in the U.S. case studies profiled above. It agrees with the Railway Association of Canada's assertion on the need for public private partnerships in rail development.

Other Relevant Rail Trends

In the examination of trends in the rail sector, the literature review attests to what is being widely described as a 'renaissance in rail'.

The case for increased rail use is an environmental case – often framed by the concept of 'greener by the mile' and characterized by:

- Energy use per ton-mile – railways are 3-4 times more fuel efficient than trucks;
- Reduction in greenhouse gas emissions (GHG) and intensity; and
- Reduced highway damage.

Although much of Canada's earlier rail history saw a large public sector involvement in building and extending a network fuelled by a little too much optimism, the current situation in Canada is similar to that in the U.S.; most of the infrastructure is owned and operated by investor-owned companies.

However, in the U.S. today there is a steadily growing trend toward both federal and state support of strategic rail infrastructure. A substantial body of research underpins these investments, but unfortunately, the same kind of initiative has not been evident in Canada. Pg. 39

Other trends include the growth of intermodalism. Rail intermodal—transporting ocean shipping containers and truck trailers on railway flatcars—has been the fastest-growing segment of the U.S. freight railroad industry for years, according to the Association of American Railroads (AAR). Intermodal accounted for 21 percent of revenue for major U.S. railroads in 2011, second only to coal among all rail traffic segments.¹⁰ According to the Railway Association of Canada, in the period 2011-2013, the volume of fuels and chemicals hauled by Canadian railways increased 24 per cent versus 10 per cent for intermodal cargo.¹¹

Exports and imports account for about 55 percent of U.S. rail intermodal traffic, with purely domestic movements making up the remainder. The domestic share of total U.S. rail intermodal traffic has grown in recent years, with much of the increase consisting of freight that once moved solely by truck, but which has now been converted to a combination of truck and rail movements.

While intermodal's sweet spot is between 750 and 1,500 miles, the analysis notes that in certain markets short-haul intermodal less than 500 and even 300 miles has become advantageous. This trend has also been evident in Canada.

Throughout the literature, there is an emerging perspective that views the policy dimensions of effective future transportation strategy in a more integrated and expansive light, comprehensively addressed in the following excerpt from a recent study at Rutgers University:

Meeting surface transportation needs of the future will require a strategy that goes beyond just 'more of the same'. It requires a multi-modal approach with preserves what has been built to

¹⁰ <http://www.inboundlogistics.com/cms/article/rail-freight-whats-coming-down-the-track/>

¹¹ Railway Association of Canada, "2014 Rail Trends", Ottawa, 2014.

*date, improves system performance and adds substantial capacity to highways, transit, freight rail, intercity passenger rail and better connections to ports, airports and border crossings. Meeting contemporary surface transportation needs goes beyond transportation and also includes consideration of land and energy use, climate change, community quality of life, among other factors.*¹²

Another prominent issue in both the U.S. and Canada involves the promulgation of new joint standards for transporting oil by rail. Canada's Minister of Transport, Honourable Lisa Raitt, joined U.S. Transportation Secretary Anthony Foxx to announce new harmonized standards on May 1, 2015¹³ - a final rule for the safe transportation of flammable liquids by rail. The final rule, developed by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and Federal Railroad Administration (FRA), in coordination with Canada, focuses on safety improvements that are designed to prevent accidents, mitigate consequences in the event of an accident, and support emergency response.

This change is expected to increase demand for new rail tank cars and the retrofit/upgrade of earlier rail tank cars. It is relevant to this study in that one of the ancillary projects the consultant team examined included consideration of a possible rail repair facility in the Sydney area.

¹² http://cait.rutgers.edu/files/RAIL-RU4474-V2Combo_120409.pdf

¹³ <http://www.dot.gov/briefing-room/final-rule-on-safe-rail-transport-of-flammable-liquids>

4. Project Profiles

This section of the report provides a summary and an up-to-date inventory of the major industrial developments and other potential developments identified for Cape Breton, including the following:

- The Donkin Mine development;
- Provincial Energy Ventures;
- International Iron Beneficiation Group Ltd.;
- Intermodal traffic with a potential to convert to Rail;
- The Sydney Container Terminal; and
- Other projects identified by the Cape Breton Regional Municipality.

In summarizing these projects and others identified by the consultant team in the completion of this study a common template was developed utilizing the following headings:

- Project
- Project Description
- Proponent
- Proposed dollar value of the project
- The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic
- The estimated amount of rail traffic
- The current status of the project
- An examination of known factors that may impact this development
- The proposed time frame for proceeding with the project
- Whether access to rail is a requirement for the project
- An assessment of the likelihood of the project proceeding
- Conclusions

Donkin Mine

This project summary addresses the Donkin Mine Development.

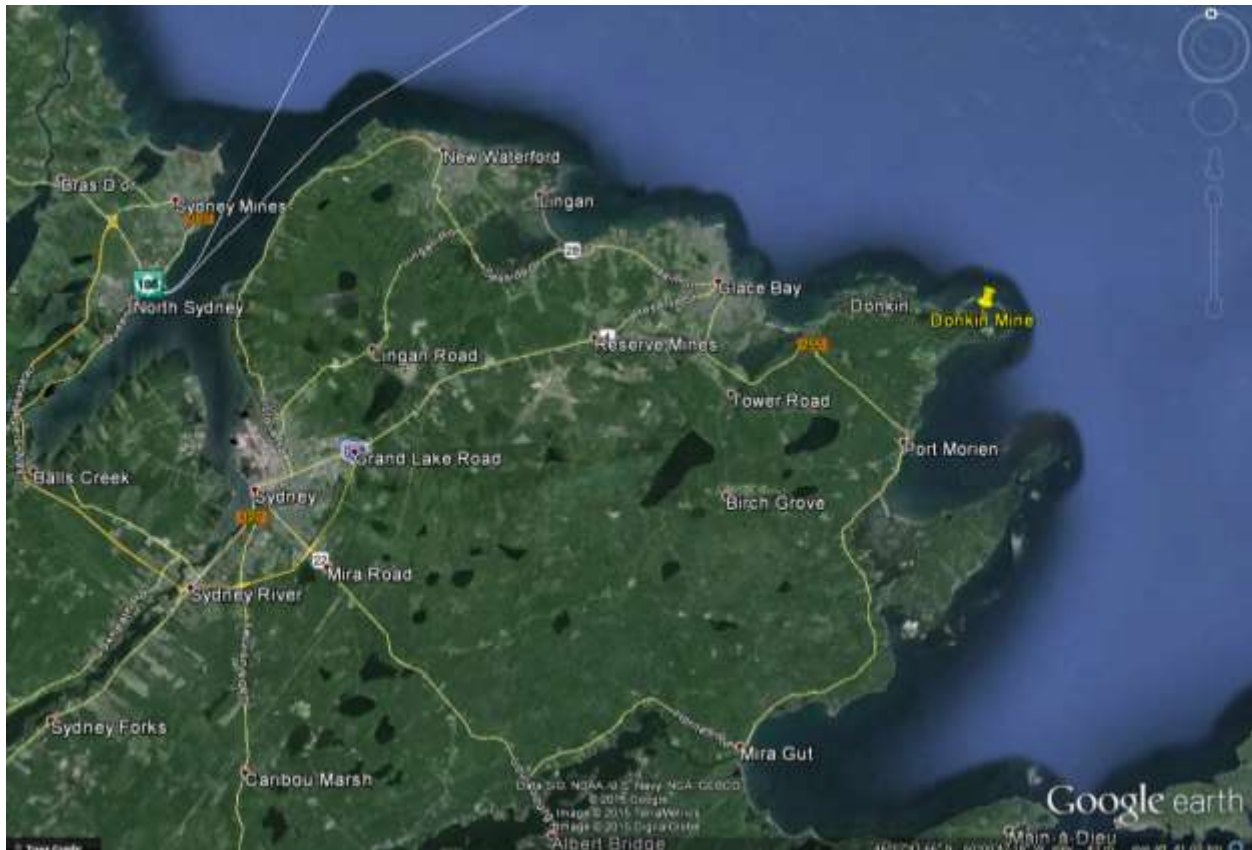


Figure 3: Location of the Donkin Mine Development

Project Description]: The village of Donkin sits on the northeastern-most tip of Cape Breton, along the Marconi Trail that stretches from Glace Bay to Louisbourg. As part of the Cape Breton Regional Municipality, Donkin is located 11 km east of the town of Glace Bay and 32 km east from the city of Sydney. The nearest village is Port Morien, 10 km away.

Historically a coal mining area, Donkin is home to a colliery (mining operation) developed by the Cape Breton Development Corporation (DEVCO). One of the first mining operations in the area was in Schooner Pond in 1863, when the Acadia Mines opened and began production from the Emery coal seam. The coal was taken by ship until trains began to take coal to the docks at Sydney in 1874. In 1863 the Clyde Mine opened in the area now known as Port Caledonia. All mining operations in the area ceased after the miners' strike of 1925.

After the mines closed, workers traveled to the Phalen and Lingan mines to continue working.

During the early 1980s, the Cape Breton Development Corp. (DEVCO) began to assess the development of coal deposits extending out under the Atlantic Ocean. From 1981 – 1987, using large scale tunnel burrowing machines, DEVCO led the development of two 7.6 meter wide, 3.6 kilometer long tunnels to the Harbour Seam at a cost in 1980 dollars of approximately \$100 million. However, the mine was closed

in the early 1990s before commercial production began, and DEVCO closed all the coal mines in Cape Breton in 2001.

In 2006, Xstrata, an Anglo-Swiss multinational mining company that was eventually purchased by Glencore, reopened the Donkin mine and began the process of draining groundwater from the mine slopes. Glencore eventually decided the mine was too small for its operations and put its stake in the project up for sale.

The proposed mine is located approximately 30 kilometers from the recently dredged Sydney Harbour which is capable of handling large Capesize vessels. The project presents one of the largest undeveloped coking and thermal coal opportunities in North America and, in part, because of its location close to the ocean, is expected to be among the lowest cost coking coal mines in the world.¹⁴

Estimates put the Donkin mine's coal reserves at more than 480 million tonnes.

Proponent: United States coal mining giant, the Cline Group LLC bought a majority stake (75%) in the Donkin project from global industry operator, Glencore Xstrata PLC late in 2014. Shortly thereafter, the Cline Group acquired the 25 per cent interest in the Cape Breton coal mine from Morien Resources Corporation of Dartmouth for \$5.5 million and royalties, giving Kameron Collieries, the Halifax-based subsidiary of the Cline Group LLC, full control of the mine and one of the largest undeveloped coal deposits in North America. Kameron Collieries will be the operator of the mine.

The Cline Group is a private company with 700 employees. Its revenues in 2013 were \$957 million and its earnings before interest, taxes, depreciation and amortization (EBITDA) were \$364 million. The company has a 35-year track record of building coal mines in Illinois and selling coal to power plants across the United States and in 23 countries around the world. The Cline Group owns three of the four top-producing coal mines in the U.S.

Proposed dollar value of the project: Cline has stated publicly that an initial investment of \$200 million is required to get the mine operational.

The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic: The proponent has two approvals associated with transportation – to truck the coal product from the mine and to load the product at sea in close proximity to the mine development. Access to rail is not a requirement for either of these options.

Movement by rail would require development of a spur line which would add considerable investment and require additional approvals.

However, in discussing this matter with the project proponent, we were advised that there has been at least some initial consideration of the use of rail to move Donkin coal. If a contract was reached with NSP to utilize Donkin coal in the Lingan power plant, movement of the mine's output by rail would likely be the most efficient approach, assuming that there was a business case for the level of investment that might be required for the development of a rail spur line and appropriate approvals could be secured. And if the mine developer wanted to move its product over an enlarged PEV transshipment facility, a rail spur, expected to be in the range of 15 miles would be required at a previously estimated cost of

¹⁴ <http://www.morienres.com/donkin-project/project-details>

between \$45 and \$75M. If the Donkin proponent were to move its full annual production of coal, estimated at 2.75 million tonnes, to PEV and/or to Langan, the estimated impact on rail traffic could be more than 30,000 rail cars per year.¹⁵ If the NSP option was pursued, the distance travelled on rail would only be a small portion of the Sydney Subdivision, and the overall impact on the profitability of the line would need to be determined based on an assessment of financing and overhead, among other factors.

The current status of the project: It is early days in the development of this mine under the current owner. The first stage is to de-water the mine, which has commenced. This was expected to be completed by the summer of 2015. In discussions with the company during this study, progress was reported as being on track to reach this target.

These are the essential first steps for the owner involving assessing the asset, its quality, and its target market(s). The mine has not yet publicly indicated whether it has an identified customer. During the course of the completion of this study, local media reported that Kameron Coal Management Ltd. of Donkin had reached a trial agreement with Nova Scotia Power (NSP) to test burn its coal in a NSP power plant.

Also evident during the study is the progress that Kameron Coal is making on the process of commissioning the mine.

It is important to note that several federal / provincial approvals came with the mine purchase:

- A permit to mine 2.75 million tonnes of coal per annum;
- Approval to truck the coal from the site;
- Approval to move coal through the development of adjacent sea-loading capacity.

Varying these conditions would require additional approvals and additional time.

An examination of known factors that may impact this development: There are a variety of factors that could impact this development. These include the following:

- ***The business case for the development of the mine at this time*** – This will be the most important factor taking into account, and being highly dependent on a number of the issues noted below;
- ***The quality of the coal*** – this is not expected to present a challenge to the ultimate development of the mine. From 1987 – 2007, several raw coal and washability studies were completed in drill holes, channel samples and bulk samples at Donkin. Generally these studies show that as a raw unwashed product, Donkin Coal is superior in ash and heating value to other thermal and metallurgical coals. As a washed product, Donkin Coal is high energy and possesses excellent coking coal properties and is capable of having the total sulphur content reduced to near background organic sulphur levels;

¹⁵ Donkin is predicted to generate 2,750,000 metric tonnes of annual production (6,062,712,210 pounds annual production). If a rail car can move 200,000 pounds (per load/bulk railcar), then 100% of the annual production would require 30,300 cars.

- ***The state of the world coal market*** – The international coal market has been depressed for several years. The market has been flooded with Australian and Indonesian coal and currencies have been falling in several countries, contributing to depressed prices. This takes place in a global environment where demand for coal is falling, in part, precipitated by environmental concerns and global measures to reduce GHG emissions. Most analysts expect market volatility to be an ongoing factor. However, the depressed global environment has contributed to considerable rationalization in the industry which will make it more competitive overall;
- ***The mine's competitiveness*** – Coal from the Donkin mine is expected to have a significant 'as delivered' cost advantage relative to its peers in Australia, Canada, Europe and the United States. This is underpinned by a location that ensures low logistics costs while enjoying a geographically proximate location favourable to European and South American markets.
- ***The identification of an early customer*** – Many analysts believe that the Donkin mine can proceed without having that initial anchor customer. Notwithstanding, as noted above, a trial agreement has been reached with NSP to test-burn Donkin coal. The results of this will no doubt be instructive in determining whether there is potential for Donkin coal to replace some of the 2.5 million tonnes of coal a year that NSP imports from other countries to utilize in its Point Aconi and Langan power plants. Coincidentally, these power plants are in relatively close proximity to Donkin. If a contract with NSP could be established to supply coal to these plants, this coal could be moved by rail if there was a business case to support the level of investment that might be required to develop a rail spur line and associated infrastructure.

The proposed time frame for proceeding with the project: Donkin is expected to produce coal in two phases: development and operations. The development phase proposes use of a single continuous miner (CM) operation to collect coal samples and confirm the geotechnical regime. This phase of exploration and production is permitted at 2,000 tonnes per day. As the project moves into the operations phase, anticipated in 2016, three additional continuous miners are to be added by 2018, with rough order of magnitude (ROM) production expected at 3.1 million tonnes per annum by 2019.

The project proponent estimates a 2-3 year lead time to get the mine up and running and 3-5 years for the build out and full operations.

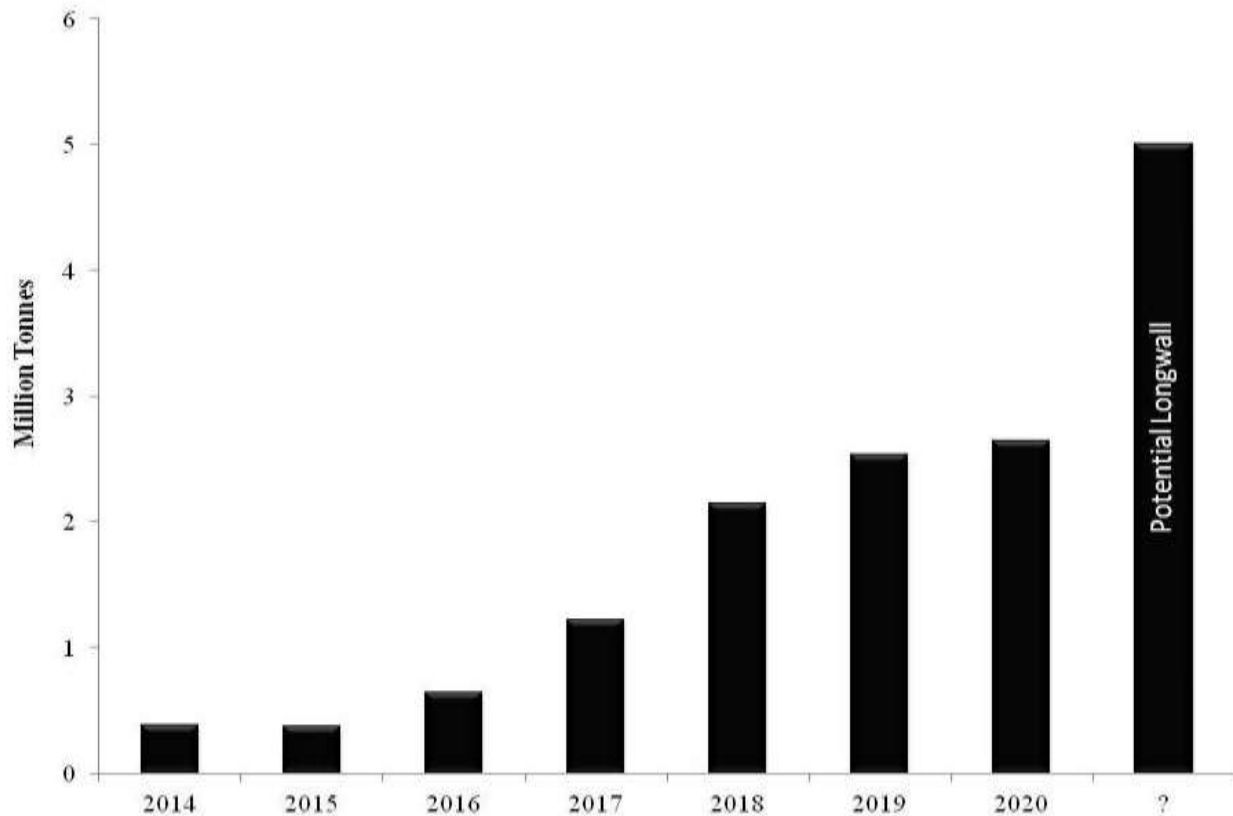


Figure 4: Donkin Mine Development Plan¹⁶

Whether access to rail is a requirement for the project: Rail access is presently not a requirement for the project to proceed.

An assessment of the likelihood of the project proceeding: The consultant team considers that the likelihood of this project proceeding is very strong.

Conclusions: This would appear to be a credible project with a proven, experienced operator that has the capacity to develop and effectively exploit this significant asset. There are considerable synergies with the proposed PEV initiative (see below). Its development may help the railway, but until the proponent has been able to further qualify the asset and complete the market assessment, it is difficult to be definitive on its potential to positively impact the railway. Going forward, however, it is likely that global coal markets will continue to be turbulent and environmental factors are expected to continue to impact demand.

¹⁶ Source: <http://www.morienres.com/donkin-project/project-details>

Provincial Energy Ventures

Provincial Energy Ventures (PEV) proposes to build a bulk cargo transshipment facility at the former Sysco site in Sydney.

Project Description: PEV, which is owned by XCoal Energy Resources LLC, of Latrobe, PA, operates a bulk transshipment facility on the former SYSCO site in Sydney. In 2014, it handled 700,000 tonnes of cargo, which was discharged onto the terminal from 25,000 tonne lakers arriving from the Great Lakes and St. Lawrence River, and then loaded into 80,000 tonne Panamax vessels for shipment to the U.S. east coast. PEV's owner was the largest coal exporter in the U.S. last year, shipping 16 million tonnes, mainly from Pennsylvania.

The company proposes acquiring 100 acres of former Sysco lands from the province and spending \$75 million to expand the present facility. Small 25,000 – 30,000 tonne lakers would deliver Pennsylvania coal from the port of Ashtabula, OH to Sydney to be transhipped into either 80,000 tonne Panamaxes for the U.S. east coast or 150,000 tonne Capesize vessels for European markets, substantially increasing (5 to 7 times) the volume handled at Sydney. The feasibility of the project is based on U.S. east coast ports such as Baltimore and Norfolk being at capacity for handling bulk cargo, and the need for an alternative for shipping coal from Pennsylvania.

Proponent: PEV is owned by XCoal Energy Resources LLC, of Latrobe, PA.

Proposed dollar value of the project: PEV proposes to spend \$75 million of its own money on the project.

The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic: The terminal is expected to handle coal and other bulk commodities that would be transhipped from small vessels into larger ones, and is not expected to increase rail traffic.

The terminal could be a factor in the Donkin mine development. It could handle coal arriving by either barge or rail. It is unlikely that the PEV project *per se* will involve rail traffic.

This project is not expected to generate any rail traffic unless PEV handles coal that arrives by rail from Donkin, or it handles coal for Lingan, which is railed. NSPI has its own terminal in Pt. Tupper to handle coal for Trenton, so it is unlikely to use PEV for this purpose.

The current status of the project: The proponent has indicated that they would proceed with the project, if it is able to acquire title to the land.

An examination of known factors that may impact this development: The only factor the consultants have been made aware of that could impede this project going forward is the issue of land title. There are obviously other market forces that come into play, however, aside from the land title issue; near term project feasibility is viewed positively.

The proposed time frame for proceeding with the project: The time frame for this project is unknown at this time, although, the project proponent seems interested in advancing the project if land title is able to be acquired.

Whether access to rail is a requirement for the project: Rail access is not required for this project. It is expected to be a transshipment facility to transfer cargo from small laker-type vessels into large Panamax or Capesize vessels.

An assessment of the likelihood of the project proceeding: If the one major hurdle can be overcome, there seems to be a strong likelihood of the project being built.

Conclusions: Overall, it is expected that PEV would handle 3-5 million tonnes of cargo and up to 250 vessels per annum.

This project would have significant spin-offs in establishing Sydney as a shipping port, including creating the requisite port infrastructure. Stevedores, shipping agents, pilots, and administrative jobs would be created, in total 30-50 incremental jobs could result. Other ports services such as, tug boats would also be required. Depending on how the Port of Sydney governance issues are resolved, it could also provide harbour dues, berthage and wharfage fees.

International Iron Beneficiation Group

Project: International Iron Beneficiation Group (IIBG)

Project Description]: In 2013, International Iron Beneficiation Group (IIBG), 51% owned by Russian mining and steelmaking company Severstal, launched the first phase of a feasibility study to examine the possibility of establishing a metallic iron production plant in Sydney, Nova Scotia.¹⁷

Concurrently, IIBG was also considering other locations for the project including one near the iron ore port of Sept-Îles in Québec, Canada and sites in the U.S. states of Minnesota, Kentucky and Indiana, whose attraction was determined by their proximity to areas holding vast iron ore waste dumps.

If the project were to proceed, IIBG proposed to use the innovative Finesmelt technology developed by South Africa-based Iron Mineral Beneficiation Services (IMBS) to convert superfine 62+ percent iron-bearing material into granulated reduced iron for Electric Arc furnace (EAF) steelmaking.

Reduced Iron or Iron Oxide reduced to metallic iron without melting and which has been compacted under hot conditions into briquettes utilizing the Finesmelt™ technology offers a superior steel feedstock with good thermal and electrical conductivity. It is stable and resistant to loss of metallization, and is easily transported and stored.¹⁸ Finesmelt™ HBI can also be fed directly to a Basic Oxygen Furnace (BOF) or EAF as a metallic iron source and as an excellent scrap substitute.

IMBS has recently commissioned the first Finesmelt module for the production of up to 50,000 metric tons/year of briquettes with 88-92% iron content in Phalaborwa, South Africa. This project is behind schedule with full commercialization of the technology not expected to be completed until late 2015.

One of the original site selection criteria for this project was the presence of rail transport.

¹⁷https://www.steelbb.com/?PageID=157&article_id=118266

¹⁸<http://www.imbsworld.com/hbi.htm>

The former Sydney steel plant property was proposed as the site for the plant because of its easy access to Sydney harbour with a route directly on to Highway 125 from the Sydney Port Access Road.

Proponent]: IIBG and Severstal

Proposed dollar value of the project]: Publicly reported figures reflected that the construction of the facility has been estimated at \$800 million to \$1 billion.

The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic: Rail and sea transport were considered important criteria in the site selection.

The estimated amount of rail traffic is unknown at this time, but, it would be significant if the project were to be developed.

The current status of the project: Indeterminate at this time.

An examination of known factors that may impact this development: Factors impacting this project at this time include:

- The technology is not yet fully commercialized – the scaling up of the demonstration plant is still underway with final proof of concept for commercial viability still some months away;
- Geopolitical factors – Beyond the fact that Sydney was in competition with other sites for this development, geopolitical issues arising from Russia’s annexation of Crimea and the current dispute in Ukraine has created an environment wherein this project is unlikely to proceed in the near future. Severstal has since divested its steel plants in the U.S. As a vertically integrated steel manufacturer, in the absence of any steel plants in North America, Severstal is not expected to be interested in advancing this project on this continent in the foreseeable future.

The proposed time frame for proceeding with the project: Indeterminate at this time.

Whether access to rail is a requirement for the project: Access to rail was considered a key criterion associated with the site selection process.

An assessment of the likelihood of the project proceeding: Stakeholders who support the project are enthusiastic; most though, feel that the likelihood of it proceeding within the planning horizon that is the focus of this study is not strong.

Conclusions: This is not a project that is likely to be advanced within the planning horizon for this project.

Intermodal

This section discusses the potential for shifting some truck traffic that is moving back and forth to the Marine Atlantic (MAI) ferry terminal to rail.

From 1981 to 1996, CN operated a subsidiary called Terra Transport, which introduced intermodal transportation to Newfoundland. At first, 20' and 40' containers were shipped from central Canada to North Sydney, where they were transferred to a narrow gauge Newfoundland rail car. These moved across to Port aux Basques and were then sent across Newfoundland by train. When the Newfoundland railway was abandoned in 1988, Terra Transport continued to send containers to North Sydney, where they were transferred to highway chassis and then rolled on and rolled off the ferries. When they arrived at Port aux Basques, they were picked up and trucked across the Island. This service was not economic and was discontinued in 1996.

Marine Atlantic operates a “constitutional” service between North Sydney and Port aux Basques. According to the Terms of Confederation, “Canada will maintain in accordance with the traffic offering a freight and passenger steamship service between North Sydney and Port aux Basques, which on completion of a highway between Corner Brook and Port aux Basques, will include suitable provision for the carriage of motor vehicles...”

Marine Atlantic has upgraded its service in recent years and now operates four large ferries capable of carrying a mix of passengers, autos, tractor trailers and “trailers-only”. As such it provides service from “A” to “B” for commercial carriers carrying cargo from the mainland to Newfoundland. Its customers are the carriers and its role is to provide a service to those private operators who control the routing of such freight. Its customers include CN, Armour, Clarke, Maritime-Ontario, Midland, Day & Ross, Easons, Tom MacDonald Trucking, Connors, among others, some of which ship “drop” trailers and some of which send a tractor trailer unit across to Newfoundland.

Oceanex is a private shipping company which operates three vessels on two routes serving Newfoundland & Labrador, via Montreal and Halifax. It competes with the trucking firms using Marine Atlantic and also carries cargo for those same trucking firms.

Project Description: About 100,000 trucks per annum use the MAI service between North Sydney and Port-aux-Basques. These are split between:

- “tractor trailer” units, with the driver, tractor and trailer, *
- “trailers only”, with just the trailer, as well as;
- A small number of “straight” 5 to 10 ton trucks¹⁹.

¹⁹ A truck in which all axles are attached to a single frame.

Table 1: Marine Atlantic Commercial Traffic, 2009-2013

<i>Commercial Traffic in Units</i>					
	2009-10	2010-11	2011-12	2012-13	2013-14
Straight Trucks	2,501	1,997	2,133	2,264	2,306
Tractor Trailers	43,629	46,603	48,533	48,044	43,888
Trailers Only	50,564	52,020	52,587	52,853	51,202
Totals	96,694	100,620	103,253	103,161	97,396

Source: Marine Atlantic

Intermodal containers that are moved on the ferry service are shipped on a container chassis and should either be considered a “tractor trailer” unit or a “trailer only”. They are loaded as roll-on, roll off (ro-ro) cargo, not as lift-on, lift off (lo-lo) cargo, as most containers are typically handled at a container terminal.



Figure 5: CN Domestic 53' container on chassis with empty container chassis in the foreground, Source: James Frost, 2015



Figure 6: Empty container chassis, Source: James Frost, 2015



Figure 7: Marine Atlantic loading drop trailers, Source: James Frost, 2015

Proponent: The potential proponent(s) for intermodal container movement are not identified at this time, although both CN and G&W would need to be involved.

Proposed dollar value of the project: The value of the project or investment required is unknown at this time.

The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic: Essentially, there are two components to the traffic carried by Marine Atlantic. “Tractor trailer” units tend to be operated by smaller operators and owner-operators, whereas the larger firms such as Armour Transportation, Day & Ross, Midland, Maritime-Ontario and CN Intermodal tend to move “trailers only”. Typically, these companies send their units down the road from

Moncton or Dartmouth to North Sydney, drop the trailer at the ferry terminal and then pick up a trailer that came off the vessel and take it back to Moncton or Dartmouth. These companies and their drivers do not like to send their drivers across to Newfoundland and they have Newfoundland drivers who tend not to cross to the mainland.²⁰

Not all “trailers only”, however, are moving to and from Moncton. Some originate or are destined to Halifax, Dartmouth and Debert, or even northern New Brunswick and PEI. “Tractor trailer” units originate all over the Maritimes, Quebec, Ontario and the U.S. Over one-half of Newfoundland and Labrador’s inbound cargo originates in Ontario and Quebec, and it moves by a variety of modes, including the following:

- Rail to Montreal and Oceanex to St. John’s;
- Road to Montreal and Oceanex to St. John’s;
- Intermodal rail Toronto or Montreal to Moncton, road to Sydney and ferry to NL;
- Road from Toronto or Montreal to Sydney, drop in Sydney and and ferry to NL;
- Road from Toronto or Montreal to Sydney, tractor, trailer, driver via ferry to NL; and
- Rail Toronto or Montreal to Halifax, Oceanex to St. John’s.

The only portion of the current Newfoundland ferry traffic that can be considered as potential intermodal cargo is the “trailers only” business, a small portion of which is in 53’ domestic containers moving between Toronto and Montreal by rail to Moncton and from there to North Sydney on highway chassis. In discussions with CN it was initially suggested this cargo could be placed on chassis and move by piggyback rail from Moncton to North Sydney, where they would be rolled on and off the ferries.



Figure 8: CN Intermodal 53’ Domestic Containers, Source: Frost, 2015

²⁰ See MariNova Consulting Ltd., “The Social and Economic Impact of the Marine Atlantic Drop Trailer Service”, Transport Canada, 2005.

The consultant team has been told that following further analysis and discussion with G&W, and largely because of the condition of the line, the limited speeds at which trains can presently run, and the competitiveness of trucking between Moncton and Sydney, CN has concluded that the intermodal option is not feasible, and that it will continue to move their Toronto and Montreal-origin containers by road from Moncton to North Sydney.

Outreach by the consultant team took place with CN and G&W throughout the project and, most recently, in September 2015. The consultant team has been advised that, following assessment and analysis, the intermodal concept is not financially feasible, principally because of very competitive trucking rates that are available.

The engineering study being undertaken on the rail line also identified the extent of work needed and associated costs to upgrade the Sydney Subdivision to meet the required standards for any potential intermodal traffic.

The current status of the project: CN and G&W initiated discussions regarding moving containers between Moncton and Port Hawkesbury. As of September, 2015, these discussions have concluded and the two parties have concluded the project is not feasible.

An examination of known factors that may impact this development: CN indicated their daily intermodal train has capacity between Moncton and Truro, as a portion of the Toronto-Halifax train is dropped at Moncton. This train-length capacity could be made available to move cars between Moncton and Truro, where it would be picked up by CBNS, for onward carriage to Cape Breton.

To operate all the way through to North Sydney, the service would need to be competitive with trucking, which takes about 6 hours, and would have to allow them to catch the 2345 hrs Marine Atlantic sailing. G&W indicated their transit time between Stellarton and North Sydney is approximately 36 hours: cars arrive at 2:00 am in Stellarton, picked up at 2:00 pm the following day (+12 hours), arrives at midnight in Harve Boucher (+12 hours), and arrives at noon in Sydney (+12 hours, for a total of 36 hours). CN indicated that the current transit time is not fast enough to allow it to compete with trucks.

Moreover, G&W's current return carload rate from Truro to Sydney is more expensive than trucking. CN's intermodal tariff rate for trucking between Moncton and North Sydney is significantly less than G&W's carload rate. G&W indicated they would not be able to move 20 cars per day back and forth between Truro and North Sydney on a non-stop basis for this amount of revenue, or at a rate that could compete with trucking.

To increase the speed to 25 mph would require upgrades to the track-and additional volume beyond the 10,000 carloads indicated to achieve breakeven.

G&W has been reluctant to upgrade the track without a volume guarantee from CN, and CN has been reluctant to provide this type of guarantee because their traffic to Newfoundland is always in flux. The Newfoundland marketplace is very dynamic.

The proposed time frame for proceeding with the project: Arising from the team's enquiries, discussions took place between CN and G&W regarding moving containers, but only as far as Port Hawkesbury. We understand that some discussions took place in June 2015 and concluded unsuccessfully in September.

Whether access to rail is a requirement for the project: Access to rail is essential for intermodal cargo to move as far as North Sydney, but rail service speeds would need to be significantly improved to facilitate this. Achievement of this level of service would require investment, though the amount is unknown at this time. It may be possible to discern the level of investment that might be required through the results of the third study underway on the Sydney Subdivision's condition.

An assessment of the likelihood of the project proceeding: Both G&W and CN have indicated it is not presently feasible to move containers between Moncton and North Sydney on either a competitive or business basis, mainly due to the speeds and turn-around times associated with the run.

Conclusions: Based on this review and the consultation undertaken by the consultant team, there is no evidence that an intermodal option could be economically feasible at this time, in large part because the potential proponents are unable to compete with truck rates between Moncton and North Sydney.

The Future Potential for Intermodal

Ultimately, to create a stronger case for the use of intermodal to contribute to the sustainability of the Sydney Subdivision, the following conditions would need to be met:

- First and foremost, the volume of traffic would need to be sufficient to support a business case for transit by rail versus truck;
- The hub where the intermodal traffic originated would need to be at a point where longer-haul traffic makes more sense versus short-hauling by truck; there hubs are already in place at many locations along CN's network (<http://www.cn.ca/en/our-business/our-network/intermodal-terminals>);
- The line would need to be able to operate at average speeds equivalent to class 3 or better over the entire line (including the Hopewell Subdivision from Truro to Point Tupper);
- The train would need to be able to meet the schedule for Marine Atlantic ferry sailings and provide enough time to allow the containers to be transferred to chassis in North Sydney;
- Some investment would be required in North Sydney to handle containers arriving and departing by train. This is indeterminate at this time;
- No investment would be required on the Newfoundland side, as intermodal containers carried on the ferry would become, in essence, "trailers-only" and move to their destination by the same fleet of tractors as presently move conventional "trailers-only"; and
- Trucking companies using the Marine Atlantic service would need to switch to intermodal service and make the accompanying vehicular and related investments required.

Although CN and G&W have reported that, under the present conditions, their assessment of the potential is that it is not economic in the near term, they were very open to continuing a dialogue. Ultimately, a more detailed scenario-based sensitivity analysis would be necessary to assess the financial feasibility of the above scenario to determine the exact conditions for success and the target volumes that would be required to achieve a threshold that would sustain the line. This level of analysis is beyond the scope of this current exercise.

Atlantic Minerals

Atlantic Minerals is a Bedford-based mining company that proposes to open a limestone quarry in Glencoe, near the now-closed Georgia-Pacific gypsum mine, as well as a cement plant at Point Tupper, in the Strait of Canso.²¹

Project Description: Atlantic Minerals seeks to develop both a limestone quarry in Inverness County and a cement plant in the vicinity of the Strait of Canso. Limestone could be shipped in bulk to a new cement plant in Gaspé, or a cement plant could be built in the Strait of Canso, which is the proponent's preference.



Figure 9: Artist's Conception Atlantic Industrial Minerals Cement Plant, Pt. Tupper, NS, Source: Atlantic Industrial Minerals

Proponent: Atlantic Industrial Minerals is a Bedford-based company associated with MerrexGold, a TSX listed junior mining company.

Proposed dollar value of the project]: Company documents indicate the project could involve an investment of \$500 million. The proposed project would be privately financed.

The modes of shipping identified for the project and whether the project, if developed is likely to contribute to increased rail traffic: The Company would either ship 3 million tonnes of raw material (quarried limestone) to a cement plant in Gaspé, or the same 3 million tonnes to a new cement plant in Pt. Tupper, which would produce 2 million tonnes of cement to be shipped to various markets by various modes, potentially including rail.

Limestone could move to Point Tupper in one of four ways: 1) truck all the way to Point Tupper; 2) truck to River Denys, the closest point on the CBNS and then rail to Pt. Tupper; 3) new rail spur from Glencoe

²¹ The company is listed on the Toronto stock exchange and is also engaged in gold mining. The principal is also interested in developing a zinc mine near Little Narrows.

to River Denys; or 4) by conveyor from Glencoe to Pt. Tupper, a distance of 37 km. The most efficient way to move the products would be to build a rail spur to River Denys. The 2006 engineering assessment of this project notes that, based on preliminary discussions with the then CBCNS operator, the cost estimate of this spur line would be in the range of \$12 - \$15 million in 2006 dollars (approximately \$14 to \$17 million in 2015).

If shipped by rail, limestone could move in 15,000 carloads of 200 tonnes each x 2 (full and empty), however, while this would only travel on a portion of the Sydney subdivision, it would offer a consistent incremental revenue stream. Finished product would move by rail or ship, potentially creating more carloads from Port Hawkesbury.

Another potential opportunity relates to the possible use of Donkin coal as the primary fuel source for the proposed cement plant. A June 2006 engineering study notes the following:

Coal will be the main fuel for firing the kiln, for purposes of this report, we have assumed that coal will be supplied either from Nova Scotia or imported. The sub-bituminous coal from Nova Scotia is a good quality coal.....the suitability and availability of local coal sourcing must be further investigated as no mine, at the time of the writing of this report, has re-commended operations.....The cement plant is anticipated to require over 100,000 tonnes of coal annually.²²

It is important to note that it is not clear whether coal mined from Donkin would be appropriate for use in this operation, however, if it was, it could positively impact rail traffic on the Sydney Subdivision if it was moved by rail.

If Donkin coal was to be moved by rail, further approvals would also be required along with significant additional investment for a spur line. If the proponent was to proceed in this direction, the development of this capacity would be expected to take several years.

The current status of the project: Several studies have been done and more are ongoing. The proponent has indicated it has presented the project to various stakeholders, although, there has not been a strong interest expressed. This is a project that could help with local job creation. During the construction phase, 1500 person years of skilled and unskilled labour and material sourced locally would be required. Once in operation, the 2006 study estimates that there would be 115 permanent positions at the cement plant and 18 permanent positions at the quarry. Transportation requirements would create additional direct employment. In the absence of developing the proposed cement plant, the raw material could be shipped to a new cement plant in the Gaspé region of Quebec.

An examination of known factors that may impact this development: To be successful, the proponent would need to raise a significant level of capital; the proponent is confident in his ability to do so. Ultimately, projects of this type are impacted by overall costs, including labour and power, among others. Shipping costs would also affect its overall competitiveness, as they expect to ship down the U.S. east coast. The cement plant in Quebec will likely have the benefit of lower power costs.

²² Strait of Canso - *New Cement Manufacturing Plant, Conceptual Study*; Consultec Ltd. Consulting Engineers for Strait-Highland Regional Development Agency, 2006.

The proposed time frame for proceeding with the projects: The time frame for this project is not known at this time.

Whether access to rail is a requirement for the project: Access to rail is not a requirement for the project to proceed. As noted above, the mine would have four options for getting the material to Pt. Tupper. There is, however, considerable potential to use rail, either by building a spur line to River Denys or by trucking to River Denys to join the rail line there. In this regard, there are two examples of unit trains moving bulk commodities from mines located inland to tidewater. In Hants County, gypsum is shipped to Wright's Cove in Halifax Harbour by rail and in Sussex, NB, potash is shipped by rail to a terminal in Saint John. The latter handles about 1 million tonnes and is being expanded to 1.8 million.



Figure 10: Potash cars waiting to unload at terminal in Saint John, Source: James Frost, 2015

An assessment of the likelihood of the project proceeding: The consultant team met with the project proponent during this study. There appears to be a strong interest on the part of the proponent to proceed with the project. There is confidence that financing can be successfully secured. Interest and due diligence on the part of key stakeholders, including government, would be required.

Conclusions: If there is a solid business case, this project potentially offers a significant economic development opportunity for Cape Breton and could also positively impact the rail line. Depending on the economics, a rail spur might need to be constructed, which would add a source of incremental revenue to CBNS. There are two options for this development – one to simply mine the raw material – the limestone – the second to construct a cement plant. Current industry forecasts project that the demand for cement in the United States in 2016 will exceed pre-2008 levels and is expected to be quite strong going forward.²³

Container Terminal

The Port of Sydney Master Plan of 2007 examined the potential development of cargo facilities in Sydney Harbour. It identified the potential for Sydney to market itself as the closest port to the Suez Canal via the Great Circle Route, or 25 hours closer than New York. It asserted that Sydney is the “quickest to market, most cost-effective, greenfield container site in North America”. It also suggested that Nova Scotia would need another container gateway besides Halifax if Suez service materializes as expected and that Sydport is the lowest cost new-build opportunity in North America. It should be noted that, this latter model can be observed in operation on the west coast of Canada between the ports of

²³ <http://www.globalcement.com/magazine/articles/911-continued-resurgence-in-the-us-cement-industry>

Vancouver and Prince Rupert. Prince Rupert thrives, at least in part, because it offers an alternative west coast gateway to Toronto and Chicago and some suggest that Sydney could do the same relative to the east coast.²⁴

The report also suggests that the vessels calling at Sydney would load and discharge 2,000 containers in each direction and that these containers would be destined or originate in the heartland of North America. These potential opportunities would need to be analysed in greater depth and it is the consultant's understanding that the Cape Breton Regional Municipality is considering undertaking a feasibility study that will do just that. However, for the current study, the consultants were not provided any project details, and, as such, were not able to conduct any detailed analysis. Comments in this section are therefore based on industry knowledge and research conducted for this project.

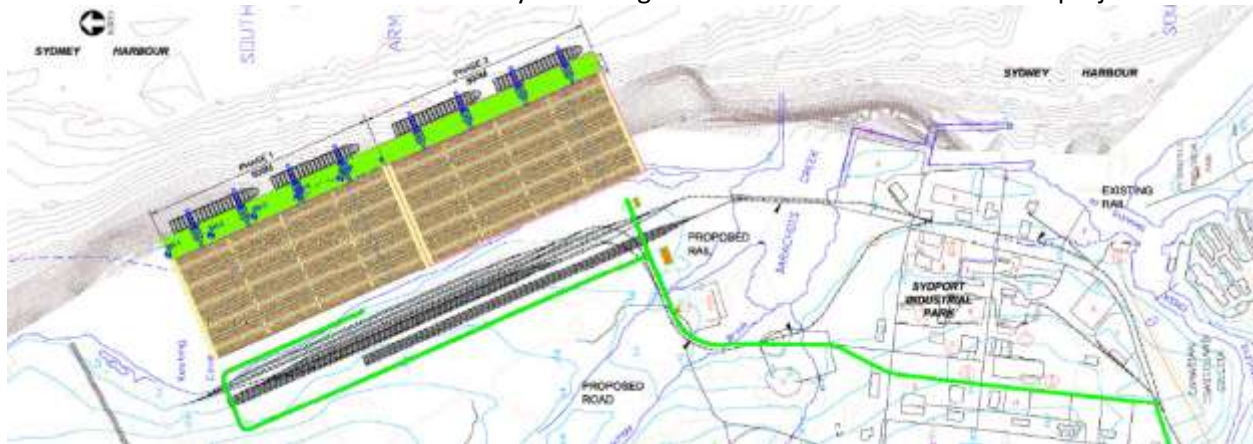


Figure 11: Proposed Sydney Container Terminal, Source: Jacques Whitford, Final Report, Environmental Assessment for Sydney Harbour Access Channel Deepening and Sydport Container Terminal, Laurentian Energy Corporation, no. 104137, March 2009

Project Description: The port Master Plan suggested a 450-acre greenfield site at Sydport, across from downtown Sydney, could be developed in two phases as a 750,000–1.5 million TEU capacity terminal, designed to handle 12,000 TEU²⁵ vessels. The terminal would encompass 100 acres and a rail intermodal facility. The entire development of the harbour, including bulk transshipment facilities was predicated on dredging the harbour entrance to 55 feet, which has since taken place.

Proponent: Project proponents are presumed to be the newly-constituted Port of Sydney Development Corporation and CBRM, although specific details are not known.

Proposed dollar value of the project: In 2007, the total estimated cost of a greenfield container terminal was \$302 million.

Whether access to rail is a requirement for the project: Because the local market and manufacturing base in Sydney and its immediate hinterland are so small, it is likely that rail service would be required for a large proportion of any cargo handled, unless the terminal is predicated on transshipment to the St.

²⁴ Note: According to Netpas routing software, the sailing distance from Shanghai to Prince Rupert is 442 nm closer than Shanghai to Vancouver and the rail distance from Prince Rupert to both Chicago and Toronto is 200 miles farther. In the case of Sydney, it is 150 nm closer to Gibraltar than Halifax, but 185 miles farther from Toronto than Halifax.

²⁵ TEU is defined as “twenty foot equivalent unit”, or a 20 foot container.

Lawrence River or eastern seaboard. Volume projections have not been divulged to the consultants; hence, the amount of rail traffic is difficult to estimate at this time.

The current status of the project: Details have not been disclosed to the consultant team. At the time of this writing, media reports note that Port of Sydney Development Corporation has been engaged by the Cape Breton Regional Municipality under a two-year contract to market Sydney as a gateway to North America. CBRM officials and company representatives have highlighted the importance of rail access in the overall vision for the port.²⁶

An examination of known factors that may impact this development: The past 10 years have brought enormous change to the global container industry, but the pace of change has accelerated in the past 18 months. Before the price of fuel began dropping, shipping lines had begun to relentlessly reduce costs by building larger ships which they “slow steam”. As of April 2015, the largest existing container vessel is 19,224 TEUs; however, a Japanese ship-owner has ordered 4 ships of 20,000 TEUs and a French/Lebanese line has ordered 4x 20,600 TEUs. Older, smaller ships are being scrapped and most of the world’s major shipping lines have organized themselves into four alliances or vessel sharing agreements. These are:

- G6 (Hapag-Lloyd, NYK, OOCL, APL, MOL, Hyundai)
- 2M (Maersk, MSC)
- CKYHE (Cosco, K Line, Yang Ming, Hanjin, Evergreen)
- O3 (UASC, China Shipping, CMA CGM)

A significant holdout is the Israeli-flag carrier, Zim Container Service. Another specialty carrier is Atlantic Container Line (ACL) which only operates on the North Atlantic with its five vessels. It does, however, have slot charter agreements with the G6. Both of these carriers are long-standing customers of the Port of Halifax.

In the past six months, the North American container trades have featured labour unrest on the U.S. west coast, which has resulted in gains for Canadian west coast ports and U.S. east coast ports, as shippers have sought to diversify the gateways they use. More cargo is being routed all water through the Panama Canal to the east coast of the U.S., but Asia-Suez routings have also increased.

Another factor that has yet to come into play is the impending opening of an expanded Panama Canal which will enable ships of 12,500 TEUs to sail between the Pacific and Atlantic Oceans, as compared to a current Panamax vessel of 4,850 TEUs. The Suez Canal is in the process of developing a two-lane canal highway that will cut approximately 8 to 11 hours off a vessel’s transit time. How this is likely to play out has been the subject of much discussion and speculation. Will a bigger shift of cargo take place to the east coast? Will Panama routings regain what they may have lost to the Suez Canal? Will Asian manufacturing continue to shift westwards to places like Indonesia, Malaysia and Vietnam, thus favouring Suez routings? Are east coast ports ready for larger ships? These questions are not able to be addressed due to non-disclosure agreements that are in place between potential investors / port developers, and stakeholders within CBRM and the Sydney Port Corporation. Thus far, the largest

²⁶ Cape Breton Post; Article: Consultants ready to talk Sydney port development in China; by Chris Shannon; Published on July 07, 2015; Weblink: <http://www.capebretonpost.com/section/2015-07-07/article-4206134/Consultants-ready-to-talk-Sydney-port-development-in-China/1>

container vessel to call at an east coast North American port has been the 10,000 TEU *Zim Tianjin*, which called at New York and Savannah, the week of March 15, 2015.

On the strength of its local market, the dominant port on the east coast of North America is the Port of New York/New Jersey, followed by Norfolk and Montreal. Ports in the South Atlantic, such as Charleston and Savannah have experienced significant growth in this period as well, and Savannah is now the fourth largest container port in the US, after Los Angeles, Long Beach and New York. All of these ports have capacity to handle additional cargo.

Table 2: North and South Atlantic Container Volumes and Market Share, 2010-2014

Port	2010		2011		2012		2013		2014	
	volume	share	volume	share	volume	share	volume	share	volume	share
Halifax	435,461	2.9%	410,649	2.7%	416,572	2.7%	442,173	2.8%	400,063	2.3%
Saint John	46,303	0.3%	44,377	0.3%	51,008	0.3%	76,269	0.5%	89,615	0.5%
Montreal	1,331,351	9.0%	1,362,975	8.9%	1,364,340	8.7%	1,346,065	8.4%	1,402,393	8.1%
Boston	168,285	1.1%	192,705	1.3%	187,747	1.2%	195,303	1.2%	204,951	1.2%
New York	5,292,025	35.8%	5,503,485	36.1%	5,529,913	35.3%	5,467,345	34.1%	5,772,302	33.5%
Baltimore	610,922	4.1%	631,804	4.1%	678,262	4.3%	705,230	4.4%	770,130	4.5%
Philadelphia	272,824	1.8%	291,091	1.9%	273,190	1.7%	367,499	2.3%	449,122	2.6%
Wilmington DE	263,040	1.8%	272,996	1.8%	299,180	1.9%	329,200	2.1%	333,944	1.9%
Norfolk	1,895,917	12.8%	1,918,029	12.6%	2,105,886	13.4%	2,223,532	13.9%	2,393,038	13.9%
Wilmington NC	265,074	1.8%	287,469	1.9%	270,792	1.7%	260,363	1.6%	278,962	1.6%
Charleston	1,364,594	9.2%	1,381,352	9.1%	1,514,585	9.7%	1,601,366	10.0%	1,809,543	10.5%
Savannah	2,825,179	19.1%	2,944,678	19.3%	2,966,213	18.9%	3,034,010	18.9%	3,340,000	19.4%
total	14,770,975	100.0%	15,241,610	100.0%	15,657,688	100.0%	16,048,355	100.0%	17,244,063	100.0%

Source: American Association of Port Authorities; MariNova Consulting Ltd.

Sydney is being touted as the closest port to Europe, but it will also be the furthest away from inland markets in North America. The least costly mode of transportation is by water, followed by rail and road. In the 1980s and 1990s, shipping lines pursued a strategy of developing so-called “load centres”. Now they want to call at ports that are as close to the market as they can, which is why they call at ports such as Boston, Baltimore and Philadelphia, an approach which had fallen out of favour in the 1980s. At the same time, some shipping lines (notably Maersk Line) have reduced the number of intermodal points (IP) they serve to minimize the amount of money they pay out to third parties, such as railways. These trends are likely to continue.

The proposed time frame for proceeding with the project: Unknown at this time.

Whether access to rail is a requirement for the project: If a container terminal was to be developed in Sydney, it is presumed rail would be part of the plan.

An assessment of the likelihood of the project proceeding: To enter this market, Sydney will need a strong value proposition for which the shipping line or the shipper will be willing to pay. Will it be less expensive than competitors? Will it be more efficient? Will it be faster? What will it be able to offer that others cannot? In the absence of any detail on the nature and extent of discussions that may be underway in relation to the prospect of developing a container terminal in Sydney, it is not possible to address the issue of the likelihood of this project proceeding.

It is clear, however, that any container terminal built in Sydney would have to compete with several others in the North Atlantic range of ports, which have been aggressively pursuing new business and upgrading their facilities to prepare for larger new vessels and expanded trade opportunities. These

ports include Halifax, Saint John, Montreal, Boston, New York, Baltimore, Philadelphia, and Norfolk, and others to the south, such as Charleston, Savannah, Jacksonville and Miami.

Conclusions: In the absence of specific detail on the potential of the development of a container terminal in Sydney, it is not possible to comment on its potential impact on rail service.

5. Cargo Volume Analysis

The primary focus of this study has been on identifying increased rail use for the Sydney Subdivision. The planning horizon in examining the likelihood of prospective projects proceeding is 3-5 years. Separate studies are being undertaken on the use of trucks as an alternative to rail, and on the condition of rail infrastructure on the Sydney Subdivision. Taken together, these three studies will assist the MRAC in making a recommendation on the best path forward.

This section of the report offers insight on potential rail volumes arising from the review of the designated projects initially identified. It also examines two other opportunities that might offer potential, but which are very preliminary and would require further in depth review and analysis.

In considering this analysis, an important caveat, as will be further explained below, is that potential rail traffic volumes are estimates only and would need to be verified by further study and by influencing particular developments to unfold in a manner that would serve to support the use of rail traffic, if overall project economics and the business case can support such an approach.

We examined the potential cargo volumes noted in the project profiles in the preceding chapter to develop an estimate of rail car traffic volume for each project, in accordance with the following definitions:

- **“Existing” Traffic:** The rail traffic prior to the cessation of rail service was 500 rail cars in 2014 and this is expected to return if rail service is available on the Sydney Subdivision in the future.
- **Donkin Mine:** Donkin is predicted to generate 2.75 million metric tonnes of annual production. At the present time the proponents have approvals to transport by both truck and by barge. However, if rail was pursued as an option and a rail spur was built to move this cargo to the Port of Sydney for transshipment or to meet a portion of Nova Scotia Power’s needs, it could have a positive impact on either the east end of the Sydney Subdivision or the Sydney Coal Railway, owned by Emera. If a rail car can move 200,000 pounds (per carload), and 100% of the annual production were moved by rail, the total yearly production would require 30,300 cars assuming that there was a business case for the level of investment that might be required for the construction of a rail spur line and appropriate approvals could be secured.
- **Provincial Energy Ventures (PEV):** This project is not expected to generate any rail traffic on its own unless PEV handles coal that arrives by rail from Donkin, or it handles coal for Point Aconi, which might be shipped by rail. NSPI has its own terminal in Point Tupper to handle coal for Trenton, so it is unlikely to use PEV for this purpose. Therefore, PEV’s impact on rail movements on the Port Hawkesbury to Sydney line is, for purposes of this analysis, assumed to be zero.
- **International Iron Beneficiation Group Ltd. (IIBG):** Potential rail traffic generated by IIBG is unknown at this time and is unlikely to be a factor within this project’s planning horizon. So, its impact is also assumed to be zero.
- **Intermodal traffic with a potential to convert to Rail:** Based on our findings and ongoing discussions with both CN and G&W, recent input from these companies suggests that it is more likely that intermodal rail traffic would only move between Moncton and Port Hawkesbury,

therefore, the impact of intermodal on rail movements on the Sydney Subdivision are, for purposes of this analysis, assumed to be zero.

- **Atlantic Industrial Minerals:** If shipped by rail, Atlantic Mineral's limestone production would move in carloads in each direction (full and empty). Finished product would move by rail or ship, potentially creating more carloads from Port Hawkesbury. The total number of potential cars is estimated at 33,333 two-way moves, (3 million tonnes) per year, based on moving 90 tonnes per car or 200,000 lbs between River Denys and Point Tupper, of which a 25 mile is on the Sydney Subdivision. The same volume of limestone would move whether it is processed in Pt. Tupper or not. If it is processed in Pt. Tupper, then 2 million tonnes of cement would be shipped from there, by road, rail or marine. No provision for the potential use of Donkin coal as the fuel source for the cement plant is included in this particular analysis simply because it is not clear that the Donkin coal would meet the needs of the proposed plant.
- **Sydney Container Terminal:** Potential rail traffic volume projections associated with the Sydney Container Terminal have not been made available to the consulting team. The amount of potential rail traffic associated with the terminal is therefore unknown at this time and unable to be included in the calculation.

These volumes are notional at best and should only be considered in the context of the possibilities these designated projects might present if developed in a manner that would support the use of rail transport.

To illustrate the practical considerations, the volume attributed to Donkin depends on a private sector company making the business decision to consider rail as a means to move its product from the mine site to a transshipment facility, and, to a lesser extent, depends on whether a longer term contract to supply coal to NSP might be consummated at some future date. Underpinning all of this is the reality of the need for a potential multi-million dollar investment in constructing a spur line to Donkin and the question of the cost and how that investment might best be addressed is an important adjoining consideration. The competitiveness of this option versus others such as barging its product to Sydney, off-loading by sea from the mine site or using trucks also need to be taken into consideration. Another factor is the time frame in which such a development might take place, as well as the additional regulatory requirements and approvals that would need to be secured.

Similarly, the Atlantic Minerals Project is at a developmental stage. Based on the research undertaken and the review of this project, during this study, in our understanding, this project would require significantly more advance work to reach a go/no go decision.

The foregoing observations underscore the tenuousness of relying on these potential opportunities, at this stage, as providing any degree of certainty relative to driving increased rail traffic over the Sydney Subdivision.

There are also other factors that need to be considered in respect to the Sydney Subdivision. A significant issue is the condition of the line and its ability to function as an efficient and effective transportation mode that is responsive to shipper requirements in a highly competitive environment. While beyond the scope of this project, greater detail will likely be available through the third study being undertaken – the engineering study on the line itself. The forthcoming engineering study is expected to provide an overview on the condition of the Sydney Subdivision and costs associated with

future investment and upgrades. Much like many of the short lines reviewed in the benchmarking exercise during this study, it is important to recognize that the Sydney Subdivision will likely need considerable maintenance and upgrading to optimize its efficiency and viability.

Other Projects Identified

In addition to the team having identified the potential of Atlantic Industrial Minerals, two other potential rail traffic generators were highlighted. These include the opportunity to refurbish rail cars and the potential for tourism-related passenger service.

Rail Car Refurbishment

The presence of the Emera-owned, Logistec-leased rail car maintenance facility near Victoria Junction, near Cape Breton University, was raised as a potential site for rail car upgrades.

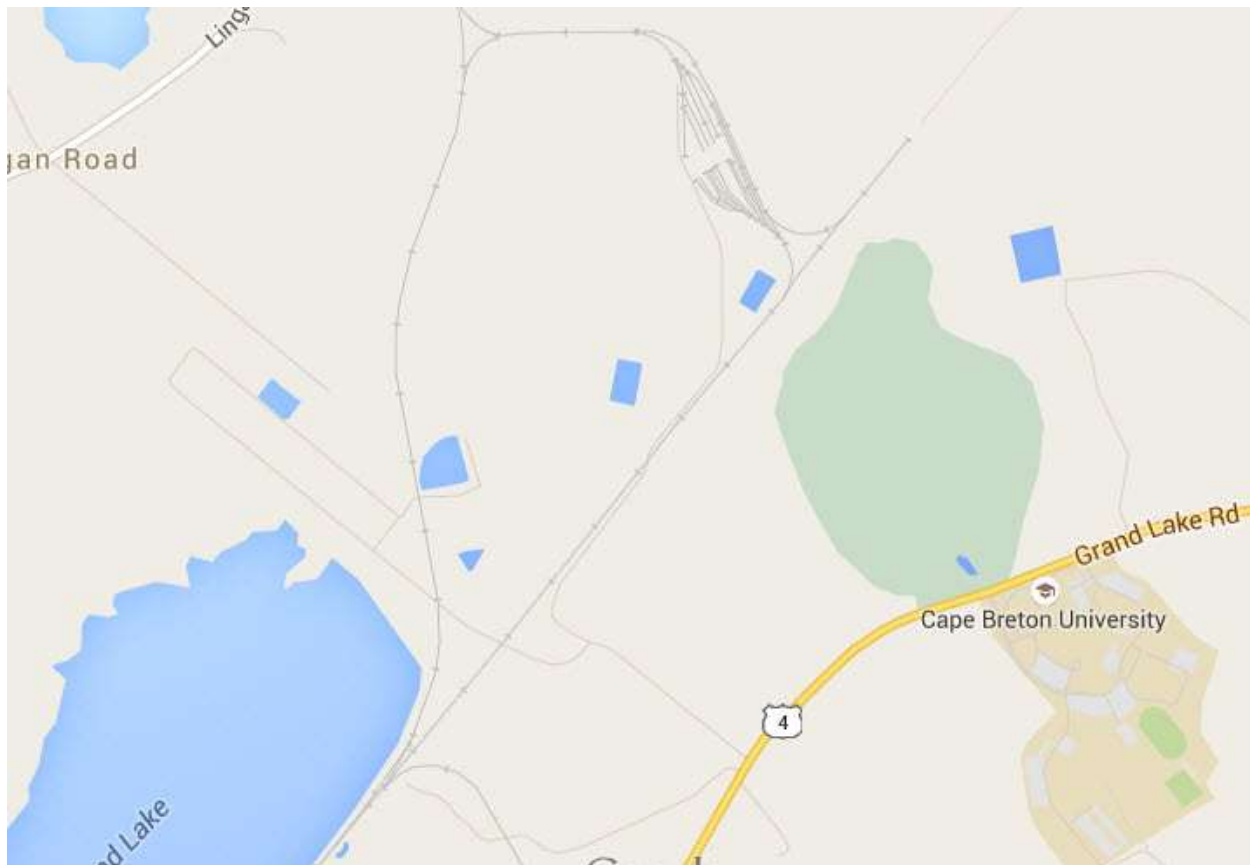


Figure 12: Victoria Junction, Source: Google Maps

The potential opportunity is focussed on the recognition that many cars need to be upgraded following the Lac Megantic disaster in Quebec. The idea would be to bring rail cars to Sydney to be refurbished / updated. In an attempt to explore the feasibility of this opportunity, the consultant team explored the range of companies/locations presently offering this service in North America. These are as follows:

- General Electric;
- Greenbrier;

- Procor;
- Union Tank Car;
- National Steel Car (possibly at Trenton).

Among the foregoing rail maintenance providers, Figures 13 and 14 following indicate only Greenbrier's and GE's repair network. As is evident from the research undertaken and the following tables, there is significant rail maintenance and repair capacity in North America and in Canada. The extent of the demand and the capacity of these existing sites to meet the needs arising from a new regulatory regime respecting the upgrading of tanker cars require further investigation to evaluate and understand the potential rail volume for CBNS. Among the important considerations:

- The viability of a facility in Sydney, given its remote location and line-condition challenges and the presence of so many other repair sites throughout North America;
- Determination of potential cost competitiveness in Sydney vs. other sites;
- Whether this facility could be acquired and re-purposed for this use; and
- The development of a business case and the availability of potential investor/operators who might be interested in offering this service in Sydney.

Without more extensive investigation, it is too early to conclude whether this presents a real opportunity for increased rail traffic, whether there is a proponent that would step up and what investments might be required to make it possible.



Figure 13: Greenbrier and Watco's network of repair yards, Source: Greenbrier

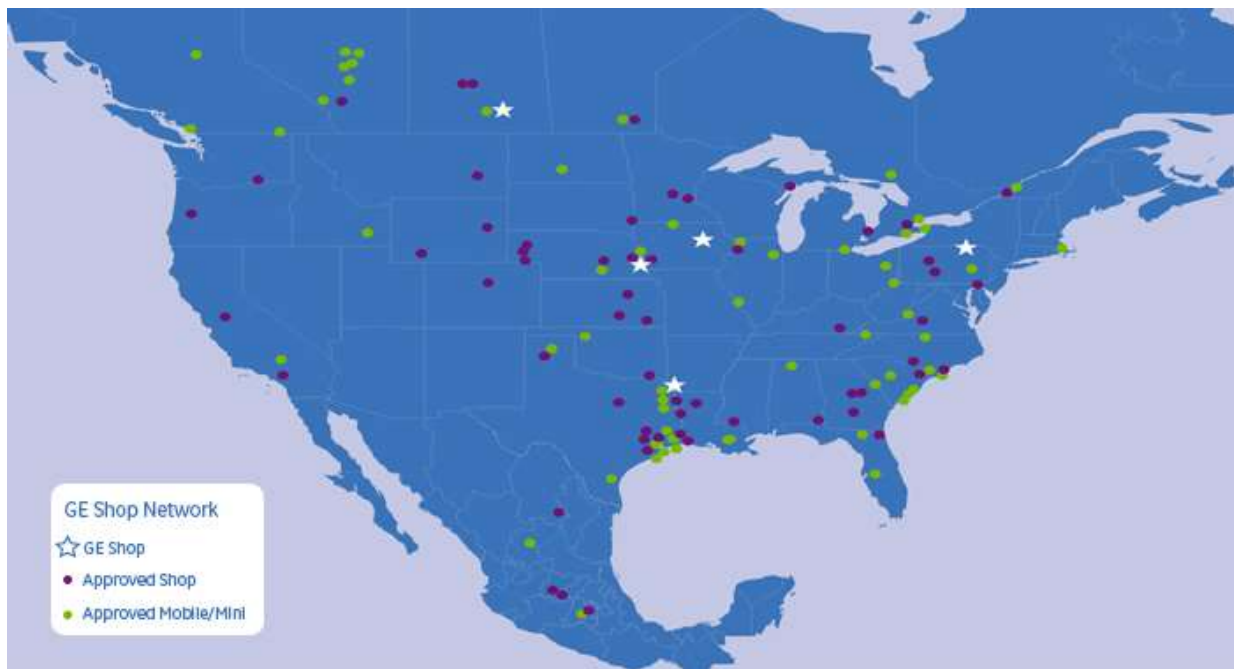


Figure 14: GE's network of railcar repair facilities, Source: GE

Tourism Potential

In 2009 Mary Tulle and Associates Tourism Consulting examined the viability of a passenger train to be operated in Cape Breton, between Port Hawkesbury and Sydney.

The 2009 study concluded that developing a passenger service was not viable at the time due to many factors, including the need for a long term agreement with the rail owner, the travel times between Sydney and points of interest for the intended market, the added burden of carrying liability insurance needed for passenger service, and the projected price point per ticket, which was considered “high”.

The possibility of a passenger service has also been discussed more recently among those who are seeking to find new uses for the rail line in an effort to maintain rail service in general. In its most recent configuration, the passenger service would target cruise ship passengers along Bras d'Or Lake, from Sydney to Iona, leveraging investment through the provincial Community Economic Development Fund programme (CEDIF).

The 2009 study illustrated a number of challenges that are also impacting the movement of goods, including the need to improve infrastructure to facilitate higher safe operating speeds along the line.

Based on the research undertaken during this study in respect to this opportunity, there are several tourist lines in Canada as follows:

- 1) Summerland, BC steam train;
- 2) Alberni Valley Railway, Port Alberni, BC;
- 3) Alberta Prairie Railway Excursions (Central Western tour of Stettler, AB);
- 4) L'admiral – Runs near Percé on the line from Matapedia to Gaspé;
- 5) Le Train du Massif de Charlevoix;
- 6) South Simcoe Steam Railway (north of Toronto);
- 7) Halton Radial Museum – streetcar line near Guelph;
- 8) Orford Express – a dinner train between Sherbrooke and Orford;
- 9) Hull-Chelsea-Wakefield Steam Railway;
- 10) Prairie Dog Central, Winnipeg...operating since 1999;
- 11) York Durham Heritage Railway (Markham, ON).

In addition, the Algoma Central is owned by CN and the passenger train is about to be taken over by a third party. The Ontario Northland operates the “Little Bear” mixed train between Cochrane, Ontario and Moosenee. This is a regular train, but it appeals to tourists.

At this stage, we have not assessed the potential impact of passenger service on the viability of the line between Port Hawkesbury and Sydney as it would require a depth of examination beyond the scope of this project and careful consideration of the line condition as will be determined in the third study. The issues raised in the 2009 study present significant hurdles to overcome in order for the Sydney Subdivision to become viable as a tourism rail line.

6. Conclusions

The potential permanent loss of a rail line has been a serious concern for those who relied on the railway in the past, those involved in economic development; and, the community at large. The railway to Sydney has been an important economic link for business for more than 100 years and contemplation of its demise is of considerable concern for some.

Ultimately, as detailed in the benchmarking exercise a well-balanced transportation infrastructure, including rail, is seen as a key component of a modern economy. From an economic development perspective, the presence of the railway is also seen as an important asset in attracting investment.

This study also reports on developments in considering transportation policy more broadly. The literature review suggests that meeting contemporary surface transportation needs goes beyond direct investments in transportation infrastructure. It also includes consideration of land and energy use, climate change, community quality of life, among other factors.

As documented in the review of other analogues and in the benchmarking exercise undertaken as part of this study, rail transportation, in some parts of North America, is enjoying a renaissance. And at a time when environmental considerations are so prominent, the case for rail is an environmental one – it is seen to be more efficient and releases fewer GHG emissions than, for example, trucking.

The benchmarking exercise also documents the fact that if rail tracks are removed, getting it back is next to impossible; ultimately, experience suggests that rail removal becomes permanent.

A key issue is the condition of the line on the Sydney Subdivision as identified in the engineering study. It is against this backdrop that the issue of the future of the Sydney Subdivision and the potential for enhanced rail traffic is being considered. This study sought to determine whether there might be sufficient rail traffic to create a viable base load on the Sydney Subdivision. To this end, the analysis of several major projects that have potential for development within the planning horizon for this study (three to five years) reveals that they are unlikely to have a significant impact on increased rail traffic on the Sydney Subdivision.

This study concludes that the most promising projects are the PEV and Donkin developments. However, even if rail were used to transport Donkin coal to the PEV site, it would not enhance traffic over the Sydney Subdivision.

Only 500 potential incremental cars were identified through this study and these would depend on the earlier proposed Atlantic Minerals project being fully developed - both the proposed mine and cement plant - and these developments using Donkin coal as their energy source. However, this project is at a very early stage and its potential development trajectory, if even initiated, is not at all clear at this time.

The presence of the newly-dredged port asset, with some decided geographic advantages, is seen as offering an opportunity to sustain the Sydney Subdivision if a container terminal were to be built. Without information on what that potential opportunity might entail, it has not been possible, in the context of this study, to either confirm or discount this potential opportunity. Given the fact that an important study, expected to more clearly delineate this potential opportunity, has been commissioned, it is expected to take some time to further assess this development as a potentially viable development opportunity.

Notwithstanding the further work underway regarding the possibility of developing a container terminal, the PEV project is potentially a game changer for Sydney ports as a transshipment and bulk shipping hub. Overall, it is expected that PEV would handle 3-5 million tonnes of cargo and up to 250 vessels per annum.

This project could be a catalyst for the further development of the Port of Sydney, leveraging the significant investment in port dredging. Our assessment is that the PEV project, if it was to proceed as envisioned, could have a significant impact on the Port of Sydney, establishing it as a potentially important port for bulk shipping. As an anchor project, and through a focussed marketing effort, this project could help develop the port infrastructure and serve as a potential draw for other bulk shipping interests which might bring with them the capacity to make use of the rail. This project would benefit from further examination.

As detailed in the PEV project profile above, it is expected that this project would create significant spin-off benefits including the development of important port infrastructure. Stevedores, shipping agents, pilots, and administrative jobs would be created, in total 30-50 incremental jobs could result. Other ports services such as, tug boats would also be required. Depending on how the Port of Sydney governance issues are resolved, it could also provide harbour dues, berthage and wharfage fees.

Discussions early in the study, with officials of CN and G&W, showed some potential to convert traffic now moving by truck from Moncton to the Marine Atlantic Terminal in North Sydney to rail. However, as discussions with key officials advanced, during the course of this study, this possibility seems less and less likely as a result of a lack of a business case, although, ultimately, this will need to be confirmed by government officials and other stakeholders and is an area that bears further discussion among the parties going forward.

While these discussions will, ideally, continue, given transit time requirements, the condition of the line and other factors, it now appears that the more likely result will be to continue to ship this traffic by road. However, the study indicates that there is some potential to develop a transoad facility at Port Hawkesbury Paper for transferring from bulk rail cars to trucks, though without an accompanying positive impact on the Sydney Subdivision.

Another very promising development - from both the perspective of its potential impact in contributing to increased rail traffic and as an economic development project - is the opportunity that Atlantic Industrial Minerals might present in the establishment of a limestone mine and a cement manufacturing plant. With a potential investment approaching \$500 million, if both aspects of this project were undertaken in tandem, this development would necessarily be seen as an important opportunity, notwithstanding the fact that it needs to be considered as early stage at this time.

The situation underpinning the Sydney Subdivision is not unique. As a result of greater deregulation in the rail industry over the past three decades in North America, and the relentless drive for efficiency, many rail lines have faced a similar situation. The benchmarking exercise reports on rail trends and the unique challenges that short lines face.

In respect to the Sydney Subdivision, some stakeholders point to the fact that the line overall is profitable and that building the base load on the Sydney Subdivision should be able to be

accommodated through developmental effort among the partners and with shippers over time. Stakeholders generally underscore the importance of ensuring that the rail line is not removed.

The condition of the line, and more particularly, the speeds with which trains can travel and the turnaround time on the line between Truro and Sydney is a major deterrent to attracting more business, and the remedy would require significant capital investment and ongoing maintenance of the line as outlined in the engineering study.

Among the projects that the team was asked to assess as part of this study, with the exception of the development of the container terminal, there is no single project that is likely to make significant use of the full length of the Sydney Subdivision. Donkin and Atlantic Minerals could potentially use portions of the line in short haul movements; however, both would require rail spurs to be built, assuming there is a business case to support rail use.

In summary, the projects reviewed are in various stages of development, several in a very early stage. When and how they might evolve is indeterminate at this time. The status of the Sydney Container Terminal is unknown at this stage, and hence, could not be considered in the rail utilization analysis. While it is clear that there are 'green shoots' and that, if there was a compelling business case to develop certain projects in a manner that would optimize rail use, it is possible that the rail volumes to make the line sustainable could be achieved. Ultimately, however, within the context of this study this conclusion could not be reached with any measure of certainty or predictability. The study does, however, point to areas where further research is required.

The consultant team is hopeful that the results of this study, taken in tandem with the findings of the other two studies, will serve to provide guidance and support the necessary decision making associated with the future of the Sydney Subdivision.