THE CRITICAL ROLE OF SHORTLINE RAILWAYS IN CANADIAN SUPPLY CHAINS

Railway Association of Canada

RIGHT TRACK

Image courtesy of SFP Pointe-Noire

2022

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INTRODUCTION

Canada's supply chain consists of multimodal transport options (aviation, marine, rail, and truck) that each play a significant role in the safe and efficient movement of goods. Recent global disruptions (e.g., COVID-19), and domestic disruptions (e.g., climate disasters such as wildfires and floods) have highlighted the critical nature of the supply chain to Canada's economic well-being.

Disruptions at one point in the supply chain can cause a ripple effect on the entire chain. In 2022, the consequences of supply chain disruptions provide evidence for how valuable well-functioning supply chains are to Canada's economic prosperity as a trading nation. Much attention is given to dwell times at ports and other indicators of supply chain efficiency. However, a valuable but perhaps lesser understood component of the supply chain is the shortline railway sector, which for the most part provides first mile/last mile connectivity to customers and industries that are often located in rural and remote settings. In many cases, local businesses would not exist or could not survive without access to shortline freight rail services.

Shortline railways (class II rail carriers) are defined as railways that earn less than $250 million in annual revenues for two consecutive years, whereas Class 1 railways earn revenues greater than $250 million.[1] The Railway Association of Canada (RAC) counts 39 shortline railways among its membership. Shortline railways operate in nine Canadian provinces, playing a critical role in domestic and international supply chains, from coast to coast to coast, and many places in-between. The majority of shortlines in Canada fall under provincial jurisdiction and operate within a specific region. While a shortline railway may manage less infrastructure than a Class 1, the economic impact of Canada's shortline railways is significant and cannot be understated.

TABLE 1.
CANADIAN SHORTLINE RAILWAY ECONOMIC IMPACT, 2020

Carloads originated on shortlines in Canada	1,023,595
Kilometres of track operated	8,289
National average salary of a shortline employee	$98,800
Shortline railway jobs (total jobs supported)	3,109 (16,981)
Provincial taxes paid	$60.7 million
Value of goods originated on shortlines	$35 billion

Source: Railway Association of Canada, member data.

HOW SHORTLINE RAILWAYS WERE CREATED

The development of Canada's modern shortline freight rail industry can be traced back to amendments to the *Canada Transportation Act* of 1996. Key amendments in this Act allowed the Class 1 freight railways to manage their own networks and shed less profitable rail lines. This resulted in a dramatic growth in the shortline rail sector as entrepreneurs purchased these rail lines to continue operations. RAC's shortline railway membership increased from fewer than 10 shortlines in the early 1990s to over 35 in the early 2000s. As of 2022, approximately 40 of RAC's members provide shortline freight services.

Image courtesy of Great Western Railway

BENEFITS OF SHORTLINE RAILWAYS

ECONOMIC & EMPLOYMENT BENEFITS

Each year, shortline railways originate over 1 million carloads, bringing approximately $35 billion in goods to market. Shortline railways also provide high paying, quality jobs, which enable those living and working in their communities to do just that—remain in their communities and meaningfully contribute to their local economies. Without the opportunities provided by shortline railways, local industries may not survive, and rail employees may need to relocate to work in their chosen field.

Figure 1. National Shortline Railway Network

Source: Railway Association of Canada, Canadian Rail Atlas.

SUPPLY CHAIN EFFICIENCY

Shortline operations support supply chain efficiency by providing key services that promote network fluidity, including:

- Specializing in local and flexible service offerings, tailored to individual shippers' needs;
- Operating branch lines, enabling Class 1 operators to fully utilize their resources on the mainline;
- Handling local traffic to prevent congestion on the Class 1 mainline network;
- Offering mechanical repair and inspection services for shippers and Class 1 railways;
- Providing short- and long-term railcar storage for idled equipment, reducing network congestion;

- Offering transload and intermodal operations that reduce GHGs and improve fluidity; and,
- Transload operations that help to shorten truck driver distances, which enables that workforce to transport more total freight through more trips and improve work-life balance.

ENVIRONMENTAL BENEFITS

On average, railways are three to four times more fuel efficient than trucks,[2] creating an immediate reduction in GHG emissions when a shipper chooses rail, or transloads from truck to rail. The RAC estimates that shifting 10% of truck traffic to rail would reduce GHG emissions by 4.1 megatonnes per year.[3] There are strong linkages between the shortline rail sector and Canada's climate plans to reduce emissions in the transportation sector.[4]

COMMUNITY BENEFITS

Shortline railways are committed to the communities in which they operate. Many shortlines work collaboratively with Indigenous communities, municipalities, local industries, agricultural producers, and cooperatives, to ensure that the socioeconomic benefits of shortline railways are shared. Specific actions include, but are not limited to, community safety initiatives [e.g., partnering with Operation Lifesaver, the Transportation Community Awareness and Emergency Response Initiative (TRANSCAER®)]; procurement policies favouring Indigenous and local companies; a focus on local and regional economic development, employee training & development; environmental stewardship; and support for charitable/community causes.

Some shortline railways are locally owned. For example, the Boundary Trail Railway (BTR) located in South-Central Manitoba was formed by a group of agriculture producers in 2008 after purchasing a portion of the former CP LaRiviere Subdivision that was scheduled for salvage. This producer-led shortline provides the benefits of freight rail to seven communities and shippers of agricultural products, shippers of energy products, industrial products, and manufactured goods. BTR ensures that local shippers receive personalized local service while continuing to have full access to the North American rail network.

CHALLENGES OF SHORTLINE RAILWAYS

The challenges facing the shortline sector often date back to their beginning. Challenges include lower traffic volumes, high operating ratios, and competition from other modes of transportation that operate on public infrastructure. Limited access to private financing also means that capital investments are limited in size and scope, which further inhibits growth. The result is that many shortlines can only maintain status quo operations rather than investing in growth projects.

ANTIQUATED INFRASTRUCTURE

In many cases, shortline railways inherited rail lines from Class 1s that were maintained to support lower speeds and older standards for weight capacity (263,000 to 268,000 lbs gross weight limit compared to the typical standard of 286,000 lbs, which is common for the Class 1 railways today). Infrastructure that can handle traffic in the heavier loads and at higher speeds is needed to optimize supply chain efficiency. However, track capacity upgrades are very expensive, at up to $1 million per mile.[5]

LACK OF SUPPORT FOR INFRASTRUCTURE INVESTMENT

On average, shortline railways cannot invest as much of their revenues back into track infrastructure as Class 1s. The average operating ratio (operating expense relative to operating revenue) of shortline railways in Canada is around 90%, compared to around 60% for the Class 1s.[6] In Canada, shortlines generate only around 6% of total freight railway operating revenues, and less than 3% of operating income, yet they maintain and operate 19% of the total track miles (8,289 km in 2020).[7]

Typical capital maintenance costs range from $200,000 to $5 million per shortline per year.[8] Common projects such as routine tie replacement costs are approx. $65–$100+ per tie, replacing old switches is approximately $80,000 per switch. Maintenance for ballast, bridges, culverts, and crossings can cost in the $100,000s depending on the project. Maintenance or overhaul of locomotives can range from $200,000 to over $1 million per locomotive.[9] Relying solely on shortline financing has a limiting effect on growth projects that would otherwise increase capacity and overall supply chain efficiency.

Currently, there is no dedicated program for shortline railways at the federal level, and very few supports available provincially.[10] Conversely, shortline railways in the U.S. enjoy multiple federal and state-level funding programs that include grants, tax credits, and low-interest loans.[11] The evidence suggests that when governments support shortline railways, the sector experiences growth.

REGULATORY COMPLIANCE AND OTHER COSTS

Regulatory compliance costs disproportionately impact shortline railways given their high operating ratios and limited number of employees. Over the past few years, shortlines have faced rising costs, including:

- Escalating carbon taxes: As carbon tax and fuel surcharges increase, shortlines are faced with either passing the burden through to shippers and risk losing business, or to absorb the cost themselves.
- Federal Grade Crossing Regulations: The recently published Regulations Amending the Grade Crossing Regulations provide more flexibility and reduce some of the regulatory burden on shortline railways; however, there is still an incurred cost in becoming compliant.
- *Railway Safety Management Systems (SMS) Regulations*: Lack of regulatory harmonization can increase the costs and the administrative burden on shortline railways. For example, a shortline in Manitoba that operates on both provincially regulated and federally regulated tracks complies with both federal and provincial SMS regulations.
- *Locomotive Voice and Video Recorder Regulations (LVVR)*: Shortlines may face challenges in acquiring the equipment; as a small customer, they're not always prioritized by the manufacturers.
- Increases to minimum insurance liability coverage requirements: coverage requirements present an increased cost; but there is also an access issue. The insurance options available to shortline railways are often quite limited.
- Municipal fees: Municipal fees and property taxes are an additional cost. Shortline railways may operate in multiple municipalities and face varying levels of property taxes and fees.

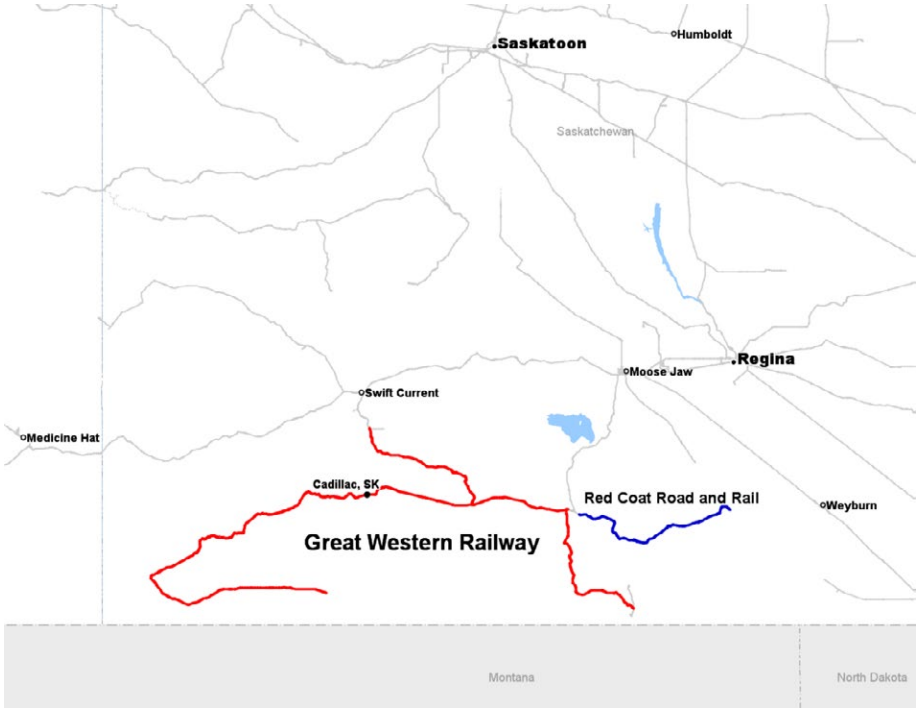
CASE STUDIES FROM THE PRAIRIES, NORTHERN ONTARIO, AND QUÉBEC

In this section we highlight four case studies from three shortline railways. These case studies illustrate the diversity within the shortline railway sector, and explain, using concrete examples, the critical role that shortline railways play in Canada's integrated supply chains.

GREAT WESTERN RAILWAY

Since 2000, Great Western Railway (GWRS) has been serving Saskatchewan businesses. Owned by more than 400 shareholders, GWRS owns and operates approximately 450 miles of track that includes Shaunavon, Vanguard, Altawan, Notukeu, and Fife Lake Railway Subdivisions. This includes the 70-mile Red Coat Road and Rail network, where GWRS operates all freight services under an operating agreement.

Figure 2. Map of GWRS Network in Saskatchewan



GWRS provides freight rail services to a range of over 30 customers in Saskatchewan including, but not limited to, Crescent Point Energy, JGL, Adroit Overseas, Paterson Grain, Westland Agro, Canada Direct Processing, AGT Foods, Purely Canada, and Providence Grain. Commodities transported include agricultural products such as durum wheat, spring wheat, peas, lentils, flax, barley, canola, organic grains, mustard, chickpeas, oats, rye, feed, fertilizer, and energy commodities and sand.

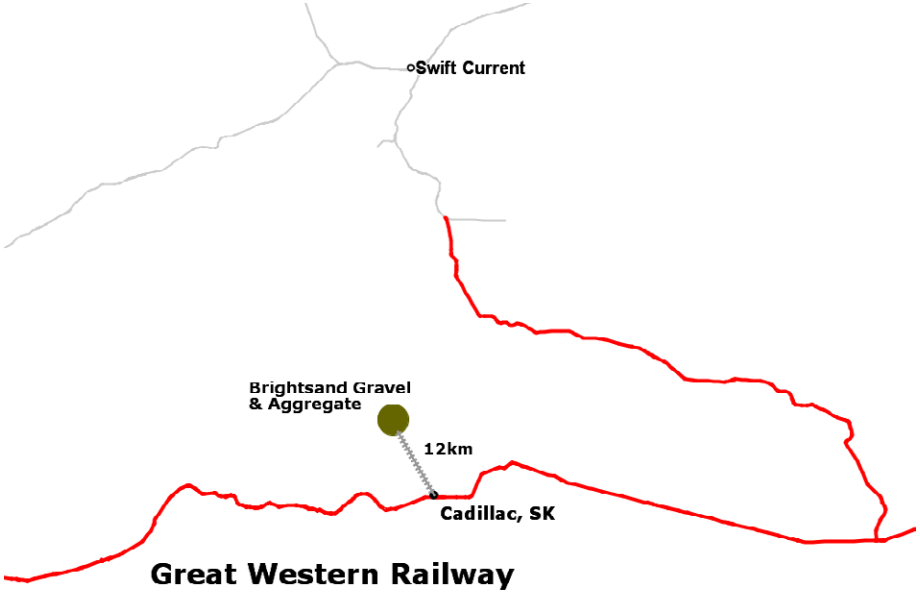
Additional services provided include mechanical services, fleet management services, and storage services to at least 17 different customers including the likes of Inter Pipeline, Greenbrier, Suncor, Federated Co-Op, and Wells Fargo.

CASE STUDY #1
BRIGHTSAND GRAVEL AND AGGREGATE IN SASKATCHEWAN

Figure 3. Potential Rail-based Gravel & Aggregate Supply Chain from Cadillac, SK area to processing facilities/markets

GWRS presents an opportunity for the province of Saskatchewan to enhance access to critical gravel and aggregate reserves. Traditionally, these resources are transported by truck using the highway system; however, shortline rail can provide an efficient and environmentally friendly option. One such example is the Brightsand Gravel and Aggregate (BGA) property which is located approximately 12 kilometres north of the GWRS mainline near Cadillac, Saskatchewan.

Figure 4. Brightsand Gravel and Aggregate Location



Secure and reliable access to finite gravel and aggregate supply is a provincial interest for Saskatchewan as this is a key non-renewable resource for infrastructure construction and maintenance. Not only is this resource used locally, but demand is growing for gravel/aggregate supplies from markets across Canada and throughout the United States. As market demand increases, efficient and sustainable transportation becomes more important, in fact, it has been identified that shortline railways should play a larger role in the movement of gravel and aggregate.[12]

The BGA was assessed at 12 million cubic yards of available gravel/aggregate. At about 12 million cubic yards this equates to over 15 million metric tonnes. This amounts to almost 170,000 freight rail carloads as opposed to an estimated 510,000 trucks needed to transport the gravel. Considering a scenario of moving 3,000 carloads by rail per year (which is based on BGA contract bids and research), this represents over 50 years of high-volume supply of gravel/aggregate to Canadian and U.S. markets. Comparatively, the current freight activity is approximately 125,000 tonnes moved by truck per year.

Shifting to shortline services would reduce shipping costs, preserve highway infrastructure, create jobs, increase government revenues, and support GHG emissions reductions. In this scenario, shipping costs would be reduced by at least $4.00 per tonne for the end user, whether a private or public entity.[13] Totalling a base savings of over $60 million from this single source. Cost savings would also benefit the local governments and the Government of Saskatchewan as this would reduce wear and tear to public infrastructure. Without rail service, it is estimated that 510,000 trucks would be needed to transport the 15 million metric tonnes of aggregate and gravel over the BGA lifespan.

From a labour standpoint, GWRS service to the BGA would create a direct increase in employment years to the railway at 550 employment years and create 300 employment years for the shipper. It is estimated that over $15 million in annual revenue would be added to the aggregate and freight revenue stream which then generates economic spinoff and additional tax revenues for governments.[14]

In this scenario, rail shipments would travel an average distance of 493 km, generating an estimated 101.7 kilotonnes (kt) of carbon dioxide equivalent (CO_2e), compared to an estimated 494.5 kt of CO_2e from the required 510,000 truck loads—resulting in an emissions reduction of approximately 393 kt of CO_2e.[15] GWRS service to the BGA would support the federal government's climate goals.[16]

This case study demonstrates the antiquated infrastructure challenge that inhibits growth of the shortline rail sector leading to missed opportunities for enhancing supply chain efficiency and maximizing economic opportunity. More private investment and support from governments is needed to bring this concept into reality. The benefits of rail noted in this case study could have far reaching positive impacts for the next 50 years and beyond.

TABLE 2.
SUMMARY OF BENEFITS—CASE STUDY #1

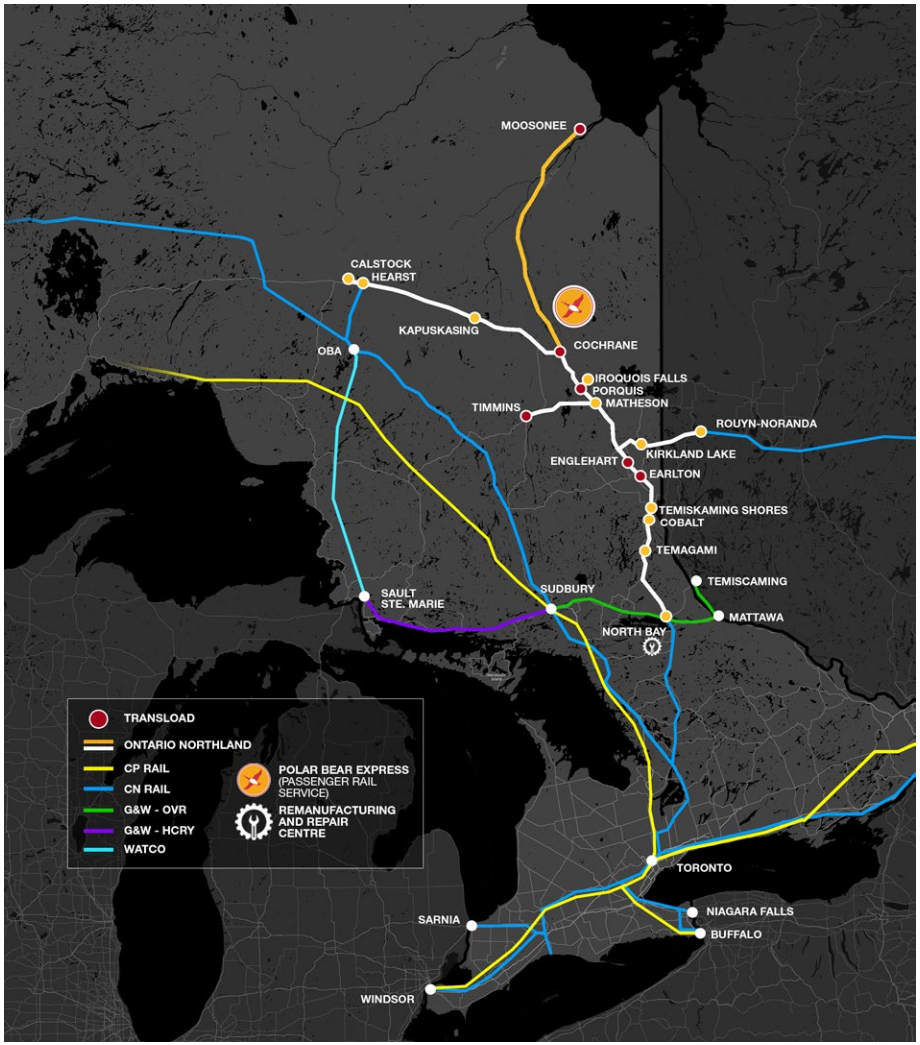
Investment (required)	Estimated $14 million for track build.
Brought to market	15 million metric tonnes
Environmental	Saving approx. 393 kt of CO_2e over the duration of rail operations[17]
Shipper's cost savings	Approx. $60 million
Public's cost savings	Prevention of wear and tear from 510,000 trucks on public roads
Jobs created	550 employment years at railway; 300 employment years to shipper.
Jobs supported	Approx. 3,000 employment years in total (includes rail, shipper, and other indirect and induced jobs)[18]

Image courtesy of Great Western Railway

ONTARIO NORTHLAND TRANSPORTATION COMMISSION

The Ontario Northland Transportation Commission (ONTC) is an agency of the government of Ontario that provides passenger rail, freight rail, motor coach, and refurbishment services. ONTC's freight rail services span South-North from North Bay to Moosonee, and East-West from Rouyn-Noranda (Québec) to Timmins and Calstock, operating nearly 700 miles of track. ONTC is a major employer with over 700 employees.

Figure 5. ONTC Freight Map in Ontario & Québec



ONTC provides essential services in Northern Ontario, including:

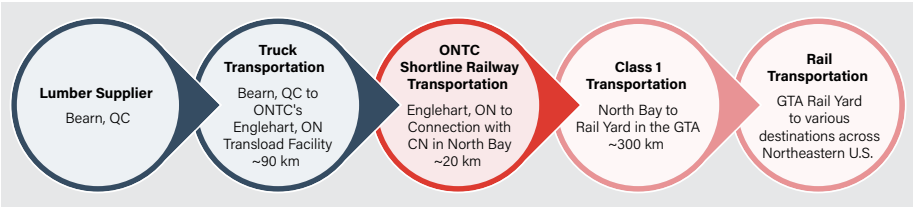
- Freight rail services;
- Remanufacturing & Repair services;
- Passenger rail transportation (Polar Bear Express) between Cochrane and Moosonee –the only year-round land service to remote communities and First Nations on the James Bay Coastline;
- Motor coach transportation across many points in Northern Ontario;
- Bus Parcel Express shipping; and
- The Station Inn, located in Cochrane.

ONTC provides freight rail services to dozens of shippers, including Glencore, GreenFirst Forest Products, and Georgia-Pacific. Commodities transported include agriculture; lumber; propane; automotive; and express service for palletized freight, personal effects, household goods, groceries, building material, and recreational vehicles.

CASE STUDY #2
LUMBER TRANSLOAD EXPANSION IN ENGLEHART, ONTARIO

Shortline railways play a critical role in the supply chain, and this can even be the case where shippers are not directly serviced by rail. This is made possible at transload facilities that enable the transfer of goods from one mode of transportation to another (e.g., truck to rail, rail to truck, marine to rail).

Figure 6. Lumber supply chain from Béarn, QC, to destinations across the Northeastern U.S.



A lumber supplier in Béarn, Québec, without direct access to rail, is required to ship their product to U.S. destinations. Prior to working with ONTC, the lumber supplier's product was shipped to its final destination exclusively via truck.

In 2017, ONTC's existing Englehart transload facility, located nearly 100 kilometres Northwest of Béarn, had capacity for two railcar spots, and had little business. ONTC and the lumber supplier worked together to expand track space to accommodate four railcar spots, and ONTC invested $60,000 to increase ground space for lay down of product to two acres. Subsequently, ONTC now ships approximately 350 cars annually, each hauling 100 tons of lumber over an average distance of 1,850 kilometres from Englehart to U.S. destinations, through its connections with other railways. The benefits of the modal shift to rail are multifaceted.

The 350 railcars of lumber remove approximately 700 truck trips annually, which results in fewer GHG emissions and less impact to public infrastructure. The RAC estimates that this modal shift results in over 3.4 kt of GHGs avoided per year.[19] As a low-cost transportation option, rail contributes to enhancing regional competitiveness. Shipping by rail saves the lumber supplier approximately $1,000 per rail car, or $350,000 per year. Decreased cost is not the only advantage. Shortline railways contribute to building resilient supply chains. Considering the frequent closures on Ontario's Highway 11, ONTC provides a more reliable transportation.[20]

Through the Englehart expansion project, two jobs were created at the transload facility. Impact analyses estimate that every one job in rail supports an additional 4.5 jobs.[21] In this case, it is estimated that nine jobs are supported along the supply chain and in other industries through workers' income and spending impacts.

Shipping by shortline rail has been successful, and the contract between the shipper and ONTC has been renewed. There are plans to expand the Englehart facility by creating two additional car spots, as well as increasing laydown area, to service particle board shipments from one of ONTC's largest customers. This case study demonstrates how shortline rail provides reliable, cost-effective, environmentally friendly transportation for Canadian products.

Figure 7. Loading lumber onto centre-beam flat car

TABLE 3.
SUMMARY OF BENEFITS—CASE STUDY #2

Investment	$60,000
Brought to market	35,000 tons of lumber, annually
Environmental	Saving approx. 3.4 kt CO_2e, annually[22]
Shipper's cost savings	$350,000 per year
Public's cost savings	Wear and tear of 700 truck trips, annually
Jobs created	2
Jobs supported	Approximately 9[23]

CASE STUDY #3
AGRICULTURE TRANSLOAD IN EARLTON, ONTARIO

Figure 8. Agricultural supply chain from Earlton, ON to Trois-Rivières, QC; Hamilton, ON; and Iowa U.S.

The case study of an agricultural transload facility in Earlton, Ontario, is a great example of the benefits of modal shift from long haul trucking to rail.

A local farm in Earlton, Ontario, invested in a loading dock and auger, converting an old roadbed to an agricultural transload facility to enable shipments by rail. The farm wanted to enhance capacity, and access to rail enabled the handling of greater product loads. The farm was also approaching the renewal of its 10-truck fleet, which was being used to haul product to Ontario, Québec, and Iowa markets.

In 2021, Ontario Northland began shipping four railcars of oats per week (approximately 200 annually) from the farm to Trois-Rivières, Hamilton and Iowa markets, through its connections with other railways.

The 200 railcars of oats remove approximately 400 truck trips annually, which results in fewer GHG emissions and less wear and tear on public infrastructure. RAC estimates that the shift to rail results in approximately 1.3 kt of GHGs avoided per year.[24]

The switch to rail is also saving the farm money. Shipping by rail saves the farm $1,000 per rail car, or $200,000 per year. Furthermore, the farm was able to avoid expenditures on the renewal of its truck fleet. Prior to contracting with Ontario Northland, the farm was running 10 truck roundtrips per week and was going to replace the truck fleet with three tractor trailer sets. In shifting modes to rail, the farm was able to avoid the purchase of the three tractor trailer sets.

Due to the success of shipping by shortline rail, the farm is assessing the potential of building a 1,000 ft rail line to connect their property to the transload on Ontario Northland's spur line. The line would enable streamlined operations as product would be able to go straight into a railcar, removing the need to store product in silos. The line would also facilitate an increase in potential rail shipments, helping the farm attract other farmers to ship their product by rail.

The farm has committed to shipping all oats and canola in the 2022 season by rail, increasing the number of rail cars annually from 200 to 400. The doubling of shipments by rail would bring the estimated GHG savings to 2.6 kt, the number of truck trips removed to 800, and the transportation cost savings to $400,000 per year.

To service increased shipments from Earlton, Ontario Northland plans on acquiring eight high-capacity hopper cars, making the rail-based supply chain more efficient, and requiring fewer railcar trips overall.

TABLE 4.
SUMMARY OF BENEFITS - CASE STUDY #3

Investment (shipper)	Loading dock and auger
Brought to market	200 cars of oats, annually
Environmental	1.3 kt CO_2e annually (pre-2022);[25] 2.6 kt CO_2e (2022)
Shipper's cost savings	$200,000 per year (pre-2022); $400,000 (2022)
Public's cost savings	400 truck trips, annually (pre-2022); 800 truck trips (2022)
Jobs created	N/A
Jobs supported	N/A

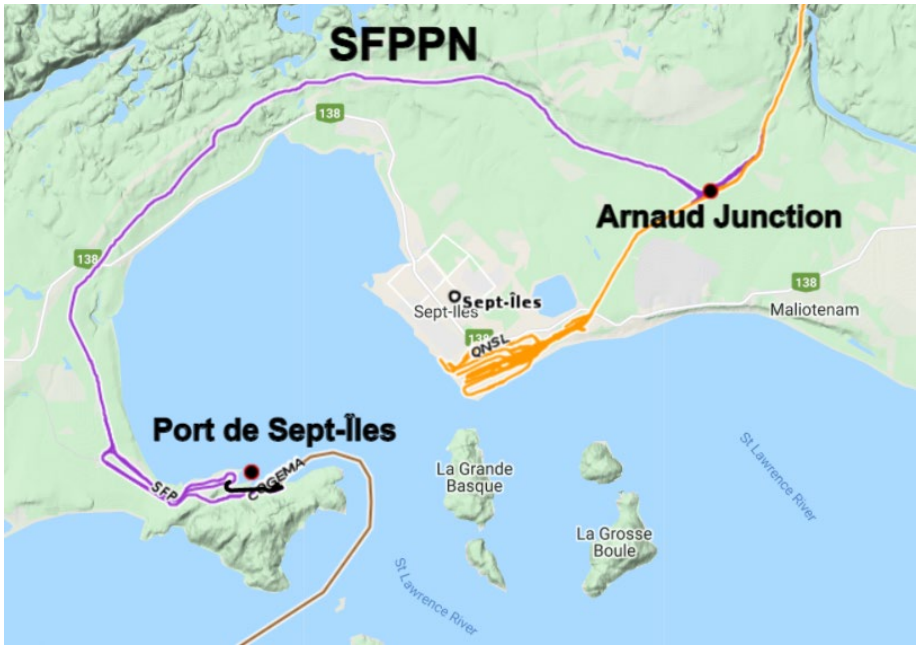
Figure 9. Shipper's loading system to transfer agricultural product from truck to covered hopper railcar on Ontario's Northland's spur line

Image courtesy of Ontario Northland Railway

SOCIÉTÉ FERROVIAIRE ET PORTUAIRE DE POINTE-NOIRE

The Société ferroviaire et portuaire de Pointe-Noire (SFPPN) is a key railway and port logistical hub that offers rail transportation and handling services to natural resource industry companies operating on the Québec North Shore and in Newfoundland and Labrador. SFPPN is a critical link that connects Northern Québec and Labrador's natural resources with the continental mainline rail network and export ports, handling millions of tonnes of minerals from Québec Iron Ore and Tacora Resources each year.

Figure 10. Map of SFPPN in Québec

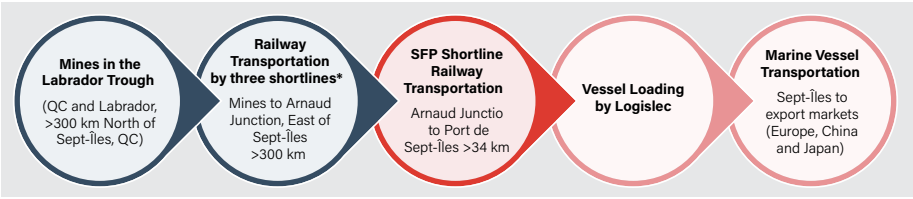


SFPPN is a limited partnership comprising the Québec government and a consortium of companies in the natural resource industry.

SFPPN operates 34 km of 286,000 lbs gross weight limit graded track with access to the Port of Sept-Îles. SFPPN offers a variety of services and infrastructure, including railcar handling; railway equipment maintenance; two storage yards with capacity of 3 million tons of port storage; loading/unloading; access to deep-water industrial docks; and 500 hectares of available industrial sites. SFPPN has 240 employees.

CASE STUDY #4
DEVELOPMENT OF RESOURCES IN NORTHERN QUÉBEC & LABRADOR.

Figure 11. Mineral supply chain from the Labrador Trough to Global Export Markets



* Three shortline railways include: Bloom Lake Railway, Wabush Lake Railway (operated by Western Labrador Rail Services), and Québec North Shore and Labrador Railway.

Over the past three years, over $300 million has been invested into SFFPN's rail and port assets to facilitate the growth of the resources industry in Northern Québec & Labrador.

- Investment Phase 1 ($180M, August 2019): upgrading of equipment and the relaunching of the Pointe-Noire site.
  - Sealing of storage yards and red water management to achieve the highest standards in red water management ($50M); a new electrical substation; and construction of conveyors.
  - Investments were supported by contributions from the Government of Québec; Government of Canada; and clients Québec Iron Ore and Tacora Resources.

- Investment Phase 2 ($135M, November 2020 to December 2022): expansion of handling capacity.
  - Expansion of railway infrastructure, including yard tracks and crossovers, increasing the maximum train length handled from 164 cars to 240 cars; new conveyors; and a new stacker-recuperator. Expansion will enable the handling of over 20 million tons per year.
  - 80-100 jobs created during construction phase (November 2020 through December 2022).
  - 40 permanent jobs created.
  - Investments were supported by the Government of Québec and Québec Iron Ore.

These investments increased commodity handling capacity from 6 million metric tonnes (MMT) in 2018 to 12 MMT in 2021, and once completed, capacity will increase to 21 MMT in 2023. There are many benefits that have resulted, including increased freight handling, and loading capacity.

The SFPPN was created to make infrastructure accessible, support the implementation of mining projects, promote economic development of the region and Province, and enhance competitiveness by getting products to international markets at lowest possible cost. Product can now be shipped from the port on Cape sized vessels (180,000 tonnes) as opposed to the smaller Panamax and Neopanamax vessels (60,000–125,000 tonnes) previously used. The port is now equipped to handle Chinamax (400,000 tonnes) vessels. As a result, shipping costs are down by approximately 30%.

Terminal investments and client needs are linked. SFPPN has supported scaling up mining activity in the Labrador Trough and contributes to regional economic development. In 2021, SFPPN received 641 trains, and loaded 11.2 MMT onto 77 vessels—bringing $3.1 billion USD ($3.9 billion CAD) of Canadian minerals to export markets.[26]

SFPPN has initiatives in place to ensure they contribute to the socioeconomic development of local and regional communities. SFPPN adopted a procurement policy in 2019 that favours Innu entrepreneurs and companies that hire Indigenous workers. In the first half of the 2021–22 fiscal year, SFPPN procured $6.1 million from Indigenous partnerships. SFPPN has also set up a steering committee to ensure ongoing communications with community representatives, focusing on procurement, hiring, training, and community investment.

Despite the significant investments since August 2019, SFPPN's infrastructure is almost fully reserved. Consultations have been initiated with stakeholders to ensure that SFPPN's next phase of investment meets the needs of future users by 2030, in terms of vessel loading, handling storage, and other logistical needs.

TABLE 5.
SUMMARY OF BENEFITS - CASE STUDY #4

Investment	More than $300M
Brought to market	▪ Increase from 6 MMT of minerals in 2018, to 11.2 MMT in 2021, and capacity for 21 MMT in 2023.
National average salary of a shortline employee	▪ $3.9B CAD brought to export markets in 2021
Environmental	▪ Highest standards in red water management; comply with the latest environmental laws; resilient to 1 in 100-year climate events ▪ GHG savings not available because alternative modes do not provide a viable option; rail is essential to the mining operation
Shipper's cost savings	Approximately 30%
Jobs created	80–100 (temporary) +40 (permanent)
Jobs supported	Approx. 178 (permanent)[27]

Image courtesy of SFP Pointe-Noire

CONCLUSION

Shortline railways span the Canadian landscape from coast to coast to coast, providing critical first mile/last mile rail service for Canadian businesses representing diverse commodity sectors. Without access to rail service, many rural based businesses would face higher transportation costs and the environment would suffer from an increase in emissions. As evidenced through the case studies presented herein, shortline railways are crucial for Canada's supply chain efficiency, supporting local and regional economies through direct and indirect employment opportunities, transporting customers' goods, and helping Canada reduce GHG emissions.

However, with high operating ratios and a lack of infrastructure investment support, many shortline railways are stuck maintaining their networks rather than investing in projects (e.g., upgrading infrastructure to transport heavier loads) that enable growth, enhance service for customers, create more job opportunities, bring more products to market, reduce GHG emissions, and increase supply chain efficiency. Dedicated government programs unlock shortline railway investment, generating benefits for railways, shippers, communities, and the environment.

Please submit all questions or comments about this report to:

Ben Chursinoff
Policy Analyst & Program Coordinator
bchursinoff@railcan.ca

Jonathan Thibault
Senior Research Analyst
jthibault@railcan.ca

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APPENDIX A—RAILWAY ASSOCIATION OF CANADA SHORTLINE MEMBERS

Alberta Prairie Railway Excursions
ArcelorMittal Infrastructure Canada S.E.N.C.
Barrie-Collingwood Railway
Battle River Railway NGC Inc.
BCR Properties Ltd.
Big Sky Rail Corp.
Boundary Trail Railway Company Ltd.
Cape Breton & Central Nova Scotia Railway
Carlton Trail Railway
Central Manitoba Railway Inc.
Compagnie du Chemin de Fer Lanaudière Inc.
Eastern Maine Railway Co.
Essex Terminal Railway Co.
GIO Rail Holdings Corporation Goderich-Exeter Railway Company Ltd.
Great Western Railway Ltd.
Hudson Bay Railway
Huron Central Railway Inc.
Keewatin Railway Company
Knob Lake and Timmins Railway
Last Mountain Railway
New Brunswick Southern Railway Company Limited
Nipissing Central Railway Company
Ontario Northland Transportation Commission
Ontario Southland Railway Inc.

Ottawa Valley Railway
Prairie Dog Central Railway
Québec Gatineau Railway Inc.
Québec Iron Ore Inc.
Québec North Shore and Labrador Railway Company Inc.
Roberval and Saguenay Railway Company
Romaine River Railway Company
SFPPN Pointe-Noire (Chemin de fer Arnaud Québec)
Société du chemin de fer de la Gaspésie
Southern Ontario Railway
Southern Railway of British Columbia Ltd. (and Southern Railway of Vancouver Island (SVI))
St. Lawrence & Atlantic Railroad (Québec) Inc.
St. Paul & Pacific Northwest Railroad Company, LLC
Tshiuetin Rail Transportation Inc.

ENDNOTES

1 Government of Canada, Transportation Information Regulations, Part II, Section 8.

2 The Federal Railroad Administration's 2009 report: Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors, found that across the 23 movements studied, rail was between 1.9 to 5.5 more fuel efficient than trucks.

3 Railway Association of Canada, Canada's Railways: Part of the climate change solution.

4 Environment and Climate Change Canada. (2020). *A Healthy Environment and a Healthy Economy* and Transport Canada. (2019). *Transportation 2030: A Strategic Plan for the Future of Transportation in Canada.*

5 CPCS. (2015). Review of Canadian Short Line Funding Needs and Opportunities.

6 Railway Association of Canada member data; Class 1 Annual Reports

7 Railway Association of Canada member data.

8 CPCS. (2015). *Review of Canadian Short Line Funding Needs and Opportunities.*

9 Ibid.

10 Saskatchewan and Québec have had or have shortline funding programs.

11 CPCS. (2015). *Review of Canadian Short Line Funding Needs and Opportunities.*

12 CPP Environmental. (2016). *Got Gravel? Aggregate Management Strategies for Rural Municipalities in Saskatchewan.*

13 Savings estimate per tonne calculated by BGA when researching potential shipper.

14 $15 million estimate based on 3,000 carloads per year = 270,000 tonnes per year = 212,000 cubic yards per year at $20.00 per yard retail delivered = $4.2 million. Class 1 freight rates based on above noted destinations in Saskatchewan, North Dakota, and Minnesota. Based on estimated mix noted above 3,000 carloads per year would average $3,000.00 per carload = $9 million. GWR freight rate 3,000 carloads per year at $600 per carload = $1.8 million. Total $15 million revenue between the gravel sales and the freight revenue.

15 Modal shift calculation: 15,000,000 tonnes travel an average distance of 493 kilometres, generating 7.4 billion revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 494.5 kt of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 101.7 kt of CO_2e; resulting in an estimated modal shift saving of 393 kt of CO_2e.

16 https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan.html

17 Modal shift calculation: 15,000,000 tonnes travel an average distance of 493 kilometres, generating 7.4 billion revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 494.5 kt of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 101.7 kt of CO_2e; resulting in an estimated modal shift saving of 393 kt of CO_2e.

18 Railway Association of Canada estimate based on findings from the Conference Board of Canada, *Moving People, Products, and the Economy: The Economic Footprint of Canada's Rail Industry*, April 2020.

19 Modal shift calculation: 35,000 tonnes travel an average distance of 1,846 kilometres, generating 64.6 million revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 4.3 kt of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 889 tonnes of CO_2e; resulting in an estimated modal shift saving of 3.4 kt of CO_2e.

20 For example, the 200 km portion of Ontario's Highway 11 between North Bay and Englehart experienced an average of 47 closures per year between 2018 and 2021 (Source: RAC based on data from the Ontario Ministry of Transportation).

21 Conference Board of Canada. (2020). *Moving People, Products, and the Economy: The Economic Footprint of Canada's Rail Industry.*

22 Modal shift calculation: 35,000 tonnes travel an average distance of 1,846 kilometres, generating 64.6 million revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 4.3 kt of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 889 tonnes of CO_2e; resulting in an estimated modal shift saving of 3.4 kt of CO_2e.

23 Railway Association of Canada analysis based on findings from the Conference Board of Canada, Moving People, Products, and the Economy: The Economic Footprint of Canada's Rail Industry, April 2020.

24 Modal shift calculation: 20,000 tonnes travel an average distance of 1,242 kilometres, generating 24.8 million revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 1,662 tonnes of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 342 tonnes of CO_2e; resulting in an estimated modal shift saving of 1.3 kt of CO_2e.

25 Modal shift calculation: 20,000 tonnes travel an average distance of 1,242 kilometres, generating 24.8 million revenue tonne-kilometres. Applying a trucking emissions intensity of 66.86 kg CO_2e/1,000 RTK generates an estimated 1,662 tonnes of CO_2e; applying a rail emissions intensity of 13.76 kg CO_2e/1,000 RTK generates an estimated 342 tonnes of CO_2e; resulting in an estimated modal shift saving of 1.3 kt of CO_2e.

26 Calculation of value of goods brought to market: 11.24 million metric tonnes at $280 USD per tonne in 2021, using a USD:CAD exchange rate of 1.2535 (exchange rate source: Bank of Canada).

27 Railway Association of Canada analysis based on findings from the Conference Board of Canada, *Moving People, Products, and the Economy: The Economic Footprint of Canada's Rail Industry,* April 2020.