

## 2.0 Rail's Next Evolutionary Cycle

Every evolution inevitably leads to the next. Many rail industry observers and analysts are of the opinion that the most recent one has run its course. The view is that major changes are required if there is not only going to be growth, but a retention of current traffic.

In this growing commentary, certain themes are emerging. The most prevalent are that the railways will need to shift from cost-driven strategies and focus on boosting their traffic base through service improvements. To do so, the railways must:

- Increase speeds, decrease transit times and increase train frequency
- Attract traffic that moves over shorter distances than is now considered rail competitive
- Increase shipper access with more direct rail connections for carload service and trans-load facilities for off-line shippers
- Provide intermediate intermodal facilities, not just widely-spaced hubs dependent on long truck hauls
- Generate more back haul to fill cars that return to their points of origin empty

The next evolution will be built on the solid financial footing created by the last one, but it won't be just cost control that will drive it. It will be shaped by the increasing shipper demands for more responsive and agile service, at a competitive price. This poses both threats and opportunities for the whole rail freight sector.



*The CSX intermodal terminal at Valleyfield, Quebec, is but one example of the competitive tools the U.S. railways can mount to gain traffic at the expense of the Canadian lines, diverting it to their own and often superior routes close to the border.*

## 2.1 U.S. Precedents and Competitive Threats

In any of the scenarios that have been suggested for a new approach to divert additional traffic to rail and build on the current base, capital investment will be required. This is the antithesis of the strategies that have fuelled the most recent rail freight evolution.

However, the implication is that this funding must in the future be a mix of private and public capital. This, in turn, requires the adoption of public policies that view rail as a solution with public benefits that justify investment, including reduced highway spending, increased economic competitiveness and substantial environmental dividends.

In terms of public policy, the U.S. has taken a divergent position on rail from the one that has been in effect across Canada for the past 30 years. While the five

American Class I railways have all engaged in the same cost-cutting strategies as CN and CP, and have also operated in what is largely a deregulated environment, they have also benefitted from federal and state transportation policies that are increasingly removed from those of Canada. These have led to public investment in partnerships with the private railways.

Even in the face of a new federal government that is attempting to slash public spending, the policies and investment that have partially enabled the shift in U.S. freight railroading are still in effect. The most recent measure before the U.S. Congress is H.R. 3001, an act to establish a Multimodal Freight Funding Formula Program and a National Freight Infrastructure



*Burlington Northern Santa Fe's sweeping main line capacity expansion projects on routes linking Chicago with several Pacific ports pose major benefits for American shippers and competitive threats to Canada's two transcontinental systems, which aren't investing at the same rate or with a similar vision. Photo courtesy BNSF*

Competitive Grant Program to improve the efficiency and reliability of freight movement. This comes on top of the ongoing development of a National Freight Plan, a National Rail Plan and individual rail plans by all the states wishing to participate in federal funding.

These divergent policies and investment strategies are accompanied by another American competitive threat. Four of the five Class I railways in the U.S. have lines that enter Canada or serve important border points. Canadian traffic that can be diverted to these U.S. lines is gravy to the American railways and its loss can have a deep effect on CN and CP.

At the regional level, the U.S. approach is also benefitting the short line industry, strengthening it to play an even larger role as part of a complete transportation solution and bolstering regional advantages that compete with those of numerous regions in Canada. The passage of the Building Rail Access for Customers and the Economy (BRACE) Act is the most recent example. It consists of a tax credit system that requires a short line to invest one dollar for every 50 cents in credit up to a credit cap equivalent to \$3,500 per mile of track. It is critical to the nation's 603 short lines for the upgrading of track and bridges.

Regional and state programs are also enabling

shippers and the railways to expand access to rail through assistance in the development of a multitude of regional facilities. These range from new shipper sidings to trans-load facilities to bonded inland ports connected directly by dedicated rail service to booming ports on the Atlantic, Gulf and Pacific coasts.

As well, the expansionist aspects of U.S. rail passenger policy factor in as competitive threats because they are being practiced in ways that work cooperatively with the Class I and short line freight carriers to generate maximum benefits for all.

Many physical gaps and bottlenecks in the Canadian rail system affecting freight and passenger service are currently not being addressed. Such projects would fall below the freight railways' return on investment threshold of 12 per cent or more. The public policy makers have not awakened to the public benefits and cost savings that could be generated by forging partnerships with the railways to overcome these deficiencies.

Other countries with which Canada competes long ago recognized the need for public participation in railway policy and funding, and met it. Until Canada does the same, this will remain a serious competitive threat.

## 2.2 Filling the Leadership and Policy Vacuums

Behind the operating and internal policy changes, there were key leaders who drove Canada's most recent rail evolution. The two most important personalities in this metamorphosis were Paul Tellier and the late Hunter Harrison.

After a distinguished career in the federal civil service, Tellier was appointed president of CN in 1992 to prepare it for privatization in 1995. Stripping away branch lines, reducing the labour force, building a new Sarnia-Port Huron tunnel to handle the new generation of double-stacked intermodal trains and sharpening CN's performance were hallmarks of this program.

Tellier's team fully exploited CN's superb main line assets and route structure, broadening its reach by acquiring Chicago-based Illinois Central (IC) in 1998. This gave CN a superior main line south to New Orleans and valuable feeder routes in the Midwest and Gulf Coast. Also part of the package was IC's president, Hunter Harrison, who joined CN as its chief operating officer.

When Tellier left CN in 2003, Harrison took over, bringing with him 34 years of hands-on railroading experience and both a vision and a passion for lean, precision freight railroading. He also engineered the strategic acquisition of various smaller Canadian and U.S. railways, extending CN's reach and expanding its market reach.

That vision remained at work when Harrison reached CN's mandatory retirement age and reluctantly turned over the company's reins to a non-rail successor on January 1, 2010. He returned to Canada as CEO of CP

in 2012, when CN's under-performing rival was taken over by a U.S. hedge fund operator. Harrison then recast CP in the same mould he had created at CN, boosting its share price and lowering its costs dramatically.

Harrison left Canada in January 2017 when he took over as CEO of the Eastern U.S. railway, CSX. His reshaping of Canadian freight railroading is still being felt through the operating practices he left behind.

Today, CN and CP lack the visionary approach – right or wrong – that characterized the regimes of Tellier and Harrison. The presidents of both railways today have said they aim to wring further costs out of their operations and increase traffic, but no dynamic policies and practices have yet emerged. Both have talked about the need to lure business off the highways, but there is no proof this is happening. In fact, the evidence suggests that rail's market share is continuing to nose downward compared with trucking.

Momentum is gathering on some U.S. railways for a change in railroading. That can be a strong initiator of change in Canada, even without a shift in public policy at the federal and provincial levels. Indeed, CN and CP have been reluctant to pursue some of the avenues open to their U.S. counterparts because they don't trust government and they don't want them around as an uninvited management team.

Long-time rail industry commentator Fred Frailey recently wrote that the entire industry is going to have to adopt "a new mantra. Perhaps it goes like this: The future of railroads is to work like mad and price aggressively to find new customers, be they carload or intermodal or bulk shippers. There is no easy way out."

## 2.3 External Threats and Counter-Measures

The U.S. rail threat is greater than some may suspect. As previously mentioned, four of the five U.S. Class I railways not only have the means to poach Canadian traffic, they are already doing it. This is a situation CN and CP have always faced and they are taking steps to counter it by doing some of their own poaching. Their strongest cards are their lines in the U.S. and the American traffic they can attract.

The most recent example is CP's new expedited intermodal service to move containers off the Pacific Ocean to Detroit over what is the shortest of all routes from Asia to America's heartland. This makes Vancouver and CP arch competitors of U.S. Pacific ports and the railways that serve them.

Although more distant, the threat posed by the policies and investments of other nations are to be considered. By increasing the attractiveness of the various regions they serve, these projects also work against Southwestern Ontario. The traditionally pro-rail nations have always been factors in this, but now some that went the same way as Canada are reconsidering their actions and changing course. Massive rail freight and passenger programs funded by the national and state governments in Australia are direct threats to Canada's economy and its transportation sector, even though they are occurring halfway around the globe.

In terms of modal competition, the railways also need to be concerned by and respond to the threat of autonomous trucks, which could greatly alter competition based on costing. The technology is well developed and lots of forward-looking articles have been written on the subject, but there are major rivers to cross before autonomous trucks take to Canada's

highways. The largest issue is the public's reaction, which is not expected to be welcoming.

While it would be false to dismiss this as a Buck Rogers fantasy, the railways also have a technological arrow in their quiver: autonomous trains. The technology exists to operate main line freight and passenger trains without onboard personnel at the controls. This is already done on major transit systems and some remote freight lines that have little public exposure.

Furthermore, the new positive train control (PTC) system that has been mandated by the U.S. government and is now being implemented as a safety measure includes features that make this entirely possible. For now, PTC will be applied as safety system that will close the loop between the trains and the rail traffic control centres using advanced communications-based technology. It can do more.

But as with autonomous trucks, there is the very real issue of public pushback. Citizens would not take kindly to 150-car freight trains roaring through their communities, over open grade crossings, at speeds of 100 km/hour or more without an operator at the controls. This is especially so in an era of heightened concerns about rail safety.

Alternately, there is still room for increased automation in other aspects of railroading and all the Class I railways have said they are going to employ it them to maintain and expand their cost advantage over the other modes. That opens up the potential to attract and shift traffic from those other modes to the railways.



*The global railway industry needs to be concerned by and respond to the threat of autonomous trucks, which could greatly alter competition based on costing.*

Perhaps the largest opportunity for the rail industry to counter these and other threats is merely to become more effective in telling their story and outlining their numerous benefits. Although it was the rail industry that created the whole concept of public relations as a means of opposing farmer agitation against their monopolistic powers in the 1880s, they have generally lost that skill. The old saying to the contrary, if you build the better mousetrap, the world does not necessarily beat a pathway to your door.

Railroading is a complex and often misunderstood industry. If it is going to be sold as a public benefit with much more to give, its story is going to have to be told more effectively. That's a problem only the industry itself can remedy.

## 2.4 Environmental Policy Implications

As public policy on environmental matters shifts, it bodes increasingly well for all forms of rail transportation, passenger and freight. It also has cost implications that are favourable to privately-funded rail service because it brings with it financial penalties and rewards that are dependent on energy intensity and emissions. Without such a system, shippers and users of energy intensive forms of transportation have externalized their full costs, leaving the public to pay for the damage they do and, in turn, undermining other forms of transportation that don't saddle the public with these costs.

It is shippers who are going to ultimately feel the brunt of carbon pricing and it will affect their modal choices. This is happening more rapidly in other countries, particularly Western Europe, where the drive to de-carbonize transportation is under way. Coupled with the massive programs to build a new and interconnected network of main trunk lines for freight, it will recast the already excellent rail system of Europe and make it a stealth machine.

In Canada, policy makers have been slow to recognize and reward the environmental benefits of railroading. The initial rounds of carbon taxing and cap and trade legislation have not treated the railways as the environmental dividends they are. The answer to questions about this situation have been that the railways are already doing well, so it is the "bad boys" of transportation that need to be encouraged to reform their ways.

The problem with this assumption is that the other modes are reaching their technological efficiency limits. In a recent report card on transportation, the European Environment Agency notes that "gains in the fuel efficiency of new vehicles and aircraft were not enough to offset the additional emissions caused by a higher demand in both passenger and goods transport."

Commenting on the European Union's progress on increasing rail investment and market share, International Railway Journal associate editor Keith Barrow wrote:

*"While the electrification and automation of road transport will drive a reduction in greenhouse gas (GHG) emissions in the coming decades, this huge technical and cultural shift will not happen overnight. By ensuring a level playing field between road and rail transport, with targeted investment to improve the competitiveness and attractiveness of rail transport, tangible short-term progress could be achieved through modal shift with its many environmental, economic and health benefits."*



Canada will need to follow a similar course if it is to meet its GHG reduction targets, especially given the excessive quantities and growth trends for all but the rail and transit modes.

There are some early signs of progressive thinking at work in Canada, most notably in Ontario. Rail's environmental benefits have been recognized in the Ontario Climate Change Action Plan, which recommends yet more study to determine the actions required to improve short line competitiveness and assist in reducing Ontario's high-carbon fuel

consumption and GHG emissions. But action has still not followed these encouraging words and various provincial and federal policies have actually made financial stability more difficult for the short lines.

The rail industry's environmental credentials are cards that still haven't been played. They have the power to alter the situation if played skillfully.



## 2.5 The Policy Pendulum Swings – Barely

It will be difficult for the federal and provincial governments to forever resist all of these forces and maintain their current laissez-faire positions when it comes to rail policy and transportation investment decisions. As the competitive pressures build, both will have to finally develop new policies and make investments to counter the forces being brought to bear by nations that have taken a far different approach.

Public concerns about rail safety in the wake of the Lac-Mégantic tragedy of 2013 have raised questions and demonstrated a public appetite for change. While at first hostile to the railways, the public mood has swung to now include government in the flame of its lingering fury.

Media reporting and commentary has increasingly identified Canada's national rail policy – or lack thereof – as being as responsible for various safety problems as the privately-funded railways. A call for public investment has been part of the debate, which has been reinforced by questions asked of the current federal government by opposition MPs in Ottawa.

This call for change has been articulated in a handful of recent government reports and announcements. The most notable was the review of the Canada Transportation Act under the direction of former cabinet minister David Emerson. The committee's report provided insight on the mood of the transportation industry and the shippers dependent on it. The clearest was this finding: "Government resources dedicated to transportation infrastructure are significantly lower than what many believe is sufficient to remain competitive."

But the CTA Review Committee was unable to answer the biggest question of all, namely who will pay to correct this deficiency. It noted, "The CTA Review was asked in the terms of reference how the federal government could encourage greater private sector investment in transportation infrastructure. Submissions from stakeholders were largely silent on this point (although there was general agreement that greater investment is required)."

Funding aside, the committee did provide two key recommendations that could have positive implications for the next railway evolution:

“The Review recommends that Transport Canada lead the development of a clear performance and evidence-based National Framework on Transportation and Logistics, in collaboration with the provinces, territories and industry. . . .

“Transport Canada [should] formalize in policy the concept of a National Freight Rail System, inclusive of all interconnected railways in Canada.”

To date, action has been slight. The most meaningful was the November 3, 2016, unveiling by Minister of Transport Marc Garneau of a strategy known as Transportation 2030. It includes a pledge to invest \$10.1 billion in infrastructure “to help eliminate bottlenecks and build more robust trade corridors.” A consultation process involving all stakeholders has been promised.

However, Transportation 2030 largely relies on private investment to fund the improvements the government says are necessary for Canada to remain competitive. The \$10.1 billion in public funds would be invested over a period of 11 years, or at an annual rate of \$918 million. By comparison, CN and CP will collectively invest nearly \$5 billion of their own self-generated funds in maintenance and capital improvements in 2018.

The federal push for a largely cashless improvement of the transportation system continued with the announcement on May 16, 2017, of the Transportation Modernization Act. Without allocating or identifying the required funding, the act is partially aimed at “improving access, transparency, efficiency, and sustainable long-term investment in the freight rail sector.”

A revealing picture of shipper and transportation industry attitudes regarding these unfulfilled

investment needs emerged as a result of the 2017 Standing Senate Committee on Banking, Trade and Commerce report on a 7,000-kilometre coast-to-coast transportation corridor through the North. As visionary as the project may be, it didn’t impress numerous members of the transportation community, who viewed it as a diversion from the main problem.

Representative of the industry response was the statement by the Canadian International Freight Forwarders Association (CIFFA), which said, “When it comes to the transportation of containerized cargo, CIFFA believes it would be more beneficial to add capacity to existing railways and ports in order to meet future transportation needs.”

Investing in assets and services you already possess is a philosophy that can bode well for Canada’s railways, which still haven’t realized their full potential.

Slight though all of these changes in public and industry attitudes and political commitment may be, they indicate a growing chorus of voices calling for action that will produce public and private benefits through increased use of rail. The challenge now becomes how to pick up the pace of change and focus it on the rail option.



*Investment in capacity expansion and track upgrading can pay mutual operating dividends to freight and passenger operators when they are undertaken through joint planning and funding. Photo by Walter E. Pfefferle*

## 2.6 Passenger Considerations

Public pressure is building for action on the rail passenger issue, which has been allowed to languish for decades despite public calls for improvement. In congested urban areas such as the Greater Toronto and Hamilton Area (GTHA), the daily frustration of living with automotive congestion – a portion of which is attributable to highway freight movement – has built a constituency for rail investment. Rural alienation and isolation have brought calls from areas that once enjoyed reasonable rail service for its return.

As discussed previously, the shared use of infrastructure by passenger and freight trains poses several operational and investment challenges. In the ideal world, the two types of traffic would be separated and provided with infrastructure geared solely to the needs of each. Ideal though this vision may be, it has limited application in Canada because

of the enormous costs it would entail, not to mention the land acquisition problems. In but a few situations, it is not a realistic solution.

Freight and passenger trains have co-existed on shared infrastructure since the dawn of railroading nearly two centuries ago. The key has always been coordination to reasonably accommodate both forms of traffic on shared lines in ways that are beneficial to both. This remains the ideal solution in Southwestern Ontario and in all but a few situations in Canada.

In meeting the need for improved rail passenger service, there are definite benefits to be derived by the freight operators. The relief of any bottlenecks now created by this shared use is the most obvious. However, there are also opportunities for improvement and expansion for both types of traffic, if a collaborative approach is taken.