Cross-Border Short Line Railroading

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Introduction

Discussion of short line railroads must first begin with the discussion of railroads in general. Railroads are not like most other industries. They differ in the way business is bought and sold, the way business is conducted, and the way money is made. Understanding railroading is difficult even for many people in the industry. However, this discussion will cover the basics of the industry.

Serial Nature of Operations

Railroads tracks and trains are not like roads and trucks. Trains and cars must be handled in a serial nature. Trains and cars ahead on a track must be handled before trains and cars behind. This may seem like a trivial point, but it makes railroad operations very difficult to manage.

Capital Intensive Industry

First and foremost it is important to remember that railroading of any type is a capital intensive industry. Capital tied up in track and structures cannot be moved to reflect changes in demand. This fact more than any other has propelled the creation of short-lines in the United States. Major U.S. railroads have shed duplicate or unneeded mainlines and feeder lines with little traffic. Often such lines have been shed in decent condition, thus permitting their use with minimal maintenance for quite some time (with deteriorating track conditions). In other instances, states or regional entities have purchased and/or maintained lines that they perceive are critical to local economic growth. While most short lines are able to function with track capable of only 25 mile per hour standards, the cost to completely rehabilitate track to class 4 standards (60 mph) is over a $1 million per mile of track excluding bridges and tunnels. Because of this railroads generate large fixed costs that are unrelated to the amount of traffic they handle.

Density

Like most service industries, railroads are unable to store their product for later sale. In addition to high fixed costs, railroads also have what economists call indivisible costs. The cost to run a train is relatively the same whether the train carries 20 or 120 cars. In order to have the lowest possible costs per car handled, a railroad must run many trains over existing tracks and these trains must carry many cars. Otherwise the total cost per car handled will be quite high. The term often used to describe this situation is economies of density. Carriers that have more business per lane will have lower costs. Such density is critical to railroads and is only available where large traffic flows exist. The other fact of this situation for railroads is that the additional (incremental) cost of handling an additional car is minimal so long as lines and trains have additional capacity. This situation can be both a blessing and a curse. A blessing, because railroads can compete with low cost competitors for additional capacity as long as additional capacity exists. It is a curse because one of the low cost competitors may be other railroads.

Density is why Los Angeles is the U.S. port with the most container traffic from Asia. Ships from Asia must already carry much traffic to the Los Angeles area due the large population residing there. The additional cost to handle extra containers to inland destinations is minimal and shippers can postpone final destinations for goods until after they arrive at the inbound port.

Physical Characteristics

The physical characteristics of railroad infrastructure make a big difference in what traffic can be handled and how much it costs to handle it. In particular, clearance (vertical and horizontal distance between tracks and wayside obstacles) determines what types of cars can be handled. The dominant way that railroads handle intermodal shipments is called doublestack where containers are stacked one atop the other to maximize the amount of containers handled in a single train. Older infrastructure rarely has enough clearance to handle doublestack trains due to tunnel and bridge clearances or trolley wires.

Because trains are heavy vehicles (up to and over 20,000 tons) line grade and curvature can greatly affect both train size, operating procedures and cost. Older lines are often incapable of carrying modern railcars due to their heavier weight. Older, lighter rails and older bridges are subject to failure under today's higher axle loadings. Finally, the mix of passenger and freight traffic can affect operations. Passenger trains are both faster and shorter than freight trains and make different demands in infrastructure for signal systems, passing sidings, and track condition.

Scale

While many short line railroads are very small and have low costs, most of railroading exhibits economies of scale (costs that decrease per unit as revenue increases). Several costs of running a railroad are fixed in nature (do not rise with more business) or decline per unit with larger purchases. The most obvious area of scale economies are information systems (including management systems, industry reporting systems, and government reporting systems). While

third party computer systems exist for short line operators, the larger railroads all have home grown systems that are built for their needs and cost less per car handled than third party systems.

Marketing

The buying and selling of rail freight is often controlled by larger rail customers and large railroads. Short lines usually provide either pickup or delivery function for larger railroads. As a result a short line might not be able to capture traffic even though it had lower costs than the alternative. The large railroad controlling the move will only use the short line if its use results in greater profit for the larger railroad. The advantage the short line railroads do have in marketing service is that they are able to respond quicker and more flexibly to customer requests.

Short Line Service and Cost Advantages

Short lines can better respond to customer requests because they are typically non-union and can tailor their operations to customer needs. Employees can be shifted easily to whatever job needs to be done whether it be brakeman, trackman, or mechanic. Locomotive requirements are usually light so used and low power locomotives can often be used at a lower cost than locomotives used by larger railroads. Short lines often operate at slower speeds and have less rigorous track maintenance requirements than larger railroads. This is why short lines can often profitably operate lines cast off from larger railroads.

Short Line Disadvantages

The main disadvantage for short lines results from their strength. Because of their lean management structure, they do not have the same resources and expertise available to larger railroads. Short line railroads must place greater reliance on consultants for expertise in technical areas. Limited resources are especially apparent in information systems, market analysis complying with all with regulations (often must use consultant), and capital formation.

Border Operations and Government

Interestingly cross border data reporting is an area where a short line railroad could be at a disadvantage. There is a significant administrative job of capturing customs data and forwarding it to the relevant agency. Sophisticated systems would be needed to communicate on a real time basis with customers, other railroads, and customs agencies. This is a level of complexity not seen in most short lines and most short line systems and would lead to increased information system costs, especially compared to larger railroads.

Second, customs inspections can add delays to movements similar to what trucks see at the border. High-density rail border crossings often have special systems for monitoring cross-border shipments (trains), but it is unclear how expeditiously customs would function for a new, low-density rail border crossing. This may be especially true for trains with multiple commodities from multiple shippers. On the other hand, border crossing shipments would not

be a problem to the extent that limited commodities are moved, shippers involved are few, and cars used do not lend themselves to smuggling.

Short Line Intermodal

One of the most successful short line intermodal operations is the Panama Canal Railway. It expedites containers between the Atlantic and Pacific Oceans for clients who want quicker transit (quicker than ocean). This railroad has two key attributes, density and cost competitiveness. It is partially owned by the Kansas City Southern Railway. One regional railroad, the Indiana Railroad, handles doublestack containers for the Canadian National Railway to Indianapolis from the West Coast through an interchange in Illinois. For both railroads, operating doublestack trains requires that the rail lines have sufficient clearance.

Historically railroads have carried intermodal shipments for longer hauls only (typically over 300 miles minimum), especially where trucks can be efficiently operated. This is because rail intermodal requires terminal handling and truck pickup or delivery at both ends. The cost of handling at both ends of the intermodal moves is greater than the savings for moving shipments over the railroad for shorter-haul shipments. This is partially outweighed for short line moves of longer distance shipments such as those handled by the Indiana Railroad where the short line move does not increase the terminal handling (replaces the location of the origin or destination terminal). However to compete for such shipments, the short line railroad must have rates that significantly beat the cost of truck movement from the existing rail ramp to the final destination (or from the origin to the major railroad terminal). Further, these rates must be high enough to pay for the fixed costs of infrastructure, the cost of operating trains, the cost of truck movements from the terminal to and from customers, and the costs of terminal operations.

Finished Auto Traffic

Finished automobile traffic presents three major challenges to short line carriers. First, clearance for enclosed multi-level auto cars is only slightly lower than that for doublestack cars. They do not fit into many tunnels, under many bridges, or under trolley wires. Second, car supply can be a problem. Any railroad participating in finished automobile moves is expected to provide railroad cars to cover its part of the total moves which is quite expensive. Third, contracts for moving automobiles are awarded to a single western carrier who then contracts with other carries to provide additional rail routes as needed. A single small railroad must negotiate with the larger railroad to obtain traffic rather than directly with the manufacturer.

Two questions for the situation here

What will it actually cost to rebuild and operate the railroad? This is not an easy question to answer and requires professionals to answer the question (a few of them listed below):

- Parsons Brinkerhoff
- RJ Corman Railroad Group
- RL Banks & Associates
- Railroad Development Corporation
- Ragner Benson
- Walsh
- Zeta Tech Consulting

Once the cost of opening and operating the line can be ascertained, the revenue potential of the line must be assessed. Here too, the study of revenue potential should be done by an outside entity and in conjunction with the connecting railroads (a few possible consultants listed below):

- Cambridge Systematics
- CDM Smith
- Halcrow
- Railroad Development Corporation
- RL Banks & Associates

I cannot stress enough the importance of knowing the costs of rehabilitation and market potential before rehabilitating a rail line. The minimum cost is over $1 million per mile not including any cost for bridges and tunnels. Further a realistic study of future traffic is also critical to planning what to do with any rail line.