Infrastructure Opportunities of Port Rail Authorities

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NOTE

The views and opinions expressed in this paper are those of the author and do not represent those of the Government of Alberta.

ABSTRACT

The Port of Vancouver, British Columbia (BC) is Canada’s largest and most diversified port, trading $43 billion in goods with more than 90 countries annually. Recently the port has seen unprecedented growth in import and export traffic. The emergence of China and India as major global trade partners is realigning trade patterns and shifting global supply chains. Currently the world’s seventh largest economy, China is predicted to be the second largest by 2020 and the largest by 2041. Shifting trade patterns with Asia and an increase in other emerging markets is forecasted to result in significant growth in traffic through Canada’s Pacific Gateway. By 2020, container cargo alone is projected to increase by up to 300% from 1.8 million containers to over 5 million containers.

Current volumes of traffic are already stressing the Vancouver port area’s transportation infrastructure. In the fall of 2006, the Government of Canada announced an Asia Pacific Gateway and Corridor Initiative, which included immediate capacity investments to improve the performance of this vital gateway. However, this investment does not address all of the rail capacity constraints in the greater Vancouver area.

The focus of this paper is to identify the different models of port rail authorities or agencies currently operating in either Canada or the United States (US). The current rail infrastructure within Vancouver will be reviewed, port/terminal rail authorities as well as terminal and belt railways in other jurisdictions will be examined, and the benefits that they provide to the supply chain system.
1. INTRODUCTION

The Port of Vancouver, British Columbia (BC) is Canada's largest and most diversified port, trading $43 billion in goods with more than 90 countries annually. Recently the port has seen unprecedented growth in import and export traffic. The emergence of China and India as major global trade partners is realigning trade patterns and shifting global supply chains. Currently the world's seventh largest economy, China is predicted to be the second largest by 2020 and the largest by 2041. Shifting trade patterns with Asia and an increase in other emerging markets is forecasted to result in significant growth in traffic through Canada's Pacific Gateway. By 2020, container cargo alone is projected to increase by up to 300% from 1.8 million containers to over 5 million containers.

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The focus of this paper is to identify the different models of port rail authorities or agencies currently operating in either Canada or the United States (US). The current rail infrastructure within Vancouver will be reviewed, port rail authorities and port terminal railroads as well as terminal and belt railways in other jurisdictions will be examined, and the benefits that they provide to the supply chain system.

The intention of this paper is to present a platform for further discussions on the topic.

2. BACKGROUND

Currently three Canadian owned railroads and one United States (US) owned railroad operate within the greater Vancouver area. These are the Canadian National Railway (CN), Canadian Pacific Railways (CPR), Southern Railway of British Columbia Ltd. (SRY) and the Burlington Northern Santa Fe Railway Co (BNSF).

While all four railroads have operations on the south shore of the port, one railroad has sole access to the facilities on the north shore, (CN bought out BC Rail Ltd operations in mid 2005).

Except for traffic coming down the BC Coast from Squamish, BC, all rail traffic coming from the mainland must cross the Second Narrows Bridge to access the facilities on the north shore. This bridge, owned by CN, is a lift span bridge that opens numerous times a day to allow marine traffic to pass, creating a rail bottleneck during high volume periods.

All CN, BNSF and SRY traffic entering the Vancouver area from the east must also cross the Fraser River Bridge. Owned by CN, this swing bridge also opens numerous times a day for marine traffic. The current demand on that bridge is about 46 trains a day.

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1 Port of Vancouver Web Site - www.portvancouver.com/media/port_facts.html
CP lines are located on the north shore of the Fraser River and therefore bypass this first bottleneck. These bridge bottlenecks can result in operational delays for traffic accessing the terminal facilities on all four railways.

The following diagram illustrates the rail network in the Port of Vancouver and highlights the two bridges discussed.

**Figure 1 - Railways Port Of Vancouver @ RAC Canada 2004**

![Railways Port Of Vancouver](http://cdnrail.railfan.net/tpic/FraserBridgeVIA/Putbr.jpg)

The challenge of these bridges is that they are very close to the water line. Figure 2 shows a picture of Fraser River Bridge with a train traversing it.

**Figure 2: View of Fraser River Bridge**

![View of Fraser River Bridge](http://cdnrail.railfan.net/tpic/FraserBridgeVIA/Putbr.jpg)
Figure 3 shows the Fraser River Bridge relative to the Pattulo road bridge. This view clearly shows the proximity of the Fraser River Bridge to the river’s waterline.

**Figure 3: View of Fraser River Bridge and the Pattulo Road Bridge**

(http://cdnrail.railfan.net/tpic/FraserBridgeVIA/Putbr.jpg)

The Second Narrows Bridge is a different design as it opens up instead of swinging open but it too is very close to the waterline. Figure 4 shows the Second Narrows Bridge opened.

**Figure 4 – the Second Narrows Bridge**

(http://en.wikipedia.org/wiki/Image:Old_second_narrows_bridge_V.jpg)

There are many issues besides the bridges that cause problems for rail traffic entering or leaving the Vancouver port area. These include crew related and
procedural issues for the railroads, the immediate and surrounding port area has little or no room for expanding railroad infrastructure, local concerns about railway noise in the evening/night time and some railways do not have access to each facility. One railway, having access to specific facilities, could restrict the ability for other railways to deliver traffic to these facilities.

Better coordination and utilization of the existing rail infrastructure and system operations could address current and future demand and deal with issues that have troubled the port for years.

Recently announced initiatives deal with some of these concerns. On January 26, 2006 CN and CPR announced an agreement in principle to improve rail operations in and around the Vancouver area. Starting in March 2006, CPR now handles all trains of both railroads destined for the south shore and CN will handles all trains of both railroads destined for the north shore. This agreement complements the longstanding directional running zone between the two carriers from west of Ashcroft, BC to Mission, BC in the Fraser Canyon. ²

The intent of both railroads is to improve the operational fluidity of their two networks in the greater Vancouver area, resulting in cost savings that don’t necessarily have to be passed on to shippers and users of the port system. Currently each railroad optimizes to its own benefit and not necessarily to the benefit of the water/rail system in Vancouver. However, service disruptions or labour strikes on one railroad can and does impact the overall system because only one railroad services a specific shore.

3. CURRENT MODELS

Various models of terminal/port railways exist today in Canada and the US. These fall under four major categories:

- US State owned
- US Class 1 owned
- US Privately owned – shortline railways
- Canadian

3.1. US State owned

3.1.1. State owned Terminal/Port Railways

The American Association of Short Line Railways (ASLRRA) lists 17 members as government owned switching/terminal or port railroads. (ASLRRA is a non-profit trade association that represents more than 400 short line and regional railways in legislative and regulatory matters.) ³ These include state, county, city and port authority owned enterprises. Some of these railroads were owned by their

³ American Short Line and Regional Railroad Association Web site - http://www.aslrra.org/who_we_are/
respective governments from the beginning while others were taken over by the public entity at a later date. Some railroads resulted from state legislation.

Various models of publicly owned railroads include organizations that:

- own the capital assets and operate the railway themselves
- own capital assets and hire a third party to operate
- lease track from a private company and hire a third party to run the railway
- bought a railroad company and continue to hold it as a revenue generating company which pays dividends to a public entity
- are strictly a holding company with no assets but provide open access to the port/region

Some of these organizations are the largest switching carriers in the US while others handle less than 1,000 carloads a year. All have the ability to publish their own switching tariffs and, if volume merits, enter into contracts with customers and railroads. Presented here are some representatives of the different models that were looked at to develop potential models for the Port of Vancouver.

3.1.2. State owned

Owned by the State of Alabama, the Terminal Railway Alabama State Docks (TASD) was established via a legislative act in 1927. This terminal railway services the docks and terminals of the Port of Mobile, Alabama. It provides switching for the terminals and the Class 1 railroads that interchange with it. Five Class 1 railroads interchange with the TASD - BNSF, CN, CSX Transportation (CSX), Kansas City Southern (KSC) and the Norfolk Southern (NS). It is not a tax supported entity but a revenue generating agency that owns the capital assets of the railroad and operates it with its own employees and locomotives.

TASD’s mandate is to be a self-sustaining entity with revenues going back into the organization for new infrastructure, debt servicing and leverage borrowing capacity. The TASD, along with the State Port Authority, helps to facilitate trade and create economic development. TASD also provides a level playing field for the railroads where no railroad has a competitive advantage over another.\(^4\)

The Port Terminal Railroad of South Carolina (PTR) is another state owned railroad that owns the capital infrastructure and provides crews to operate the railway. The PTR was established in 1893 and ownership was later transferred to the State Port Utilities Commission. The PTR has connections to the CSXT and the NS. Its mandate is to cover the cost of operations and maintain its capital property/assets. It receives no state funding.\(^5\)

The Canton Railroad Company (CTN) is owned by the state of Maryland. The CTN is celebrating its 100\(^{th}\) anniversary in 2006 but has been owned by the state only since 1987. It serves 30 shippers and interchanges with the CSXT and NS. This railway is unique in that the state bought it when it was in financial trouble and continues to operate it as a private enterprise. The sale was a stock transaction between the existing company CTN and the Maryland Transportation Authority.

\(^4\) Alabama State Port Authority Web Site - www.asdd.com
\(^5\) Port Terminal Railroad of South Carolina
which now owns 100% of the stock. The railway provides a dividend to the Transportation Authority.

The Ohio Central Railroad System (OHCR) is a large short line railway company. It is unique in that, along with owning its own rail track, it also operates railroads publicly owned by either the State of Ohio or city economic development corporations. In the case of the Columbus and Ohio River Railroad, another company owns the track, leases it to the State of Ohio, which then contracts out the operation to the OHCR. The Youngstown and Austintown Railroad is a public private partnership between the OHCR and the Youngstown Economic Rail Development Corporation, a public non-profit agency of Youngstown, Pennsylvania.

3.1.3. County owned

The Southeast Missouri Regional Port Authority (SEMO) owns the SEMO Port Railroad (SM). The SM serves SEMO port and nearby industries and connects with the Union Pacific (UP) and the BNSF. Two counties formed the port authority in 1975 and built a port facility on the Mississippi River. In 1990, SM bought 6 miles of branchline that the UP wanted to abandon. The port authority received special permission from the state to establish the port railroad and the Interstate Commerce Commission certified the railway in 1994. SEMO owns the track and locomotives but contracts out the rail operations to a third party. The railway’s objective is to make enough money to cover its expenditure and capital expenditures. 6

3.1.4. City and Port Authority owned

The New Orleans Public Railway (NOPB) and the Tacoma Municipal Belt Line Railway (TMBL) are examples of city owned or port owned railways that own the capital assets and operate the railway with their own employees.

The NOPB, commissioned in 1904, is unique in that it is tax exempt from state and city taxes. It interchanges with the BN, CN, CSX, NS, KCS and the UP and serves about 165 industries. The NOPB is self-sustaining. Its mandate, within city bylaws, is not to profit from the operations but to keep the switching prices down for the benefit of the users of the port facilities. The railroad is the property of the citizens of the City of New Orleans, Louisiana and was “conceived, constructed and is operated to be the most efficient, expeditious and economical switching service possible”. 7

Established in 1914, the TMBL is a similar entity. The TMBL is a division of Tacoma Public Utilities, which is owned by the city of Tacoma, Washington. It switches freight between Tacoma industries and BNSF and SP. Its largest customer is the Port of Tacoma, the fifth largest container port in the US. It’s different from the NOPB as it pays 8% of its gross earnings to the city of Tacoma and 1.5% to the State of Washington. 8

6 SEMO Port Railway Web Site - www.semoport.com
7 New Orleans Public Railroad Archives document June 6, 1977
8 Tacoma Rail Web Site - www.tacomarail.com
Other public entities like the *City of Rochelle Railway (CIR)* own the rail bed but hire a third party to operate the rail. The city of Rochelle hires TLC Rail Switching Services to operate and maintain the railway. The city put in the rail line to attract industry and develop the local economy. It currently interchanges with the BNSF, UP and CP.

A unique railway is the *Philadelphia Belt Line Railway (PBL)*. The PBL is a holding company that owns the rail bed but does not own locomotives and technically has no employees. The primary stakeholder is the Philadelphia Chamber of Commerce. The railroad was established in the late 1800’s and is based on the Beltline Principle, which guarantees railway access. Three carriers access Philadelphia industry – the NS, CSXT and CP. CP would not be able to get into Philadelphia without this principle, which was upheld by the US Surface Transportation Board when Conrail folded, and NS and CSXT picked up Conrail assets.

There were many reasons why public agencies took material positions in terminal/switching railroads. Some states did not want to lose rail service - some wanted to create economic development and attract industry. Others wanted to provide for open access, keep costs down and improve service to industry by offering flexibility.

### 3.1.5. Strengths and weaknesses

There are several positives that State owned entities offer. They:

- can be revenue generators for the jurisdiction
- can maintain their own assets with no public funding
- provide low cost and flexible service to users
- allows shipping lines to migrate from one port facility to another without disruption in rail service
- provides access to railways that do not have their own capital infrastructure in that location (Philadelphia Belt Line Railway – PBL - in Philadelphia allows CPR access to Philadelphia industry.)

However, there are a number of challenges. Most of these entities were created decades ago and it would be difficult to recreate a publicly owned railway if infrastructure owned by private enterprises. It would be cost prohibitive to build similar infrastructure in places that already have private rail assets. There is a risk for current public operations if the operation started to become inefficient and not be able to fulfill its mandate to the public entity.

The PBL was established in the late 1800’s - it would be virtually impossible to create an entity that was more like a virtual railway based on a belt line principle that guarantees railway access, even though it was upheld by the Surface Transportation Board.

### 3.2. US Class 1 owned

#### 3.2.1. Class 1 owned Terminal/Port Railway
Class 1 railways own a number of terminal or port railways. Some are net expense operations while others pay a dividend to their shareholders. The ASLRRA identifies 18 such carriers in their membership, including the Norfolk Portsmouth Belt Line RR (NPB), Indiana Harbour Belt Line Railway (IHB), Port Terminal Railroads Association (PTRA) and Texas City Terminal Railway Company (TCT).

The NPB and IHB both started out owned by intercity and/or mainline carriers. The NPB was formed in 1896 when 8 separate switching carriers formed the belt line. After a series of mergers and buyouts there are now only two owners - the NS and the CSXT. Offering flexible switching operations adds value to the industry but the mainline carriers are the main beneficiaries of the efficiencies and cost savings.

The IHB is the largest switching carrier in the US. The IHB interchanges with 16 other railroads and owns its own fleet of approximately 14,000 cars. The railroad has its own profit and loss statement, pays its own taxes and pays a dividend to its shareholders CSXT, NS and CP.

The PTRA operates as a non-profit port railway owned by three Class 1 railways - the CSXT, UP and the Texas Mexican Railway (TM). The PTRA operates in the Port of Houston and handles approximately 600,000 carloads a year and services over 170 customers. The land is owned by the port and PTRA pays a monthly fee to the port to operate over port land. Participating railways pay for all expenses - the locomotives, the ties, the rail, crews, and office space. Expenses, minus net revenue from fees like accessorial charges, are prorated for each railway and paid monthly to the PTRA. This includes capital and maintenance charges. The railroad continues to work because it reduces congestion and provides better service to the port. The carrier is neutral to traffic originating or being handed off to the class 1 railways. It capitalizes on the fact that only one railway and not three operate in the port, reducing the need for train starts, crews and locomotives.

The TCT is owned by the BNSF and UP. The two railways also own the Port of Texas City, which was started in 1893. In 1921, when the port was in financial trouble, three railroads came to its rescue and paid off the debt. Unlike the PTRA, the TCT profits through accessorial charges and local switching charges and, like the IHB, pays dividends to the two shareholders.

3.2.2. Strengths and weaknesses

There are several positives for these types of railroads. They:

- reduce congestion and provide a higher level of service
- reduce the number of crews/locomotives and train starts
- can operate neutral to traffic originating or terminating thus providing a level field for participating Class 1 carriers
- defers capital investment requirements

However, there are some drawbacks. Efficiencies and savings accrue to the railway owners and not necessarily to the users of the services. The carriers operate with the intention of optimizing the rail operations and not necessarily the

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9 Port Terminal Railroad Association web site - www.ptra.com
10 Texas City Terminal web site - www.railporttc.com
port/terminal system operations. They have limited access to public funding and thus the potential of the entire port system may not be realized.

3.3. Privately owned Terminal/Port Railways

3.3.1. Privately owned Terminal/Port Railways

This category is by far the largest in numbers. Some are owned by large companies like Genesee and Wyoming or Rail America. Others are very small companies that handle less than 500 carloads a year. Examples of these types of switching/port/terminal carriers are Golden Isle Terminal Railroad (GITM) in Georgia and Wilmington Terminal Railway (WTRY) in North Carolina, Ballard Terminal Railroad (BDTL) in Washington, Essex Terminal Railway (ETL) in Ontario, Clinton Terminal Railroad (CTR) in Illinois and Stockton Terminal and Eastern Railroad (STE) in California.

These and many others terminal railways, with the exception of the ETL have a common theme - they took over branchlines that Class 1 carriers wanted to abandon. In some states the shortline industry saved a large portion of the railroad network that otherwise would have disappeared. They are not large entities however they serve the local industry and provide access to the North American rail network. Many of these have attracted more industry to their geographic region and have more than doubled the traffic levels from when they first started.

3.3.2. Strengths and weaknesses

Small short line terminal railways offer competitive flexible service. However the railways don't have the ability to leverage a lot of financing to significantly increase their infrastructure to attract more industry and many rely on public funding and/or tax relief.

3.4. Canadian owned Terminal/Port Railways

There are a number of terminal/port railways operating in Canada today. One is privately owned: the Essex Terminal Railway (ETL) in Ontario. The Port of Montreal Railway is owned by the Montreal Port Authority (MPA) and the BCR Port Subdivision, which is a subsidiary of the British Columbia Railway Company (BCRC), is owned by the provincial government of British Columbia.

3.4.1. Essex Terminal Railway

The ETL is one of the oldest short line railways in Canada. It was incorporated in 1902. It is strategically located in the Detroit Windsor gateway and offers switching to NS, CSXT, CN and CPR. Unlike many short line railways in Canada, it publishes its own tariffs and can enter into contract arrangements with shippers.
3.4.2. Port of Montreal Railway

The Port of Montreal Railway has been operating since 1907. It is part of the port operations but runs as a separate profit centre with the goal of not having any deficit. It has approximately 100 kms of track interchanges with CN and CPR. It employs approximately 70-80 personnel. It does its own track maintenance and has a locomotive repair shop on its property.

The MPA believes that maintaining this service independent from commercial railroads makes the port user-friendlier. Furthermore it believes it allows shipping lines to migrate from one facility to another without rail service disruption. It feels this gives the port a competitive advantage when Montreal is considered for new lines service.

3.4.3. BCR Port Subdivision Ltd

The subdivision of the BCRC is a provincial crown corporation. Its owns a 38.6 km rail line extending from Pratt, BC in the interior BC Fraser Valley to Roberts Bank on the coast. Roberts Bank port is an artificial 100-hectare island that is connected to the Vancouver mainland by a 4.1 km causeway. It was originally built in 1969 as a coal terminal and is a critical component of the Port of Vancouver. In 1997 container facilities were added to the island.

BCRC owns the rail access to the bank and BCR Port Subdivision Ltd railway operates and maintains the rail line. The railway manages the CN, CPR and BNSF trains that deliver product to the facilities. The port subdivision maintains the tracks but does not operate the trains. Its mandate is to provide neutral rail access to the port terminals at Roberts Bank.

The Port Authority of Sept Iles is looking to set up a terminal railway similar to the Port of Montreal setup to provide service to its tenants.

4. SUMMARY

There are many models of port and terminal railways in existence today. Even though many were established over a hundred years ago the fact that they still exist today shows that they are successful in providing efficient use of capital assets and fulfill a need for the local economy. Some continue to provide low cost services to port/terminal users. They provide flexibility to all stakeholders including shipping lines and can be a competitive advantage for ports.

The success of these switching/terminal railroads in Canada and the US shows that similar operations could be effective in the Port of Vancouver and possibly benefit the entire port system.

Even though all three Class 1 railways own rail infrastructure in the port and all want a return on their investment there could be cost savings from a unified and coordinated approach to water/rail operations, which would improve each individual rail’s financial performance. Currently, in some of the terminal/port

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11 Port of Montreal - discussion with senior management
12 http://www.bcwetlands.com/newsletters/BBay_News/96_Fall/roberts-bank.html
13 Government of British Columbia
railway set ups in the US, CN or CP already participate in the model and continue to participate in support of efficient operations. With the predicted increase in traffic, all participants of the water/rail system must look at the whole system and not just individual pieces. Cooperation between all parties will lead to the maximum utilization of current infrastructure and efficiencies will be realized by all parties. A cooperative environment can lead to solutions that will address the issues of scarce resources and all participants, including local concerns, as well as large industrial parties.