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Short Line Railroading in the Northeastern United States: Its Relevance and Future in Connecting Industry to the North American Rail Network

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Short Line Railroading in the Northeastern United States: 
Its Relevance and Future in Connecting Industry to 
the North American Rail Network 

A Capstone Project Submitted in Partial Fulfillment of the Requirements of the Renée Crown University Honors Program at Syracuse University 

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Honors Capstone Project in Supply Chain Management 

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Abstract

Short line railroads are vital links in the North American rail network. To remain profitable and viable they must keep abreast of technological advancement and increase cooperation both amongst themselves and with large railroads. Short line railroads fulfill a need in the marketplace: efficiently distributing and collecting freight transferred locally, nationally, and abroad. Their health and success are a vital component to the continued economic viability of industry in the American northeast. This paper examines short line railroading in the northeastern United States and its relevance and future in connecting industry to the North American Rail Network.

To determine a quality background of the short line railroad industry, extensive research was conducted using a variety of sources. The author’s long time enthusiasm for and knowledge of the railroad industry aided in having a substantial understanding from the beginning. Armed with a decade long accumulated knowledge base allowed for immediate immersion, and knowledge gathering from industry magazines, trade journals, textbooks, databases, websites, insider PowerPoint presentations, and personal interviews with short line railroad executives expanded this knowledge base. Industry executive interviews provided pivot points for continued research, guiding the author further. Research confirmed again and again the importance of short line railroads to industry in the northeastern United States. Faced with road congestion, increased costs, and degraded service levels from large railroads, industry needs short lines to provide access to the North American Rail Network. It also distinctly outlined the importance of entrepreneurial spirit and creativity among short line operators as methods to continued growth.

The short line railroad industry materially contributes to the economy of the northeastern United States. Preservation of active freight moving companies is important to industry, and ultimately the public. Growth of short line railroads creates increased competition with trucking companies and provides shippers, even ones not located along a railroad, with alternatives to moving freight. Increased freight transportation efficiencies are important for industry, especially if competitors move to right-to-work states, or overseas, where labor costs are generally lower. The short line railroad industry is substantial and worth studying in an effort to sustain and grow the success. This research provides a clear purpose for local, state, and government funding, private investment, and public support for the continued short line railroad activity in the American northeast.
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Introduction

Short line railroads are vital links in the North American rail network. To remain profitable and viable they must keep abreast of technological advancement and increase cooperation amongst themselves and with large railroads. Short line railroads fulfill a need in the market place efficiently distributing and collecting freight transferred locally, nationally, and abroad. Their health and success are a vital component to continued economic viability of industry in the American northeast.

Short line railroads have existed since the first track was built. From the first time rails were laid on perpendicular crossties, the short line industry has connected shippers to receivers, villages to neighboring towns, towns to local cities, and local cities to the heart of American metropolises. All railroads start as a short line at the beginning of their development and while some short lines have grown up into far-flung continent-shrinking systems, they have not lost touch with the short lines and regionals from which they evolved.

The short lines of the 19th century were often financed locally, sometimes with additional government funds. They were small entrepreneurial endeavors focused on making their local region more economically efficient and attractive to investors. Locally owned and operated, they were mainstays of their region with towns and factories building around local routes. As time passed and traffic increased, the short lines with the best routes or the most shippers grew into regional railroads. Those regionals bought strategic short lines and merged with
other growing companies to become the ancestors of the big names of railroading of today (Coyle, Novack, Gibson, & Bardi, 2011).

Today’s short lines are different from those of the past. Short lines of the 21st century are more diverse, dynamic, creative, and entrepreneurially focused than ever before. Many are still privately owned, but increasingly, holding companies and rail operators seek to gain efficiencies and economies of scale by owning many short line railroads and are purchasing private lines. Other railroads lease their routes from state and county governments. Their routes and bridges were saved decades ago by forward thinking politicians with the hope of one day restoring rail access to their regions (Blanchard, 2003).

Despite the differences, northeastern short line railroads and regional railroads are all small businesses. They tend to maintain a small number of employees, many of whom wear multiple hats. A manager of a short line might be wearing a suit and tie for signing contracts in the morning and by lunchtime be in his steel-toed boots for a locomotive cab ride to a work site down the line. Like any small business, today’s short lines are proving themselves capable by remaining smart, aggressive, flexible, and service oriented in the global economy (Blanchard, 1995).

Short line railroading has markedly transformed since the first rails in North America were laid. Shippers have more options than ever before, including a multitude of small private trucking companies, Less-than-Truckload (LTL) carriers, truckload carriers (TL), private fleets, and leasing options, and thus it is becoming rare that an industry is captive to rail only. That is the reason the short
lines of the 21st century are investing increasingly larger shares of revenue into their infrastructure, freight cars, locomotives, technology, and signaling equipment. Currently, one-third of every dollar collected is returned to improve their facilities (Coyle, Novack, Gibson, & Bardi, 2011). Short line operators realize that to be competitive requires performance, timeliness, and customization previously unattained in freight railroading. Short line railroad marketers work hard for every carload of freight. Whether it is a one-car-once-a-month shipment or a 100-car unit train making rounds twice a day, short lines strive to make customers happy and take any business they can. As the ‘first-mile, last-mile’ of millions of carloads of freight every year, short lines’ actions have a huge impact on the quality of service offered by the North American rail network. With more than 19,500 employees, track in every state except Hawaii, and more than $3.5 billion in annual revenue, short lines are not an industry of the past. Instead they are forging ahead to make freight rail the best option for shippers both large and small (Coyle, Novack, Gibson, & Bardi, 2011, p. 198).

In this report, the aim was to demonstrate the importance of short line railroads in freight transportation, specifically the effect and importance of short line railroads in the northeastern United States. The movement of goods is vital to economic health and the public good. People in government need to know and understand the importance of short line railroading and the effects it has on their region. The routes trains travel, and the service provided are irreplaceable if lost, which require preservation and upkeep of the short line railroad industry to ensure
both healthy competition and a shipping alternative for people and businesses around the line.

The industry is currently under pressure from increasing competition with trucks and large railroads as well as from non-industrial development along routes. At the same time, short line railroads are in a position to fulfill niches in the rail freight network and provide top-notch service for their customers due to advances in technology. The inherent fuel efficiency of rail is also attracting shippers’ attention. Short line railroads are, and will continue to be, critical resources to maintain and protect.

This report will cover the creation of the modern short line railroad industry in four parts. First, understanding past growth and the extent to which the present situation provides a foundation that ensures potential for future growth. Past growth of the industry included both route mile expansion and carload increases. However, sources contend future growth will come less from track acquisitions and more from customer development spurring traffic growth to sustain and grow the industry.

Second, the companies, organizations, and governments that do not operate short lines, but have an impact on day-to-day operations is analyzed. An understanding of the outside forces and relationships involved in operating short line railroads helps to identify both the current status of the industry as well as threats and opportunities that have a profound impact.

Third, a detailed assessment of current efforts of short line operators to grow traffic volumes, attract customers, and explore opportunities to uncover
ways which railroads manage to keep growing. An better understanding of current methods, opportunities, and technology utilization in the industry helps to identify how short lines optimize their operations.

Fourth and finally, the report highlights threats and opportunities facing the short line railroad industry. Keeping short line railroads alive and healthy is vitally important to the continued economic health of the northeast. Identifying threats and opportunities from information gleaned throughout the report is important to operators, local, state, and federal governments, and the interested public to facilitate a better understanding of what must be done to preserve access to short line railroads, for the greater good.

Based on the findings of my research, I offer some conclusions Overall, the short line railroad industry is at a state of flux, transitioning from route mile growth to carload growth, and operator change, it is becoming more attract to take a private railroad into a holding company. These effects are important to monitor as the overall health of the short line railroad industry can impact industry environment across the northeast.
I. What is a Short Line Railroading?

Railroads in North America are divided into three classes. Short line railroads are part of the group known as Class III railroads, while regional railroads are categorized as Class II lines. Only five American based companies are known as Class I railroads: BNSF, CSX, Kansas City Southern, Norfolk Southern, and Union Pacific are the big players in American freight railroading. The Surface Transportation Board has determined the following rankings for railroads:

Class I: Carriers having annual carrier operating revenues of $359.6 million or more

Class II: Carriers having annual carrier operating revenues of less than $320 million but in excess of $40 million and or operating at least 350 route miles

Class III: Carriers having annual carrier operating revenues of less than $40 million

- Note: These dollar amounts move from year to year, based on inflation, and are approximate.

(Coyle, Novack, Gibson, & Bardi, 2011, p. 198).

For the purposes of this report the term ‘short line’ may apply to regional railroads and short line railroads concurrently. Though different in size and scope, Class II and Class III railroads share more in common with each other than either does with Class I railroads.

About 574 non-Class I railroad lines are currently in operation throughout the United States. These railroads participate in about 42% of all carload business
Short line railroads have been growing rapidly over the past three decades expanding from 8,000 miles of active rail line in 1980 to approximately 46,000 miles in 2010 (Blaszak, 2010, p. 31). This huge increase in mileage means short line railroads operate roughly 32% of the national rail mileage. Short lines operate in every state of the union except Hawaii and are present in 373 congressional districts (Betke, 2005, p.9). Class I railroads are keen to stay well connected with their short lines partners since 18-20% of Class I revenue originates through interchange with short lines. Interchange traffic makes its way to and from more than 13,000 facilities along short line railroads. With an average of 14 million carloads of freight moved per year, short lines are vitally important to the success of freight rail in the Unites States. Figure 1 presents a map of the short line railroads currently operating in the lower 48 states. A noticeable concentration of track is present in the northeastern states (Coyle, Novack, Gibson, & Bardi, 2011).

**How Modern Short Lines Were Created**

To gain a good understanding of the short line railroad landscape, a comprehensive consideration of their recent history is necessary. The story for most northeastern short lines starts with the formation of Conrail in 1976. Following the massive bankruptcy of the Penn Central Railroad and faced with additional looming Class I railroad bankruptcies, Congress passed the 4R Act and implemented a plan to consolidate the struggling Class I railroads in the east into a single government funded entity – Consolidated Rail Corporation, more commonly known as Conrail (Blaszak, 2010). The 4R Act required the
elimination of money losing railroad lines and marginal branch lines. Spinning off these lines is widely recognized as the beginning of the end for railroad regulation in the United States. As these lines were shed, entrepreneurs bought them with the goal of returning these railroads to profitable service. In some cases shippers along the lines were deeply involved in the acquisitions in order to preserve the ability to ship by rail. It was not realized at the time, but the government was enabling what some now call a “grand and perhaps unintended economic experiment” (Blaszak, 2010). Entrepreneurs and their customers had skin in the game. Unlike the executives and railroad managers of the failing Class I’s these lines spawned from, these business men and women stood to lose substantial sums of money and/or margins if the failure of just a few miles of line occurred. As a result, government reports, industry watchers, and even the general public began to notice an uptick in maintenance, service level, and customer attention. The experiment was paying off – entrepreneurs and shippers, with their livelihoods on the line, were beginning to turn forgotten and overgrown railroad lines into well-maintained corridors of commerce (Coyle, Novack, Gibson, & Bardi, 2011). Conrail benefitted from this set-up, able to concentrate on the line haul segments of a car’s journey, leaving the switching, sales, and often rate collection up to the young, rough, and tough short lines (Blaszak, 2010).

**Staggers Act and its Effects**

The railroad industry changed dramatically in October 1980 with the passing of the Staggers Rail Act of 1980 (Blaszak, 2010). The railroads were free
to compete, abandon lines, sell branches, merge, and make contracts in ways that had not been possible since the creation of the Interstate Commerce Commission (ICC) in the late 1800s. The Staggers Act broke the ICC’s hard line regulations and legalized secret transportation contracts (Coyle, Novack, Gibson, & Bardi, 2011). Up to that time, railroads were forced to publish their agreements and all agreements were to be determined based on rate bureaus. The rate bureaus’ power was also stripped with the passing of the Staggers Act. Imposing strict restrictions on how the railroads could apply rate bureaus and forbidding non-participating railroads from voting on through rates for competing lines forced the railroads to behave as true corporations. The act actually encouraged mergers and spin offs. The latter would be a boon for the young upstart short line railroad industry (Blaszak, 2010).

The parts of the Staggers Act most beneficial to small companies and railroad operators were the provisions stating strict timelines that the ICC had to abide by in mergers, acquisitions, line sales, and abandonments. At the time Union Pacific, one of the western Class I railroads, had spent eleven years gaining approval to buy the Rock Island railroad (Blaszak, 2010). Such long drawn out processes made acquisitions, and even more so, line sales/abandonments very unattractive. If a line is already losing money just by existing, no executive is going to initiate an ICC hearing to abandon or sell it only to watch the legal fees and lost employee time to exacerbate the losses. The Staggers Act helped to alleviate this and 1986 ICC rules would change the playing field even more as it allowed non-railroad owners to also be exempt from regulation. This change
opened up sales to holding companies, regular citizen entrepreneurs desiring to own their own railroad, and a multitude of other potential parties (Blaszak, 2010). Giving the railroads an additional exit strategy for unprofitable lines increased interest and, in turn, bids for ownership. Railroad companies began to spin off lines en masse. Relieving themselves of thousands of miles of branch lines, industrial spurs, and other sections of their properties that were unprofitable or demanding too much attention from maintenance crews allowed them to concentrate on their longer more profitable lines (Coyle, Novack, Gibson, & Bardi, 2011). With small business in charge of these lines the Class I’s stood to gain, earning money from traffic originated with their previously stagnant branches. An entrepreneur or investment holding group has much more interest in the success of the line as opposed to regional managers. Their personal investment in the now local short line railroads reassured industries that the operators would be focused on success. More importantly, new owners often brought on new employees who worked for less, were often non-union, and enjoyed less restrictive rules (Coyle, Novack, Gibson, & Bardi, 2011). Organized labor fought hard against many line sales for this reason. Short lines and regionals that bought the lines were then able to lower costs, improve service, and increase customers. When two-person train crews were approved in the early 1990’s many Class I’s re-purchased regional railroads that had been spun off. The reduction in train crews to a more modern level enabled the Class I’s to realize acceptable margins that just a few years prior had been unprofitable endeavors. Organized labor had fought to keep train crews at steam age era levels
despite advancements in locomotive technology and communications that reduced necessary train crews to two persons and, in some cases today, one person (Blaszak, 2010).

An important and often overlooked aspect of de-regulation is the way it blocked private investment from exercising much reward. Regulation of rates, and economic conditions in the late 70’s early 80’s only offered railroads a return on investment of 1%-2% (Blaszak, 2010, p. 29). This was a paltry level by current standards and even less so considering interest rates at the time. Railroads, despite their vast properties, revenue streams, and assets, had trouble getting loans from private investors – they simply were not competitive against other investments offering far greater returns at equal or less risk. De-registration allowed railroads to increase margins and offer greater returns on investment (Blaszak, 2010).

Entrepreneurial spirit is also at the heart of short line railroading success. Many of today’s short line owners can recall sitting around their kitchen table figuring out their first moves. Watco’s Dick Webb is one such example. In the March 2012 issue of Trains magazine, author Michael Blaszak describes the expansion of the Watco Company. Webb’s company was founded around his kitchen table in 1983 and he has grown his operation over the past 29 years. Watco is now a holding company operating 25 short lines and 24 terminal switching lines, with a total of 4,450 miles in operation (Blaszak, 2012, p. 8). Another example is Bob Bryant’s Buckingham Branch Railroad. In 1987 freshly retired railroad worker Bob Bryant approached his wife about purchasing a
railroad. With a 90-day signature note from their suburban Baltimore, Maryland local bank and a promise of 1,000 carloads a year from a local industry, CSX finance department approved the sale to the couple. They have grown their 17-mile short line that CSX Transportation initially said would surely fail into a 275-mile network with three divisions (Frailey, 2012, p. 43). The power and hard work of the entrepreneur is very apparent in the industry. Days off are rarely an option, and initially the owner is just as likely to be out clearing brush off the mainline as he/she is to be donning a suit and attending a financial meeting.

The customers of short line railroads are also responsible for the current healthy state of the industry. Working with new owners is not without challenges and risks, and promising annual carloads to a short line takes some guts and hard work. Customers are also driven to maintain their options (Coyle, Novack, Gibson, & Bardi, 2011). Converting to truck is not an option for some industries and others are reluctant to go without rail as a backup.

Short lines today are in good health, though the economic trough of 2008 and 2009 has taken a toll. In 2007 short line shipments peaked at 6.2 million carloads handled. In 2010 there was a drop of 19% from those 2007 numbers (Blanchard, 2011a, p. 39). Recent years have seen a dramatic shift in commodities shipped via short lines. The vast majority (87%) of traffic in 2010 consisted of four commodities: coal, chemicals, grain, and aggregates (crushed stone or sand). Each of these commodities lends itself well to rail transport, and short lines have exploited the rail advantage in securing a significant share of this business.
Short lines provide important economically strategic links throughout the country. Often operating over branches and mainlines abandoned or sold off by the bigger railroads, short lines keep rail access open for more customers than the Class I’s could economically handle (Coyle, Novack, Gibson, & Bardi, 2011). Short lines also excel at offering customized services such as transloading for off rail customers, and additional logistics services opposed to their big brothers. Transloading operations, available at almost every short line, enable customers without rail sidings to benefit from the cost and environmental efficiencies of rail. Railroads have built terminals with special truck-to-railcar platforms and equipment to quickly and efficiently leverage the best of both worlds (Short line of the quarter, 2012). While railroads can offer economies of scale and efficient transportation far exceeding trucks, it can only pick up and deliver where the rails run. Short lines can benefit tremendously by taking advantage of the go-anywhere abilities of truck transportation and can do so by delivering freight to local terminals for offloading to trucks for final delivery. This type of service is less attractive to Class I’s which excel on high-volume traffic, and scheduling of trains to make the most of their highly efficient routes (Coyle, Novack, Gibson, & Bardi, 2011). Short lines benefit by becoming the capillaries of the North American rail network arteries, carefully dividing and guiding long-distance freight to the closest possible location, with much more individual customer focus.

Short line railroads are vitally important to the health of the American rail network. They keep connections to distant corners of the country alive, maintain
healthy competition with trucks, and function as the local delivery service for the highly efficient Class I’s. This has not even taken into account the economic savings through decreased fuel usage and environmental benefits that are derived from rail transport. Rural communities are often the biggest beneficiaries of short line railroads. The small companies are more devoted to their areas than the large Class I railroads can be expected to be. Keeping a reliable connection to the outside and keeping the potential for high-density freight access alive has enabled many small towns to retain key local industries. Short lines service local employment anchors throughout the country. Without the connections short line rail offers these local anchors would lose competitiveness in the global economy. (Blanchard, 2011a)

**Ownership of Lines**

Short line and regional railroads are controlled by a diverse group of owners and operators. Owners may be publically traded companies, small businesses, family businesses, governments who lease to an operator, or any combination of these. It is becoming increasingly likely and attractive for short line owners to sell their lines to holding companies. Centralizing administrative and support personnel is helpful, but the holding companies also enable short lines to gain access to larger amounts of capital, maintenance equipment and improved leverage in negotiations with other railroads (Coyle, Novack, Gibson, & Bardi, 2011). In the United States three of those owner/operators are publically traded: Genesee & Wyoming Inc., RailAmerica, Inc., and Providence & Worcester Railroad Company.
i. Greenwich Connecticut based *Genesee & Wyoming Inc.* (ticker symbol: GWR) owns and operates 65 railroads and 17 ports across the globe enjoying a market cap above $2.25 billion. With railroads and ports in Australia, the Netherlands, Canada, and throughout the United States, G&W could be considered one of the first truly global short line railroad companies. The G&W started as a 14-mile short line railroad hauling salt and serving just one customer in upstate New York. In 1977 the founder’s great grandson purchased controlling interest in the line and entered car leasing and management. Following the passing of the Staggers Act in 1980, the company went on a buying spree and by 1996 had acquired eight additional railroads. Starting in the northeast and working westward, the former short line became a substantial holding company. Its most recent acquisitions were in 2011 of the Arizona Eastern Railway and close to its original rails, the Hilton & Albany Railroad (gwrr.com). The company’s stock has reflected its health, up 100% over five years between April 2007 - the peak of short line car traffic - and April 2012. Stock traded in the mid to high $50s during first calendar quarter 2012 (Genesee & Wyoming Inc.).

ii. *RailAmerica, Inc.* (ticker symbol: RA) owns 43 short lines with approximately 7,400 miles of rail in 27 states and a market cap of just over $1 billion. The company is based in Jacksonville Florida, but owns several northeastern short lines. Like the Genesee & Wyoming, RailAmerica is able to reduce redundancy, increase organization, and gain greater access to capital by combining multiple operations under one corporate flag. The company held its initial public offering in 2009 and the stock dropped significantly, but from
January 2010 to April 2012 the stock has increased close to 70% and surged more than 35% between early February 2012 and mid April 2012 alone. This short line holding company is a new player, but likely to grow quickly in the coming years. Its most recent acquisition was Marquette Rail in Missouri and RailAmerica is acquiring a majority interest the Wellsboro and Corning Railroad, in early February 2012. The 38 mile northeastern Wellsboro and Corning Railroad is in the heart of Marcellus Shale developments and RailAmerica anticipates rapid traffic growth along the line (RailAmerica, 2012).

iii. The final publically traded short line holds true to its roots, operating a continuous line through four states, Massachusetts, Rhode Island, Connecticut, and New York. The Providence & Worchester Railroad Company is based in Worcester Massachusetts. The company is focused on rail transport, but like many short lines provides third party logistics services as well. The company transported 35,852 carloads of freight in 2011 and handled 10,792 intermodal containers (pwrr.com). Its market cap is significantly lower than the two holding companies cited above and comes in at about $72 million. The company has offered a constant $0.04 dividend since August 2008. Down about 15 percent over the 5-year period April 2007 to April 2012, the stock is up about 40 percent from the period January 2010 to mid-April 2012.

Additional benefits from holding company ownership arise in legal and government funding situations. For example, government sponsorship of maintenance or infrastructure improvement work requires lengthy time studies, environmental impact analysis, and cost benefit analysis above and beyond the
typical project, but the infusion of cash can be very substantial. Holding companies let the railroaders in their locale concentrate on gaining customers and providing excellent service while central offices can handle the accounting, government applications, and much more. The increase in financial stability is vitally important to the survival of short line railroads. Without capital flows a railroad, especially small ones, withers quickly. Short lines are currently investing about one-third of every dollar in revenue into their systems (aslr.org). Disruptions such as natural disasters or massive derailments, particularly of hazardous materials, could spell the end of a capital strapped line.

There are drawbacks to holding company ownership mainly revolving around management communication and connection. In typical short line environments, management is very closely involved with the day-to-day operations of the line. Knowing and meeting customers in person, listening to the crew or even riding along on their routes, managers at small locally owned and controlled lines can better keep their fingers on the pulse of the line. As more short lines fall under holding company ownership, the risks of less personalized service, less communication between levels of employees, and less personal vested interest all become threats. While holding companies typically try to maintain day-to-day operation methods and management, the culture of the line can often be threatened. Keeping management boots on the ground is how many short lines turned long forgotten tracks into profitable freight lines – communication with everyone from the customer to the track gang kept these lines running smoothly, safely, and with quality.
Despite these risks, one holding company in eastern Pennsylvania has found a way to maintain highly customized quality service across 10 different line segments of which only two connect. Regional Rail LLC was formed in August 2007 (Short line of the quarter, 2012) to take control of un-connected lines throughout southeastern Pennsylvania. It started operations with 114 miles of track in Delaware and Pennsylvania. The company owns a fleet of 15 locomotives distributed across the line segments and moves a crew between segments by automobile. The crew can switch multiple line segments in a day, driving between each assignment. The company focused on improving its relationship with Norfolk Southern and now handles a wide variety of custom delivery for the Class I. In April 2009 Regional Rail LLC acquired the Middletown & New Jersey Railroad LLC. Running between Middletown, NY and Unionville, NY, the 14 mile Middletown and New Jersey (MNJ) had been sold to solid waste management company Chartwell for $2.2 million. Chartwell abandoned 7.5 miles of line and sold the rails for scrap (Maher, 2011). Planning to use the line to haul solid waste, the company was suddenly in limbo when local residents and the city council rejected the solid waste transfer station idea. Reduced to just a mile of track and its new owner wanting out, the MNJ was sold for $450,000 to Regional Rail LLC (Maher, 2011). Alfred Sauer, Vice President of Regional Rail LLC, described the decrepit condition of the line in an phone interview from his home office in Kennett Square, Pennsylvania. He explained that at the time of the sale the railroad had one full time employee, one part time helper, and was heating the engine house with sticks and dried brush collected
along the railroad, too poor even to pay for utilities. As for assets, the company had one ‘new’ former Amtrak locomotive and one customer who was receiving plastic styrofoam pellets. Within a week of taking control, Regional Rail went to work clearing 5 miles of overgrown vegetation and rebuilding multiple grade crossings that municipalities had paved over in the years of neglect at the MNJ. Regional Rail got creative, a necessary attribute in the short line business, and converted a former fertilizer plant into a transload facility. The plant had burned to the ground and been abandoned in the mid-1990s, but the railroad owned the land and track. Crews demolished the burned out shell and used the foundation of the fertilizer plant as the transfer dock for boxcars. This simple and inexpensive solution opened up rail transportation to local businesses with off-rail locations. The company then used the extra track that had been cleared to store three miles of railroad cars. Company leaders successfully turned the nearly abandoned dead-end line into a revenue stream in the midst of economic recession. Regional Rail LLC led the MNJ in an aggressive marketing campaign to area businesses. Many business owners and shipping managers did not even realize they could use the railroad (Maher, 2011). Less than a year after purchase, MNJ had secured contracts to haul containers of contaminated dirt out of the area for interchange to Norfolk Southern and receive in carloads of fertilizer and soda ash for transfer to trucks. The transfer facility now handles bulk food products, fresh onions, and potatoes in refrigerated cars. Regional Rail LLC has also unlocked $2.7 million in state money, granted originally to Chartwell, for infrastructure improvement projects. Projects include installation of 1.5 miles of 100 pound per yard rail, a
substantial upgrade from the dilapidated 70 and 80 pound rail, some of it original
to the line, installed new switches and ties, and made badly needed bridge repairs
(Maher, 2011). In 2010 the MNJ leased 34 miles of Norfolk Southern rail line
and an additional 5 miles of trackage rights on the Metro North Port Jervis line –
tripling the size of the MNJ and adding chemicals, paper, beer, lumber, and other
commodities to the freight handled by the line (Short line of the quarter, 2012).
This recent acquisition also connects the MNJ to the regional railroad New York
Susquehanna & Western Railway running between Syracuse, NY and North
Jersey ports. In just a few years’ time the railroad has gone from one customer on
a dilapidated line to more than 25 customers with a substantially improved
railroad, revenue streams, and satisfied customers. The best sign of satisfied
customers may be the locating of a brand new manufacturing facility along the
leased MNJ lines. Currently at the final land acquisition stage, the facility is
expected to start construction in May 2012, having been located specifically for
access to the MNJ short line railroad according to Sauer.

Regional Rail LLC has followed up this successful turnaround with the
purchase of Tyburn Railroad LLC in Morrisville Pennsylvania. The Tyburn yard
has been providing truck to rail transfer services and yard services for more than
20 years as a part of Conrail. Regional Rail LLC’s purchase of the Tyburn
Railroad also brought it access to a fleet of tractor-trailers, enabling greater
customer service opportunities. Currently the company is finalizing a deal to take
control of Conshohocken Recycling and Rail Transfer LLC. While not a rail
carrier, the CRRT has the capacity to handle 2,000 tons per day of construction
and demolition debris and is the only such rail transfer station in the Philadelphia metropolitan area. Regional Rail LLC is a successful holding company making strategic local acquisitions to bolster its strength and improves service levels on area short lines. Its hard work is paying off. Company revenues are up 300% in just 5 years, growing from $3.5 million at its formation in 2007 to $9.8 million in 2011. The core railroads of Regional Rail LLC have increased carloads as well, growing from 5,000 in 2007 to 6,800 in 2010 – a 35% increase (Short line of the quarter, 2012). A comparison of revenue and carload growth indicates the railroad is able to charge a higher rate for each carload as well. As a result of their success and increased traffic volumes, even in the face of an economic downturn, Norfolk Southern named them Short Line of the Quarter March 19, 2012.
II. Short Line Industry Interaction and Relationships With Outside Forces

Governing Bodies, Associations, and Advocacy Groups

Railroads in the United States are regulated by both government and industry organized bodies. These organizations function to bolster freight railroading in the United States and work to ensure fair rates, safety, standardization, and technological improvement among other things. The following five paragraphs detail selected important organizations:

i. The Federal Railroad Administration (FRA) was created in 1966 to create and enforce rail safety regulations. It is an agency under the United State Department of Transportation (USDOT) and is responsible for freight and passenger railroads throughout the United States. The FRA focuses on enforcement of rail safety regulations and research to further improve safety and efficiency of railroad transportation. One of its biggest projects has been working with both Amtrak (Class I) and some short line railroads to rehabilitate the Northeast Corridor. The corridor is the only location of high-speed rail currently in the United States and connects eastern seaboard cities over former freight railroad trackage converted for passenger uses. (FRA, 2012)

ii. The Surface Transportation Board (STB) was created by the Interstate Commerce Commission Termination Act of 1995. The STB functions as the successor to the ICC, but with very different objectives and methods.
The STB is mainly organized to operate as an economic regulatory agency. It is bipartisan, operationally independent of the FRA, and can make its own rulings. The STB works to solve issues that arise concerning railroad rates, service disputes, proposed mergers between railroads, line sales, line construction and line abandonments. Members of the board are appointed by the President, confirmed by the Senate, and serve 5 year terms. For short line railroads STB rulings and actions are very important and even slight policy changes can have a substantial impact. Line purchases and mergers must be approved by the STB, a common occurrence for many short line railroads. (STB, 2012)

iii. The industry formed Association of American Railroads (AAR) is involved in almost all aspects of freight railroading in the United States. The association is the face of freight railroads to the public creating many ads, commercials, and other promotions to bolster public opinion and customer awareness of the benefits of shipping by rail. It has created many recent public campaigns including freightrailworks.org, multiple social media groups, and even Twitter® feeds all focused on the benefits of freight railroads. AAR’s Twitter® feed is followed by more than 3,000 Twitter® handles and posts daily updates about freight railroading. One recent tweet™ read “You know what gets better #gas mileage than a #Prius? #Freightrail that’s what.” on April 10th, 2012.
Behind the scenes though, the AAR is hard at work making modern freight railroads efficient and safe. The association offers a lot to railroad members, hosting conferences, gathering supplier information, lobbying on behalf of freight rail in Washington D.C. and much more. The AAR can also function as a mediator between freight railroads, Amtrak, and elected officials – keeping industry disputes from requiring expensive STB or FRA intervention. Industry formed and operated, the association is home to two subsidiary companies: Transportation Technology Center Inc. and Railinc Corp. Transportation Technology Center Inc. is focused on testing and verifying technological improvements across all segments of railroading. From wheel designs, to bridge supports, to plastic railroad ties, to the chemicals used in locomotive cab toilets, the company tests, designs, and reports on all aspects of railroading. It features a world-class research, development, and testing facility for conducting testing and all railroads from Class I to the smallest Class III terminal line benefit from the advancements in railroad technology pioneered there. Railinc is the software focused subsidiary designing everything from efficient operating plans for complex Class I systems to working on locomotive engine control software that can benefit all railroads. Railinc is currently working on massive data systems to facilitate rapid car reporting for all railroads at all times which will bring railroads in line with other freight movement
systems as it applies to shipments details and knowledge. (Association of American Railroads, 2012)

iv. The American Short Line and Regional Railroad Association (ASLRRRA) functions much like the FRA, but with a focus on small railroads and their unique needs as opposed to the industry as a whole. Tracing its routes back to 1916, the year peak railroad mileage was achieved in the United States (254,000 miles of track); the association has a long history of serving the interests of its members (ASLRRRA, 2012). Currently the ASLRRRA represents the interests of all 565 small railroads throughout the United States and particularly those of its 450 members. While not all short lines are members, most join to reap the benefits of industry cooperation and knowledge sharing. Like the AAR, the ASLRRRA has a robust marketing campaign and social media presence, and is working hard to create awareness of the benefits of shipping by rail.

The association is divided into different groups of members with Railroad Members being the 450 short lines and regional railroads throughout the United States. Associate Business Members are suppliers of goods and services to the short line and regional railroad industry. Associate Railroad members are tourist, excursion, and transit lines. Associate Sustaining Members are companies and agencies working with or regulating short line railroads. These may include Class I railroads, state departments of transportation, shippers, and third party logistics
providers. Associate Switching Members are non-railroads focused on private industry tracks to provide switching services. The ASLRRRA works to keep all of these groups communicating and working together to bolster short line health.

The ASLRRRA provides a number of services to its members, offering inspections of property for safety, terrorism, and environmental concerns as well as training programs to implement, training seminars for railroad representatives, multi-day annual conferences and much more. The ASLRRRA is working to increase participation in its Project S.A.F.E. (Safety Assessment and Facilitates Evaluation). The program is offered to all short lines and for a nominal cost the association will perform assessments across a number of critical safety, procedural, operations, and property security factors. Short line railroads benefit tremendously from sharing data and knowledge, and membership in the ASLRRRA is one of the easiest opportunities for operators to take advantage of. (ASLRRRA, 2012)

v. CURE (Consumers United for Rail Equity) is an advocacy group pushing for a return to a more regulated railroad industry. The group is made up mostly of shippers and receivers seeking changes to federal law regarding railroads. CURE wants anti-trust exemptions for railroads repealed in order to facilitate better competition between railroads for shippers. The group claims 44% of all tonnage shipped by rail is ‘captive’
meaning it is unable to be moved by any means other than railroad line. These captive shippers often complain of unfair rates, but generally avoid pursuing STB complaint channels due to cost and a claimed tendency to side with the railroads. While there are situations regarding maximum allowed rates, shippers argue that competitors with access to multiple railroads gain favorable rates. Short line interests do align with CURE’s opposition to paper barriers. CURE argues that the existence of paper barriers enforced by a Class I upon a short line are damaging to the natural competiveness available. Paper barriers prevent short lines from interchanging with a competing Class I railroad even if they connect (detailed in the next section) (CURE, 2012).

**Relationships with Class I Railroads**

Short lines depend on the connections offered by their connecting railroads, and large Class I railroads enjoy the efficiencies and time savings from handing off trains to short lines for customized, local delivery. The relationship between Class I railroads and their connecting short lines are vitally important to the success of both (Blanchard, 2011a). Working together to get freight delivered promptly and efficiently enables both parties to provide a strong and valuable service to customers. Class I railroads use short lines as their local delivery service for an increasing portion of their carload service every year. As the large railroads focus on unit trains and intermodal freight, the delivery of carload freight to individual customers becomes financially less and less attractive (Coyle, Novack, Gibson, & Bardi, 2011). In turn, the large railroads enjoy a close
relationship with short lines to handle all of the marketing, shipment, delivery, and collection of rates regarding carload freight. In such a situation, a short line takes care of car acquisition, shipment arrangements, and contracts with the Class I to handle the freight. That freight is set out at an interchange track by the short line and the Class I delivers the carload to another short line at another interchange track somewhere on the line. The delivering short line takes control of the freight, works with the customer to arrange delivery, and handles or oversees all aspects of the unloading and rate collection. The participating Class I later receives a check for their portion of the movement. Shippers also prefer this type of situation since they benefit from the customized and customer focused pick-and-delivery of a short line while enjoying the speed and efficiency of modern Class I lines in car movement over a distance. Needless to say, not all movements are so ideal.

Class I railroads are currently in a tug of war with short lines to improve their car cycle times. Car cycle times, defined as the speed with which cars are returned to their home railroad, are becoming increasingly important for two reasons: Large railroads are investing less in replacements for general purpose freight cars while short lines are increasing demand, and knowledge of cycle times is easier than ever to obtain thanks to increases in information technology (Coyle, Novack, Gibson, & Bardi, 2011).

Short lines must increase their ability to turn around cars or risk losing relationships with the large railroads. According to Blanchard the ideal Class I and short line relationship is best described as, “a match-up that puts your
business model in line with theirs. Short lines that do not get on board with improving equipment cycle times will find the Class I marketing around them. If we want to expand our business, we'd better be in lockstep with their program, or they will turn their attention somewhere else.” (2006b, p. 2). Large railroads realize the needed improvement in car cycle times to increase their asset utilization. Keeping cars moving is vitally important to improving asset utilization numbers and has a direct impact on the bottom line a railroad. Taking one day out of cycle times can add 1,000 cars to a fleet. Short lines will continue to feel the pressure from Class I railroads on car cycle times. Class I railroads realize the importance of this because for them increasing turn around has long been a part of increasing their profitability. On some lines, for instance, adding just 1mph of velocity throughout the line can add 200 locomotives to the available pool (Blanchard, 2006b, p.2). That means big savings for a Class I railroad.

Short line operators must keep aware of potential savings and push for increases in efficiency proactively. Roy Blanchard wrote one such example in a 2006 issue of Railway Age. A short line railroad studied their system and wanted to consolidate five separate interchanges into one with a Class I railroad. The Class I resisted this change and continued with the service as is. The short line realized that to get its point across it would need to prove the cost savings potential to the Class I. During no two days in a row did the Class I interchange take place anywhere close to the same time at the five separate interchanges, the time that cars sat waiting for pick up quickly grew. Consequently the short line railroad recorded everything – date, hour, number of cars, etc., on the interchange
for 10 months compiling more than enough data to make a compelling presentation. The short line determined that the cars were costing $0.70 an hour in car hire charges when they were sitting. The line then calculated the hours of variance from the standard hour and determined the inefficiency was costing the Class I close to $750,000 a year in unnecessary car-hire costs. With this information in hand the short line presented to the Class I railroad to consolidate the interchanges and tighten down interchange times. Within six weeks of this information reaching high-level managers in the Class I railroad, the multiple inefficient interchanges were reduced to one. Blanchard reports that there continue to be thousands of inefficient interchange points between short lines and Class I railroads in need of such attention. Reducing car-hire costs benefits all parties by increasing car utilization and decreasing the time cars are running empty. Cooperation is the key to fixing this issue and with modern information technology keeping better tabs on all cars at all times, the data is there for short lines and Class I’s to make the necessary changes.

Relationship issues between Class I’s, short lines, and shippers can quickly grow over Interline Settlement System (ISS) disputes (Blanchard, 2006b, p.3). The ISS is designed to divide up a rate among participating railroads based on divisions. It is up to the delivering railroad to collect the freight charges and settle with the other carriers involved with the move. Increasingly such collection is up to short line railroads as Class I’s divest themselves of carload freight and switching whenever possible. Problems arise when a participating railroad believes they deserve a higher percentage of the rate. An increase for one party
means other parties must relinquish portions of their collection. Particular issues arise when previously confidential divisions become public and freight buyers attempt to negotiate down short line rates based on the distance from a Class I interchange. This presents a particular problem to short lines as their main revenue source comes from such moves. Short lines naturally incur a higher cost per mile moved as they must sort freight shipments, deal with customers, switch out customer tracks, and increasingly offer a more customized service (Blanchard, 2006b).

To help alleviate the ISS issue, AAR’s Railinc Committee on Interline Service Management has developed a web-based central repository for the rail industry. Working to increase usage, Railinc aims to prevent confusion and disagreement regarding the ISS through use of their Interline Service Agreements (ISA) Repository (Transportation Management, 2012). The service enables all parties involved to use the same ISA version, measurement criteria, and performance measures. Short lines would be well advised to take advantage of the Railinc system.

Paper barriers are a very controversial topic in the rail industry. To get a full grasp on the issue an understanding of a railroad’s history is important. As rail lines and track segments were sold to new owners, larger railroads focused on reducing their costs. By transferring ownership to a third-party the railroad has divested itself of expensive to maintain and upgrade infrastructure and old cranky locomotives and rolling stock. However, the large railroads were not interested in letting new operators freely turn their operations into competing lines or, worse,
send traffic to already existing Class I competitors through alternate interchanges. As a result, short line owners were almost always required to sign contractual agreements with the selling or leasing railroad to send all existing traffic over their railroad. While often not an issue for the tiniest short lines, many medium and larger lines have connections with several different railroads and the restrictions have proven more problematic due to their additional outside connection (Massa, 2002).

This issue attracts a lot of attention not only from the short line operators, who dislike the constraints, but also shippers who contend that a clear and easy access to additional competition for their movements is blocked by unfair contracts. Paper barriers effectively work to hold shippers captive on a particular Class I line despite the fact that the Class I no longer owns the line and the new owner has the ability to interchange with one or more other railroads. CURE has been particularly vocal about paper barriers and increased agitation from short lines has made favorable rulings much more common. The Railway Industry Agreement (RIA), which aims “to promote a stronger rail industry”, focused on weakening paper barriers. The RIA announced that paper barriers “should not restrict the short line’s ability to develop new traffic with another carrier if the selling or leasing large railroad cannot or will not participate in the ‘new traffic’” (Blanchard, 2006a, p. 1). Large railroads holding the paper barrier naturally exercised their contracts as much as possible.

The STB determined that business-to-business relationships should be worked out among parties not involved with the STB, essentially stating that it
will not get involved with paper barriers. As a result the Railway Industry Working Group (RIWG) was created “to address all policy aspects and issues relating to the application and effect of [the RIA]” (Blanchard, 2006a, p. 2). The term ‘new traffic’ was a particular issue as different interpretations led it to mean everything from a new product to a new building to a new industry. Some particularly strict Class I lawyers argued that even if an industry was not served by rail at the time of sale, but was merely located along the tracks it does not qualify as ‘new traffic’ even if a new siding is constructed to access that customer. RIA clarifications state that ‘new traffic’ means it was not moving by rail at the time of transaction and the ‘new traffic’ does not unreasonably impact the large railroad in a negative way. In continuing statements the RIA says “If the requested access or routing helps the connecting short line and does not harm the large railroad, then the request should be approved, as it will improve shipper rail service while strengthening the rail industry.” (Blanchard, 2006a, p. 2). CURE has been especially supportive of the RIA and seeks to further empower the agreement, but most short lines, the RIWG, and especially the large railroads are not in favor of going so far. The RIWG has been a short line advocate and generally ruled in favor of short lines in regards to enforcement of paper barriers. A Railway Age article excerpt below sums up the paper barrier situation, and the professional way to handle it; as well as issues regarding fairness of application:

“Livonia, Avon & Lakeville chairman Gene Blabey wrote recently in Railway Age [Oct. 2005, p. 10] that ‘without interchange barriers, most lease or line sale transactions would not see the light of day.’ And while
paper barriers serve a purpose in protecting the incumbent's interests, they can cause problems. ‘For example, a short line may have a golden opportunity to handle new business to a destination that its primary interchange partner cannot serve,’ he says. ‘Must the short line tell the prospective shipper, ‘Call a trucker?’ Since railroads share a common goal-taking business off the highways—that response should not be an option.’

The solution is really in how one approaches a competitive situation for new business. The wrong way is to ask the incumbent for a rate and then shop that rate against the competing Class I. The right way, according to one short liner who’s been around this track a few times, is to ask the shipper what he needs from the railroads to make the move work, take it to the incumbent, and see if it flies. If it doesn't, ask to pitch the competitor…

…A veteran short line marketer who began as a Class I market manager says, ‘Paper barriers prevent us from doing what makes sense in terms of customer economics and improved railroad asset management.’ He says they've been able to break down paper barriers for lumber and paper more readily than for chemicals over the same gateways.

Part of the problem may be the turnover rate among market managers. If it's high, the institutional knowledge of the RIA rules leaves with the manager and doesn't stay with the job. And there are signs that others may simply see the RIA as constraining and the short line group is unwilling or unable to run interference. All the short liners contacted for
this article agree the paper barrier experience among the Class I's has been uneven--even within an individual Class I’ (Blanchard, 2006a, p. 3).

Shipper involvement is a big part of breaking down paper barriers. In Blanchard’s Railway Age article he mentions a chemical shipper, along a short line, whose new truck-only terminal gained access to several Class I railroads because it was the only way they would build a rail siding. As he states “This is what the RIA is all about: to improve short line competitiveness for new traffic, not to introduce new competition for traffic already moving by rail” (Blanchard, 2006a, p. 2).

Competition between short line railroads and Class I’s is more prevalent in the western areas of the country as opposed to the northeast though Marcellus shale opportunities in the Pennsylvania and New York region have likely made some Class I’s take pause on their past line sales. In North Dakota Class I BNSF leased 134 miles of rail to Watco Cos that it saw as having little importance to its network. Watco created a short line, the Yellowstone Valley Railroad, to operate the line, then came the Bakken oil field boom on the western side of the state. The short line had hit pay dirt, literally, and benefitted wildly from the boom. After Musket Corp announced construction of an oil-loading station for unit trains at Dore, North Dakota, BNSF stepped in and invoked a clause in the contract allowing it to renegotiate the deal. The young Yellowstone Valley Railroad now cedes all crude oil business, a boom industry in the region, to BNSF, as well as all business over 43 miles of track connecting the terminal to BNSF mainline
trackage through Montana (Frailey, 2012b). Northeastern routes need to heed the recent deals taking place in the northern plains and apply that knowledge to Marcellus Shale opportunities. While the Bakken oil field boom is well outside the geographic northeastern United States, its effects are far reaching. Much of the oil is being shipped via rail starts on short lines and is handed off to BNSF or Canadian Pacific railroad to be dragged to the northeast. BNSF hands off their unit trains in Chicago to Norfolk Southern for delivery to New Jersey ports, while Canadian Pacific takes their unit trains through Canada and terminates in Albany, NY. These shipments make sense to oil producers as their crude can fetch as much as $16 more per barrel in eastern cities as opposed to the Cushing, Oklahoma price where most pipelines terminate. That difference makes up for the $7-$10 per barrel in rail shipment costs (Frailey, 2012b, p.40). Short lines in the northeast may or may not get a piece of the action. However, Class I’s will likely keep this oil business in the northeast for decades to come because it fits well into the very efficient unit train strategy of large railroads. As long as oil prices stay high and pipelines are not built into the Northeast, not a politically savvy move, oil will continue to be transported by rail to east coast refineries or ports.

Short lines not only interact with freight railroads, but several also maintain relationships with Amtrak and other regional mass transportation entities. Amtrak operates its equipment and scheduled trains over a variety of short line trackage. In fact 500 miles of Amtrak’s 21,000-mile system are over non-Class I railroads (Betke, 2005, p. 9). The Providence and Worchester
Railroad, for example, serves customers via trackage rights on the high-speed Northeast corridor. Most short lines interact with Amtrak through use of their rails for long distance trains. The Vermont Rail System, consisting of five railroads in the state of Vermont, is one such example. Amtrak has stepped up its commitment to improve service quality across the board and is enjoying the highest passenger numbers in its history. As a result, short lines’ often sub-par track has become a focus of Amtrak scrutiny. The Vermont Rail System was served with a contract violation notice, citing the mounting delay for passengers on the Ethan Allen Express route due mainly to poor tack conditions. Amtrak and Vermont state transportation officials put pressure on the Vermont Rail System to make necessary repairs. The railroad committed $750,000 to the project (Vermont Rail, 2012). With completion of the one-year project in late 2011 the Vermont Rail System went from Amtrak’s worst performer to a top performer. Repairs and improved track decreased travel time for the Ethan Allen Express by 15 minutes southbound and 25 minutes northbound. In addition, lateness dropped a dramatic 99%. In December 2010 the Ethan Allen Express was a combined 11,068 minutes late. December 2011, after the track rebuild, combined minutes late totaled just 135 minutes. The end of 2011 also saw a 10% increase in ridership over the route (Vermont Rail, 2012). The relationship between Amtrak and the Vermont Rail System improved dramatically once the railroad sought state help in devising a plan and acted on the plan in a timely manner.

Cooperation is key to increased profits and freight rail usage. In the mid to late 2000’s Pan Am Railways partnered with Norfolk Southern to create a new
entity, Pan Am Southern, to be evenly held by both railroads. In Trains magazine, Fred Frailey (2012, p. 15) discusses the difference three years and $38 million can do. Pan Am Railways, based in North Billerica, Massachusetts, is the Northeast’s largest regional railroad with 2,000 route miles. In the deal with Norfolk Southern, Pan Am transferred 155 miles of mainline and 281 miles of secondary and branch lines (including trackage rights) to the new company (Patriot Corridor, n.d.). Norfolk Southern contributed $140 million. The project is a vital link in Norfolk Southern’s ‘Patriot Corridor’. Wick Moorman, Norfolk Southern’s chief executive officer expounds on expected benefits for the company: “The Patriot Corridor creates a new level of rail competition in upstate New York and New England by improving train speed, reliability, and capacity, as well as strengthening connections between the region’s short line and regional railroads and Norfolk Southern’s 22-state network.” (Pan Am Railways and Norfolk Southern, 2008, p. 1).

In addition the Pan Am Railway, the Providence and Worchester Railroad, New England Central, and the Vermont Railroad all stand to benefit from the increased traffic. Norfolk Southern is partnering with the short lines and regionals to gain access to the Boston market, where CSX is currently the only Class I. Norfolk Southern expects to invest $87.5 million over the next 3 years, focusing on infrastructure improvement (Pan Am Southern and Norfolk Southern, 2008). The improvements will make the Pan Am Southern railroad fully capable of handling modern 286,000-pound cars and improve speeds along the line. The effects are already noticeable. In 2009 the average track speed was 10 mph with a
typical run taking 12 hours. After the Norfolk Southern deal to improve track between Mechanicville, NY and Ayer, MA, track speeds have greatly improved. In early 2012 the line average was up to 40 mph after $38 million in improvements. Run time has been reduced to 5-7 hours, fitting inside one crew shift, a critical point in reducing labor costs (Frailey, 2012a).

Intermodal containers will be the mainstay of the railroad. Part of the money Norfolk Southern put up to start the Pan Am Southern has gone to the construction of a new intermodal terminal in Mechanicville, NY. The new terminal will avoid the congested Canadian Pacific Mohawk yard interchange. The container terminal also allows the loading of auto-rack cars and double stack containers to be shipped from Chicago.

The Pan Am Railway, along with the rails and other infrastructure, included historic Hoosac Tunnel in the Pan Am Southern deal, along with the rails and other infrastructure. The 4.75 mile long tunnel was completed in 1875 after a tumultuous construction period costing more than 25 years and 195 lives (Frailey, 2012a). The historic tunnel now presents a problem to modern sized equipment. Double stack containers cannot fit through the tunnel. Construction of the terminal in Mechanicville, NY facilitates the additional required step of removing of the top layer of intermodal containers to permit movement through the tunnel, known in the industry as being ‘filleted’. The process requires packing the train in Chicago in a very controlled and organized manner, but it allows the Pan Am Southern to run intermodal trains through the Hoosac tunnel and reach connecting short lines and terminals in the Boston area. On return trips the train
again stops in Mechanicville to be ‘toupeed’: adding a top layer of containers for continued travel to Chicago. The State of Massachusetts approved a $2 million engineering study on raising the ceiling of the 4.75-mile long tunnel and 18 other locations along the line to allow double stack intermodal trains to pass (Anderson, 2012).

Double stacking the train will provide necessary capacity gains. When asked about the partnership with Norfolk Southern, Pan Am president David Fink replied that a “sold out” sign had been raised in Ayer Massachusetts. Train lengths have hit maximum length, easily topping 10,000 feet on each run. For 2012 the companies have begun running separate auto-rack and intermodal trains to increase capacity.

Relationships between Class I railroads and short lines are vital. Cooperation is natural and necessary for the rail industry where lines connect and no single United States railroad is transcontinental. Building those relationships on a constructive and open framework is what is necessary for the continued growth of freight rail. Short lines can aggressively market their services and improve their performance to the highest levels, but they will always need partnerships with Class I railroads and other short lines to get the job done. Class I’s are depending more and more on the ability of short lines to provide the services in which the big lines cannot economically compete. Modern technology and communication channels enable tight integration between railroads. Moreover, short lines and Class I railroads can become tighter partners by realizing how powerful their system is, in combination. Recently, Norfolk
Southern Manager for Short line Marketing Chris Spiceland discussed the growth of short lines in year-over-year traffic growth. He described something called the ‘short line multiplier’ (Blanchard, 2011b). Norfolk Southern affiliated short lines cover 18,000 route miles, while Norfolk Southern operates over 21,000 miles. Together they make a 39,000-mile system with short lines making up 46% of it (Blanchard, 2011b). The ‘short line multiplier’ is an incredibly valuable asset for all class I railroads.

**Weathering the 2000’s**

Short lines are typically more susceptible to economic pull back and recessions. Often dependent upon only a handful of customers and always at a shortage of capital, short lines have struggled during many recession periods. While the 2000s may have been the same for some lines, many short line railroads actually experienced an increase in traffic volumes during the more recent economic decline starting in 2007/2008. Coming out of the recession, short lines have experienced faster increase in carload traffic than their Class I partners or competitors. By the 3rd quarter of 2011 RMI’s RailConnect Index indicated short lines were experiencing year-to-date carloads up 7% while AAR’s Class I figures indicated a 2% gain over the same period. Short lines benefit from focusing on the carload sector. Hauling carload loads such as coal, corn, ethanol, and coiled steel, short lines enjoy freight movements that are not as susceptible to recession as intermodal or trucking freight (Blanchard, 2011b).

Short lines are paid by the carload, if carload numbers drop so do profits. Eighty-seven per cent of short line traffic in 2010 consisted of four commodities:
coal, chemicals, grain, and aggregates. Aggregates shipments have increased sharply in the northeast and North Dakota regions of the United States as hydraulic fracturing operations in those regions increased drilling. The massive amount of sand needed to ‘frack’ and keep open wells in those locations is highly suited for rail transport in covered hoppers by the carload.

In Trains magazine’s June 2011 issue which focuses on the short line railroad focused issue, author Roy Blanchard discussed short line’s ability to stay relevant in the so-called ‘great recession’. Blanchard notes:

“…smart short lines have distinguished themselves in new business development, finding market niches, and becoming the retail arms of their connecting Class I railroads. ‘There’s a recession out there?’ quipped one Northeastern short line chief mechanical officer. His railroad has over the years morphed into a regional hauler of outbound feed corn, inbound refrigerants for area food-grade warehouses, propane for residential heating, and outbound drilling sand destined for Pennsylvania’s booming Marcellus Shale gas field. All it took was being visible and ready with solutions to transportation needs” (p. 40).

Blanchard, while positive about short line economics and strengths goes on to warn of the looming consolidation of short line systems, especially in the shadow of ‘right-to-work’ laws. Regarding the shift, Blanchard, less optimistically, says:

“Railroad customers continue to move out of the Northeast and rust-belt states to Texas, Georgia, the Carolinas, and other states where
‘right-to-work’ laws prevail and the local tax burden is less onerous. The number of individual short line operators will diminish over time.

Even in the states with more favorable economic environments, struggling short lines are ripe for takeover…experts like Ellis [a railroad holding company president] will acquire those railroads with potential and the rest will be left to wither and die. The total number of fallen flag short lines, both from bad economies and bad management, could be in the hundreds before the decade is out.

The likelihood of any new short lines arising from former Class I branch line sales or leases grows smaller every day. In late 2010, for example, rail unions challenged two such proposed transfers from Norfolk Southern to local operators. According to their Surface Transportation Board filings, these transactions ‘will harm the interests of railroad employees, and will have an anticompetitive effect’

Even though the record favors the short line in each of these areas, the union challenges remain and the STB must consider them, delaying the process and adding expense to the transaction. Abandonment may well become the preferred alternative to short line railroading” (p. 43).

Short lines behaved differently during this recession as well. In past economic downturns were met with decreases in reinvestment, deferred maintenance, and other such damaging activities. Benefiting from increased traffic during the 2007 peak carload year, short lines invested more into their
facilities as economic activity decreased during this latest recession. The Federal Railroad Administration (FRA) rates track conditions and allowed maximum speeds. When track conditions are allowed to deteriorate to the FRA’s minimum, ‘excepted-track’ level service quality along the route rapidly diminishes. Maximum speeds are set to 10 mph with no more than five hazardous cargo cars permitted in any one movement (Frailey, 2012a). Slow speeds decrease the lines volume capability and less frequent slow service then leads to dissatisfied customers. While deferred maintenance preserves capital in the near term, long term effects can be far more damaging. Like most industries, labor expenses on the railroad add up quickly. With FRA ‘excepted track’ rating and a 10 mph speed limit, a 50-mile run, typical of many short lines, takes a crew at least 5 hours precluding the same crew from returning to the point of origin in one typical workday. With FRA ‘Class 2 Track’, speeds can be raised to 25 mph. On such a line the typical 50-mile move takes 2 hours, enabling a single crew to complete their duties and get back to origin within a normal workday. On all railroads, crews remaining on the line due to time limits are cabbed back to their home location either by railroad owned vans or contracted local cab companies. Neither option is cheap. But maintaining track is not cheap either. Keeping a railroad at FRA Class 2 level track requires, typically, $5,000 per mile per year. For a 50-mile line that’s a $250,000 yearly capital expense (Blanchard, 2011a, p. 41). Government assistance is available in the 45G tax credit and will be explored further in the following section.
Surviving economic recession requires short lines to work even harder for their carload freight, keep current customers happy and competitive in their markets, and to achieve that, keeping service quality high. Short lines are no stranger to recessions and industry downturns; modern short line railroading is alive because of the railroad industry’s dire health in the 1970s. Marketing director of Central Pennsylvania’s Lycoming Valley Railroad sums up his railroad’s experience with the recession, and gives some great advice for other lines to follow:

“While the Marcellus Shale has had a tremendous impact on us, it ended up in 2010 as only 17 percent of the company’s overall business. The rest comes from beating the bushes, knowing our local service area well, having excellent dialog with our connecting Class I railroads, and gaining the support of the local governments we touch” (Blanchard, 2011, p. 43).

**Government Support and Issues**

Governments local, state, and national, have long been involved with short line railroads. From the beginning of railroading local and state governments were involved, promoting the construction of railroads to facilitate economic growth in their region. Railroads offered an efficient connection to the outside world, and enabled businesses and manufacturers to locate where they wished, freeing employers from crowded ports and limited property adjacent to waterways. The national government got involved as railroads grew and expended well beyond the borders of counties and states from which they
originated. Forward thinking governments of the current era realize the economic benefits that rail connections offer their residents.

The three states in the northeast lacking a Class I railroad (Vermont, New Hampshire, and Maine) each recognized the importance of railroading to their local economies. These states purchased and still own vast segments of their local rail infrastructure, leasing out operations to private companies. The state of Maine owns 300 miles of its 1,100 miles of railroad (Blanchard, 2003). Maine has a program called the “Three Rail Carrier Strategy” and evenly splits costs of capital improvements with the three railroads operating within the state. The three railroads: Pan Am Railways, St. Lawrence & Atlantic (a Genesee and Wyoming owned line), and the Montreal, Maine & Atlantic (owned by holding company RailWorld) have all been awarded funding for improving their rail assets. These have included $500,000 for two paper company track improvement projects, $250,000 for team track/truck transfer facilities for local food related industries, and $343,000 for an expanded rail/truck facility (Blanchard, 2003, p. 3).

The State of Vermont has also invested in its rail infrastructure. The state owns 400 of the 800 miles of railroad inside its borders. Two hundred fifty miles of that is active with the remaining ‘banked’ as trails. Laws across the country allow for the conversion of rail-trails back into active rail lines should the need arise (Blanchard, 2003). Such ‘banked’ lines typically have a thin layer of asphalt on top of the existing embankments, though some trails are just simple dirt paths. States see the situation as a win-win, since the little used lines are now accessible
to be enjoyed by the public, while remaining protected from development to allow re-activation of the route (however unlikely) if it were to be needed.

New Hampshire also owns about half of the 400 miles of track it governs. Short lines in the state have enjoyed an increase of about 25% over the freight tonnage of the mid-1990s (Blanchard, 2003). These three northeastern states are the poster children for what is possible. The close-knit cooperation among the regional and short line railroads of the area keep service alive, and the governmental support allows service to improve. According to Roy Blanchard, these hardscrabble lines prove the strength of cooperation:

“The pieces are all there: a growing traffic base, state governments that believe in railroads, and rail operators who are more serious about growing the business than protecting their respective turfs. If it can be done in the hardscrabble climes of northern New England, it can be done anywhere” (Blanchard, 2003, p. 65).

The federal government has also increased support of short line railroads. Talk to almost any railroad operator today and you’ll hear mention of the 45G credit. Named after its provision in the tax code, the credit is an inventive way to keep track in good repair. The 45G tax credit reimburses the participant for up to half of the actual expense per track mile – up to $3,500. The credit can be applied to track maintenance and qualifying upgrades, roadbeds, bridges, and other related railroad structures. The credit is designed to increase short line railroad reinvestment. It also creatively gets around the common issue where small
railroads do not create enough income to take advantage of a tax credit (Vercollone, 2005, p. 35).

If a railroad is not earning enough income to take full advantage of the 45G credit it can assign credit to a customer or a supplier. The supplier is defined as one “who furnishes railroad-related property or services” (Vercollone, 2005, p. 34). Customers can claim the credit, using it against their own tax bill while reimbursing the short line railroad in cash. This is very attractive to large customers. Their cash goes toward improving the line that serves them as opposed to their federal tax bill. The 45G credit has been vital in getting short line railroads in line with modern 286,000 pound carload requirements. The 286,000-pound car standard is now practically required to be competitive for Class I interchange and to attract rail customers (Coyle, Novack, Gibson, & Bardi, 2011, p. 206).

The 45G credit expired on December 31st, 2011, (Short line tax credit extension, 2012) but the ASLRRRA is currently working to extend the credit through 2017. In order to prevent abuse of the system from Class I’s spinning off mileage to take advantage of the 45G, the federal government specified that only lines in existence prior to December 31, 2004 could apply the 45G. If the credit is extended, the ASLRRRA hopes to help lines created since 2005 take advantage of the large savings. Railroads across the country have made use of the 45G and railroads and customers have already felt its positive effects. Short lines stand to gain from further lobbying for progressive, smart tax policies such as the 45G. The public benefits include increased safety from new or reconstructed trackage
and through better service level for shippers along the line. Railroad shippers
tend to be large ‘anchor employers’ in the regions short lines reach.

Another federal stimulus for railroads, part of which is specifically
targeted at short line railroads, is the Railroad Rehabilitation & Improvement
Financing (RRIF) Program. The RRIF provides direct federal loans and loan
guarantees to finance development of railroad infrastructure. Created by the
Transportation Equity Act for the 21st Century, the program authorizes the FRA
Administrator to provide loan and loan guarantees to a maximum of $35 billion.
Seven billion dollars, more than two years’ worth of short line industry revenues,
is reserved for non-Class I railroads. The loans can be used for a variety of
purposes according the FRA website (Railroad Rehabilitation, 2012):

- Acquire, improve, or rehabilitate intermodal or rail equipment, facilities,
  including track, components of track, bridges, yards, buildings and shops
- Refinance outstanding debt incurred for the purposes listed above
- Develop or establish new intermodal or railroad facilities
- Available to: railroads, state and local governments, government-
sponsored authorities and corporations, joint ventures that include at least
one railroad, and limited option freight shippers who intend to construct a
new rail connection.

The loans are quite attractive compared to commercial ones, and able to fund
100% of a railroad project, and repayment periods of up to 35 years available.
Interest rates are to be equal to the government’s cost of borrowing. As of April,
2012 only 32 railroads are reported to have taken advantage of the program since

Government requirements for technological improvement are the next major hurdle for short lines. From emissions to Positive Train Control, the costs are staggering. Government rules regarding railroad emissions are starting to filter down from the Class I lines to regionals and short lines as well. The US Environmental Protection agency imposed regulations on production and overhauled locomotives starting with what was called Tier 0 in 1972. Locomotives built or overhauled between 2002-2004 had to meet Tier 1 standards, and locomotives built between 2005 and the end of 2011 were required to meet Tier 2 standards. Tier 3 is now in effect and requires a 50% reduction of acceptable particulate matter. Tier 3 locomotives are allowed to emit no more than 0.1 grams of particulate matter per horsepower hour, and no more than 5.5 g/bhp-hr nitrogen oxide levels (Locomotive Emission Standards, 2010).

Short lines are not only pressured by the emissions regulations, but also by fuel costs. Increased efficiency lowers operating costs and also complies with federal law. The path to a more efficient railroad is not cheap, however. Federal and state governments have provided incentives for short line railroads to adopt new technology such as GenSet locomotives, which operate with multiple smaller engines as opposed to one large engine. GenSets will be discussed in a later section.
III. Industry Health and Current Status

Attracting customers – Short Lines do it Best

Short lines are well aware of their important role in the rail network. Class I’s partner with short lines to get access to carload traffic, and customers enjoy short lines for the customized services they can provide. As a result, short lines are often the best in the railroad industry at attracting and keeping customers. Short lines marketing staffs must be acutely aware of the business geography in an area to fully realize the potential traffic numbers a short line can achieve.

Management interest in the day-to-day operations of a business almost always creates a favorable customer experience. From the local dry-cleaner to a locally owned restaurant, customers often speak volumes of the accountability and responsiveness of a business when the owner/operator is on site, on call, and ready to help customers get the most from their business. This is no different in the railroad industry. To understand how this applies even more so in the intense short line business, a reference to an article published in the mid-1990s in Railway Age magazine will be helpful. The article discusses when railroad management need to remove their ‘ice-cream shoes’. The term is credited to Central Railroad of Indiana engineman Darwin ‘Dead-Eye’ Fisher. Fisher looked over his new boss’s tassel loafers, the first day the new general manager was on the job, and asked him “You’re not going to try to run this railroad wearing those ice cream shoes, are you?” The term stuck in railroad circles. Management of a short line railroad need their ‘ice cream shoes’ for attracting customers, attending
formal meetings, signing contracts, and the like, but managers also must keep their boots at the ready. Roy Blanchard (1995, p. 14) remarks, “…the best short line managers always have their well-broken-in [FRA] Approved Shoes in their cars.”

Keeping the boots on the ground is vital to attracting business. Short lines often call it ‘beating the bushes’, but looking for every additional carload of freight is important to the profitability of every line. To gain business requires a quick mind and good understanding of how customers, or potential customers, operate. Riding the rails can reveal that customers might seek a more timely service, or that they could use delivered rail cars as inventory control for their operations. Freight will always by the method of lowest ultimate cost. So while a short line might be able to beat a truck on movement price, it ultimately comes down to the cost the manufacturer incurs getting their freight into their operating flow. Short lines’ ability to customize their services for customers means that they can often fit customer’s needs and schedules very well; even better than trucks sometimes. Getting boots on the ground lets managers get a good grasp on the condition of their railroad. What crewmembers might have become accustomed to and neglected to report could be impacting the bottom line, customer satisfaction, or both. This includes things like a widened rail in a siding that could cause a derailment, guards at manufacturing facilities not opening gates in a timely manner for the midnight crew, or even a soft track bed along the line. These kind of issues can cost lives, money, and time; every lost minute erodes the profitability of the operation.
Management meeting with customers while on the rails can improve a railroad’s image of commitment. The word of the executive in their ‘ice cream shoes’ will carry over into real world operations. Being on the ground, gaining a real understanding of a customer’s needs can drive carload numbers. Take the following account:

“For example, we found a liquid sweetener user that used 4,000 gallons a week and could store 12,000 gallons. He was trucking it in 4,000 gallons at a time for $3,000 a truckload. Now, one railcar holds 16,000 gallons--and we found that, by using the railroad asset more productively, our user could bring in one car every four weeks, pump off 4,000 gallons the first week and empty the rest into his tanks and release the empty for reloading. The car would be back at the end of four weeks to begin the cycle anew. Because of the economies of rail, our user is now paying $9,000 for sweetener that used to cost him $12,000--in other words, he's getting every fourth truck-load-equivalent for free.

As a matter of fact, that's how we sold it--buy three, get one free. Of course, logistics managers aren't accustomed to managing their businesses the way they manage their grocery shopping. Buy three, get one free isn't part of their office vocabulary. It's up to us as vendors to open new eyes” (Blanchard, 1995, p. 14).

Besides the obvious customization short lines can provide on railroad movements, short lines also are increasingly diversifying their operations to offer
competitive all inclusive services. Many short lines now offer warehousing services, distribution center services, and other Third-Party-Logistics Provider (3PL) type services. Short lines can attract customers with team tracks and truck-to-rail transfer stations close to customer locations. Keeping truck routes short and direct, and rail-routes as long as possible shippers can realize increased savings, creating more demand for freight rail.

Class I railroads increasingly identify short lines as their associate retail/marketing departments. An example of this is the “Empire Link” the name applied to an ASLRRA initiative in the combination of Class I, Class II, and Class III railroads in New York State to utilize excess capacity along Norfolk Southern’s “Southern Tier” line. According to presentation slides provided by Jim Howarth, the New York, Susquehanna, & Western VP of Business Development, the concept was first discussed in February 2008. The concept was simple: rising truck costs create a greater opportunity for short haul moves. Short lines could do what they do best and sell excess Norfolk Southern capacity on the ‘Southern Tier’ line. Target date for launch was set for June 2008. The Empire Link allowed short lines to exchange traffic with Norfolk Southern along the southern tier as long as it originated and terminated in the region. The relationship aimed to allow short lines to identify short-haul opportunities that were currently moving by truck, and market themselves for that business. Norfolk Southern, with its substantial resources, would supply the necessary equipment for the move and hold revenue factors fixed to allow short lines to quickly and easily respond to rate requests. Short lines, by participating, agreed
to a fixed joint line rate (Robinson, McCarren, Howarth, & Smith, 2009). In a personal interview conducted at the railroad headquarters in Cooperstown, New York on June 28th, 2011, Howarth described how exactly the Empire Link offers short lines a whole host of important opportunities: truck competitive rates, speed to market, improved knowledge of the regional transportation needs, additional rail business to be shared, and free Norfolk Southern resources.

The Empire Link is a perfect example of what is possible with cooperation between railroads to leverage what short lines do best – attract customers. The recession took its toll on the fresh initiative, but it still reported success. Industry numbers reveal that by October 2009 the Empire Link had secured 1,220 cars (500 rock salt, 300 brine water, 240 pulpboard, and 180 of steel) (Robinson, McCarren, Howarth, & Smith, 2009). Short lines and Norfolk Southern also identified potential for 2,390 cars. There is substantial growth potential for asphalt moves in the region, both new and recycled. The Finger Lakes Railway (FLR), a small but mighty spinoff from Conrail and a member of the Empire Link group, is another poster child for short line success. Running west out of Syracuse along the top of the Finger Lakes in central New York, the FLR has grown year after year. Despite paralleling the CSX I-90 corridor line, the railway has turned its branch into a profitable line. Yet another example of how lines that lose money for less involved Class I’s can be winners under new, focused, and invested managements. Figure 2 is a slide pulled from the Finger Lakes Railway 2011 Freight Service Guide for potential customers. In the graph, improvement in services since the sale by Conrail, in July 1995, is evident (Finger Lakes Railway,
In e-mail exchanges with Jan McNeal, Vice President – Marketing and Sales, she made mention of the tremendous customer growth along the line over the past 3 years, growing from 60 to over 80 cars in that brief span of time, and the data backs this up.

**Rail and Energy Efficiency**

Fuel consumption, carbon footprint, air pollution, smog, traffic congestion, and hundreds of other buzz terms and negative statements about the United States’ transportation problems exist. Railroads can help alleviate almost all of them. Short lines provide a particularly important link in the proverbial jigsaw puzzle. They offer the ability to attract new and offline customers to the most efficient form of freight transport in ways that Class I’s cannot apply the time and attention to. Recently the AAR and FRA have been marketing and touting the efficiencies of railroad transportation to the general public in an effort to increase awareness for railroading. That increased awareness serves to get business owners, shippers, and voters to consider how freight rail affects the products they use on an everyday basis. The campaign strongly emphasizes the fuel efficiencies of rail, drilling home the basics of rail efficiency. Railroads can transport one ton of freight 436 miles on a single gallon of diesel fuel – a staggeringly high number that is actually true (Timmons, 2009, p. 3). The American Short Line and Regional Railroad Association (ASLRRA) provides marketing information for short line to distribute to customers and the general public to encourage rail usage. One freight car carries the equivalent of four trucks in a single move meaning that one rail car can take four tractor-trailers off
the road, helping to relieve highway congestion and improve motorist safety. The ASLRRA estimates that short lines take the equivalent of nearly 33 million truckloads off the nations’ highways every year. This reduces highway repair costs, pollution, and increases safety. Railroads consume almost a third less fuel than trucks per ton-mile moved. This represents a substantial reduction in emissions and more important to most customers a substantial decrease in fuel costs. The reduction in pollution is also substantial and railroads are working, by complying with the EPA’s tier standards, to reduce emissions or particulate matter by 90% and nitrogen oxide by 80% in the near term (Locomotive Emission Standards, 2010).

Fuel savings come from a variety of factors. One of the main means of fuel savings is steel wheels on steel rails which create a substantially lower friction coefficient, meaning trains, once moving, require less energy to keep at speed compared to trucks. One set of fully functioning auxiliary electronics and only one cab to air-condition for a whole train also increase efficiencies over trucks. The natural linear configuration of a train keeps air resistance negligible at low speed and only a slight concern at speeds over 30-40 mph; though air resistance will vary based on the type and variety of cars in a train. While these efficiencies are great, there are weaknesses such as curves and grades creating additional friction and drag. Railroad wheel sets are solid, meaning the inner wheel has to slip when going around curves and wheel flanges rub more the tighter the degree curve is. Grades of 1% are considered steep, but common in mountainous areas, and require about 25 times the tractive effort to move an
equivalent amount of freight at the same speed when compared to flat and level track. Acceleration increases lose efficiency. Big trains can take several minutes to get up to an acceptable track speed (Republic Locomotive, 2012).

The systems inside freight locomotives are very efficient, though. Diesel-Electric locomotives operate by making their own electricity onboard and transmitting that to electric traction motors to propel locomotives forward. While trucks rely on the direct conversion of diesel engine power to spin a transmission to spin the wheels, locomotives use a diesel engine to drive a generator, or alternator, to create an electric current to turn traction motors with gear sets bolted directly to the axle they drive, which spins the wheels. This is important to understand for how railroads can reduce their fuel consumption. Data from 2004, a time of relative economic health and before the implementation of the much stricter EPA rules, provides a glimpse of the efficiency of rail, even before many lines had started to pay extra attention to their usage. According to freightrailworks.org, short lines moved 10.6 million carloads of freight that year, consuming 184 million gallons of fuel. An equivalent in trucks would have burned 540 million gallons of diesel fuel. Current advertisement from freightrailworks.org, shown in figure 3, is one of many highlighting the efficiency of rail. This kind of advertisement aids short lines in their marketing for new customers. Decreases CO2 emissions are an environmental bonus and a bottom line booster since it indicates less fuel burned.

There are many ways to conserve fuel. The easiest and cheapest is to limit idle time at all points in the system. This typically means shutting down
locomotives for extended downtimes. It can also mean sizing trains and properly allocating only the exact amount of motive power required. Short lines, as additional used locomotives come onto the market, can look to increase the horsepower of their typical road units which means they can cut down the number of locomotives needed per movement. This solution though, needs to be carefully considered as excess horsepower on light trains only wastes more fuel.

Companies must do the math and ensure they are getting optimal equipment for their operations. Purchasing for the busiest week of the year wastes money and fuel the remaining 51 weeks. Locomotives set for rebuild are prime targets to gain better fuel economy. During major rebuild locomotives are required to increase their EPA tier rating and improve fuel economy. Short lines with the capital to afford it would be wise to gain as much fuel economy as possible on each of the rebuilds, as the coming decade fuel prices will likely cut down the pay-back-period immensely.

Short lines are using innovative solutions to cut down on fuel usage. The first are ‘GenSet’ locomotives. GenSet - short for ‘generator set’ - are locomotives containing multiple, often two or three, small diesel engines and generator sets. Computer systems inside the locomotives constantly measure required power and deliver it as needed by switching on and off engine-generator sets as additional horsepower or tractive effort is required. By replacing one large diesel engine and generator with several small ones fuel savings become instantly apparent.
Genesee & Wyoming Inc. has been a pioneer of the GenSet locomotive. While expensive (a new GenSet locomotive is roughly six times as expensive as a traditional diesel in rebuilt condition) the company is committed to reducing its emissions, reducing fuel usage to save money, and lowering the cost of GenSet construction. The company has worked hard to get public funding from local and state governments for each of its short lines implementing the GenSet program. The Genesee and Wyoming Inc. relates how the have worked to implement the program successfully.

“By utilizing off-the-shelf components in kit form and its own workforce, GWI is completely rebuilding older yard locomotives into “new” GenSet locomotives. These rebuilt units are 30%-40% less expensive than a newly purchased GenSet locomotive. The GWI in-house rebuild program reduces the cost of a GenSet locomotive to the point that a public–private partnership becomes an economically viable means to introduce this technology to its short line freight railroads.

In 2010, GWI's Buffalo & Pittsburgh Railroad commissioned GenSet locomotives 1400 and 1401, built via public-private partnership with the Southwest Pennsylvania Commission (SPC) and the Pennsylvania Department of Transportation. In early 2011, GWI's Ohio Central Railroad commissioned GenSet locomotive 1402, built via public-private partnership with Ohio Rail Development Commission, Ohio Department of Development and the U.S. Department of Transportation.
Even with public funding that recognizes the environmental benefits to the local area, the projects would not have been possible without the technical capabilities and ingenuity of the railroad employees who took previously retired, 1950s-vintage locomotives down to their frames and transformed them into state-of-art GenSets in their own locomotive shops in Brookville, Pennsylvania and Morgan Run, Ohio” (GenSet Locomotives, 2012).

By using existing locomotives as the basis for new GenSets GWI has found a way to economically justify the capital outlay. In the long run GWI’s railroad will make back that outlay in fuel savings, especially if oil prices continue to rise.

Some GenSets are now coming with batteries installed as well, these are often referred to as hybrid locomotives. The engine-generator set left on during brief idles or breaks in operation uses excess time/energy, which would otherwise go to waste, to recharge batteries. Energy reclaimed from regenerative breaking is also redirected into the batteries, much like automobile hybrid systems. The batteries then dispense their charge when additional power is needed, such as during acceleration, and delay the start-up of additional engine-generator sets. These hyper efficient locomotives are even more expensive than typical GenSets and so have not seen widespread adoption, even by Class I railroads.

In 2010, two U.S. short lines introduced their version of another take on hybrid locomotives. The Iowa Northern and the Aberdeen, Carolina and Western Railways both created what is known as ‘road slugs’. Trains magazine author David Lustig reports that while ‘road slugs’ are not new to the railroad industry,
they are experiencing an increase in interest and usage, among both short lines and Class I railroads. ‘Road slugs’ are locomotives that have been stripped of their diesel engines, blowers, compressors, and other such equipment. The ‘road slugs’, unlike ‘yard slugs’ retain their cabs and fully operational control systems. To operate, the ‘road slug’ is mated to a standard diesel locomotive, with the diesel generating enough electricity to power both its own locomotive and the road slugs’ traction motors. Crews reportedly enjoy road slugs since the locomotives have lead or concrete ballast in place of their diesel engine, so are smoother and quieter to operate on the railroad. The advantage of a road slug is the addition of tractive effort. For routes where pulling power is more important than speed this can mean big fuel savings (Lustig, 2010c, p.22).

The concept is simple. Adding horsepower to a train allows the same train to go faster, while adding tractive effort aids slow moving trains, particularly on hilly routes. On hilly or curvy routes horsepower goes to waste, so the added horsepower serves only to require additional fuel to keep the diesel engine turning. Iowa Northern President Dan Sabin said that the road slugs his company built “…will allow us to run the same trains, but with less fuel” (Lustig, 2010c, p. 22). This is the goal of every short line executive.

Expect to see more implementation of road slugs, particularly on regional railroads with slow moving drags. Coal roads seem like the ideal application of the road slug. Northeastern railroad’s often hilly and curvy trackage is perfectly suited for the gain in tractive effort while sacrificing horsepower. Conversions will likely become more popular as prime movers (the diesel engine in
locomotives) come up for rebuild or are in need of being upgraded to comply with EPA Tier 3 emissions laws. Instead of paying for the rebuild, railroads will likely be inclined to seek public funding for conversion of the locomotive into a zero-fuel, zero-emissions road slug. The Iowa Northern converted its road slugs under a federal stimulus grant of $308,800 through the EPA. Reduced maintenance costs also make road slugs more attractive. Norfolk Southern’s Assistant Vice President – Mechanical, Don Graab, explained to Lustig that typically his company’s road slugs require maintenance only on their traction motors, brakes, and wheelsets, as opposed to the long list of components and oils need for a diesel engine maintenance program.

Railroads stand to gain a lot from higher fuel prices. No matter what level fuel prices hit, freight will have to move. While dramatic increases harm economic function and railroad utilization, the slow and steady climb is predictable and inevitable. Railroads can further their efficiency advantage by keeping up with technological improvements. Railroads help their bottom line and their customers with high efficiency. Customers with lower shipping costs can compete better in their own industry and in time grow their operation and shipment levels. Squeezing out every cost in the short haul market will continue to make short lines more attractive as an alternative to trucks and therefore expanding the potential market even for small lines. From simple rebuild improvements to state of the art hybrid-GenSets there are a number of options for short lines to use to their advantage and reduce fuel consumption.
Short-Haul Opportunities

As fuel prices rise, short lines become even more attractive for short-haul shipments. These shipments, generally considered 500 miles or less, have long been the domain of truckers, especially with the completion of the interstate highway system. Conditions are changing and aligning more in favor of short lines on short-haul routes. The trucking industry is being hurt by a variety of factors including fuel costs, a shortage of drivers, and hours of service regulations. Trucking lobbyists fought hard for an increase in acceptable maximum weight from 80,000 pounds to 97,000 pounds, but were rebuffed by a congressional requirement to complete a comprehensive 3-year study instead (Phillips, 2012, p. 8).

Short lines in the Northeast are particularly well positioned to gain short haul movements from trucks. Highway congestion is rapidly putting substantial additional costs on shipping via truck. The metropolitan areas of the east coast have extensive but congested freeway systems while the short line railroads that surround them have capacity to fill. Traffic congestion and backups cost not only labor time and fuel, but also timeliness and predictable equipment turnaround. Toll costs are also a concern. Tolls are rising (Pennsylvania Turnpike recently increased tolls) and attempting to avoid toll roads can add to time and fuel costs. At a recent presentation by Thomas Ringwood, National Account Executive at New England Motor Freight, the issue of toll increases was high on the list of threats to the trucking industry. Ringwood cited several examples, among them the increased tolls along the Pennsylvania Turnpike. According to his numbers, a
truck entering the turnpike in Pittsburgh and heading 300 miles to the east
meeting up with the New Jersey Turnpike currently pays $137.40 in cash. If the
trucking company has equipped its fleet with E-ZPass that toll total is reduced to
$128.63. Tolls are set to increase along the route and soon the cash total will be
$151.15 (Ringwood, 2012). In addition to tolls, Ringwood explained the issues
his company is having with congestion. He specifically cited lost labor
productivity, wasted fuel, and wear and tear on equipment. Ringwood personally
e-mailed the slide images, shown in figure 4, from a presentation by Bill Graves
of the American Trucking Association to demonstrate the increasing threat
congestion poses to trucking (Graves). The large red lines represent severe
congestion. Note the concentration increase in the northeastern United States.

Initiatives like the ‘Empire Link’ and ‘Patriot Corridor’ are excellent
examples of how short lines and Class I’s can work together to solve highway
congestion issues in the northeast utilizing the most efficient form of ground
freight transportation. Government programs to help short lines improve their
services are growing. This trend can actually save state and local government’s
money. Nationwide the ASLRRA estimates that short lines save $1.4 billion in
highway repair costs every year. The more freight that moves on private high
load capacity rails, the less damage is done to public highways and roads.

Safety of trucks is also an increasing issue. While the trucking industry
has improved driver training and is keeping better care of equipment than ever
before, the size of trucks still poses a hazard to motorists. This size difference is
even more noticeable as fuel prices rise and compact cars become the norm.
Local and state governments are also keenly aware of the dangers of hazardous materials moving by highway. Short lines with quality service and good FRA track ratings are primed for hazardous load movements. Public safety is improved with railroads handling movement of hazardous goods with less chance for accidents and often-greater distance between the public and railroad tracks as opposed to roads. Trucking companies already have a shortage of qualified drivers for hazardous loads.

Short haul opportunities go far beyond what can move in tank cars. Short hauls, anything moving less than 500 miles, are perfect fits for setting up backhauls as well. Railroads, obviously, only want to haul loaded cars on every train. The more empty cars moving around the higher unnecessary fuel, sorting, and wear and tear costs become. A backhaul enables returning cars to be loaded with material. For intermodal containers coming from China, shippers will load as much grain and scrap metal into containers as possible to at least obtain some revenue for shipping the containers back. Short lines must stay creative in looking for potential backhaul movements. Again, remaining knowledgeable about a region’s industry, customer processes, and service needs are vital to winning the business.

Two northeastern railroads have created the ideal backhaul situation. Southern New Jersey’s Winchester & Western Railroad and Pennsylvania based Reading Blue Mountain and Northern have partnered with Norfolk Southern to create what Railway Age calls a ‘Backhaul Bonanza’. Southeastern Pennsylvania rich with natural stone, while New Jersey is known for its plentiful sand deposits.
The construction aggregates had been traveling via truck, across the Delaware River bridges and winding through area highways. Highways around Philadelphia, like most metropolitan areas, are almost perpetually congested, particularly at rush hour.

Construction sand for use in concrete is shipped out of Newport, NJ on the Winchester & Western Railroad transferring to the Reading Blue Mountain & Northern Railroad in Pennsylvania ending the trip at Berks Products in Leesport, PA. Berks Products unloads the sand and at the same siding reloads the gondolas with crushed limestone produced on-site. The cars then make the return trip to New Jersey via the same two short lines and are unloaded at the Bridgeton stone depot for distribution to local asphalt and ready-mix plants. The cars move a short 25 miles to the south and are reloaded with sand at Newport, NJ for a repeat of the cycle.

The move is a model for short haul success. The cars move loaded both ways, traveling over one Class III line (Winchester & Western), one Class II line (Reading Blue Mountain & Northern), one Class I line (Norfolk Southern) and the Conrail Shared Assets Corporation. (Note: Conrail was split up and sold to CSX and Norfolk Southern in the late 1990’s, but several areas could not be equally divided. So Conrail remains in existence as the Conrail Shared Assets Corp. to facilitate the operations on mile shared between CSX and Norfolk Southern). Conrail picks up the train from the Winchester & Western in Millville and expedites the train through its yard in Camden, NJ. In some cases, Conrail has reduced dwell time to less than three hours before Norfolk Southern picks it up.
Norfolk Southern serves as the bridge between the two short lines, picking up full trains in New Jersey and taking them over the Delaware River to the Reading Blue Mountain & Northern.

The two short lines and Norfolk Southern worked together to demonstrate to customers that possibility of moving their materials by rail. Trucks were already making the trips loaded both ways and customers had to be convinced rail equipment could serve their needs. The move, about 100 miles each way, required addition planning and operations adjustments as well including getting rail cars underway to the next stop as soon as they were unloaded, just as trucks would. The short lines worked with the customer to ensure train lengths fit sidings, and tested various equipment types to determine the best and most efficient for the job. The result has been a great opportunity for two short lines and the connecting Class I. The move is efficient and less expensive than trucks for the customers. The operation also takes 7,000 truckloads a year of heavy sand and stone off already congested highways in Pennsylvania and Southern New Jersey, improving safety, air quality, and road conditions (“Backhaul Bonanza,” 2002).

Backhauls are the best way to make the most profit in short hauls, but competing against trucks on their home-turf takes creativity and knowledge. Trucks enjoy a substantial advantage in the under 500-mile realm. Implementing a short haul program successfully increases revenue in areas where customers might not even consider rail an option. Short hauls and backhauls will become
increasingly attractive to shippers as truck freight costs rise. To compete, short
lines must keep their systems in optimal shape and always seek new efficiencies.

**Energy Industry – Current and Future Opportunities**

Oil products have moved by rail in the Northeast since the discovery of oil
in the Pennsylvania oil fields in the 1800s. Today natural gas concerns, oil
companies, and even the wind farm industry are all big shippers on the railroad.
Natural gas, touted as fuel of the future, is making waves among short lines in the
northeast.

Natural gas deposits in the Marcellus Shale under Pennsylvania and
southern New York State have long been known, but uneconomical to access.
Recent advancements in drilling technology have enabled economical
construction of wells through the use of hydraulic fracturing. ‘Fracking’ as it has
come to be known requires a large amount of granular sand, steel piping, and
chemicals. Short lines in the Marcellus Shale region have been enjoying a recent
boom in activity on their lines. Drillers ship in large quantities of sand from
Midwestern states, and steel pipe and chemicals from various locations. The
loads are typically shipped as close to the drilling site as possible and off loaded
to trucks for the final short delivery to the wellhead. The Marcellus Shale is
reportedly the largest on-shore natural gas reserve in the world (Marcellus Shale
Coalition, 2012). Opportunities for short lines post drilling are relatively limited
though since natural gas moves by pipeline to the customer. Once Pennsylvania
wells have been completed, short lines will have limited business from the
industry and so should not expect continued capacity constraints. New York,
however, has put in place a drilling moratorium as it conducts further review of
the effects of fracking for natural gas. If that moratorium is lifted many New
York short lines and regional railroads will benefit. The New York Susquehanna
& Western Railway, running from northern New Jersey to Syracuse, NY has
already created a plan to deliver sand and other aggregates, so they can be ready
for when drilling resumes.

Crude oil drilling in the northeast is rare in modern times, but crude oil is
still shipped through the area, most often now from the North Dakota region and
potentially from Alberta oil sands crude in the next several years. Short lines
around the country serve as pipeline head aggregators delivering oil to the storage
facilities where pipelines originate. As mentioned earlier in this report, Canadian
Pacific and Norfolk Southern both bring in unit trains of crude for sale along the
eastern seaboard. Short line potential for crude is limited, but possible in the
coming years.

Wind energy is a growing source of green energy in the United States.
Movement and construction of the turbines is the result of large-scale supply
chain and logistics planning. Several short lines across the country are a part of
wind turbine construction. Railroads are well suited to transporting the massive
and heavy parts required for wind farm construction. Turbines are expensive as
well, $2-3 million each, thus rail, with assured clearances and safety, is an easier
sell to insurance companies. Wind turbines are a growing freight movement,
particularly with short lines. The ability to get turbines into the field as close to
the site as possible is important to developers. Some short lines, with limited
traffic, have even worked with turbine farmers to create temporary offload sites next to the mainline. Trains park on the mainline and unload to specialized trucks for the final few miles to the construction site. John Giles, RailAmerica President and CEO, is particularly proud of his short line’s entrance into the wind turbine transportation business. He gives two reasons for this:

“First it shows that short line railroads are fully capable of providing the service and capital investment needed to accommodate large companies with specialized transportation needs and to do so in a seamless fashion with our Class I partners. Second, it puts focus on the short line industry's inherent geographical advantage. More and more companies are building significant manufacturing facilities in less densely populated areas where short lines are the only connection to the national railroad network” (Timmons, 2006, p. 50).

Between wind farms, natural gas, and crude oil, short lines are finding themselves at the heart of the American energy industry. While the opportunities will likely not provide sustained traffic, with the exception of some crude oil customers, they are none-the-less opportunities. Short lines fortunate enough to find themselves geographically positioned to take advantage of one or more of these energy plays should develop strong marketing and operating plans to attract business from trucks. For wind turbine locations and Marcellus Shale drilling in southern New York State short line railroads should already have begun their marketing plans and contingent operating plans well before any trucks start
moving. It would be far easier to obtain that business from the start rather than trying to wrest it from the trucking business later.

**Alternative Short Line Revenue Drivers – Passengers**

Short lines are often in a unique position to offer niche railroad services. While some do railroad construction for other rail lines, and others create 3PL solutions to augment their lines, a few railroads have spectacular scenery and access to people who want to ride the rails. Tourist trains are a great way for some railroads to augment their regular service. Often operating at off peak hours or on weekends the trains do not impact freight service. The Finger Lakes Railway in upstate New York usually does this very successfully. However, throughout the 2011 season freight volumes were so large that the tourist trains were suspended. Reading Blue Mountain and Northern had hosted passenger trains on its routes for years, and in May of 2005 formed the Lehigh Gorge Scenic Railway subsidiary to create a quality tourist attraction in the region. Running the operation on the weekend prevents interference with this otherwise fast growing and successful regional railroad.

Other short lines are facing a different kind of passenger rail dilemma. Once relegated to the countryside, many short lines are slowly being surrounded by suburban/residential sprawl. This is having a double-edged impact on the railroads. As public interest in passenger and light rail lines grows, the likelihood of local governments expressing interest in short line routes also increases. The routes are often well suited for operation as they have light rail traffic and are pre-existing, not requiring extensive land acquisition. Railroads are tempted with the
prospect of outside investment in their railroad with the opportunity for improved track, signaling, speed, etc. Issues arise when railroad management considers the effect of continued sprawl. As past highway and transit route construction has shown, people move to locations where they can easily get around. If a short line partners with a transit system, theoretically land values around the line will rise and more residents will move in, lessening future industrial development. If railroads choose not to partner, they continue with their un-improved equipment and may still never see further industrial development in their region. The railroad management must weigh their options carefully to determine whether it is better to take the investment, trackage rights revenue, and some freight re-scheduling with the passenger operators or remain primarily a freight operator, and continue to try and develop additional freight growth without interference of another party.

As of 2010 there were approximately 150 ASLRRA member railroads with non-tourist passenger operations running over their rails with around 1,800 route miles of passenger operations. Small railroads are warned to be careful in dealing with larger organizations in negotiating deals. Local or state governments and large passenger rail operators, used to large Class I railroads, may have issues sizing up a fair deal for short lines. That can mean short lines sometimes get more and sometimes less for their line usage than comparable Class I deals. Railway Age article “A Natural Fit?”, by Roy Blanchard, from January 2010, sums up the issues well:

“The broader message is that short line and regionals have a major
part to play as communities seek to become greener, swapping the unhealthy inconvenience of clogged highways for the clean convenience of rail transit. However, as the panelists are seeing in their own operations, the challenges are many.

First is the type of passenger operation that shares your track. The infrastructure requirements will vary. Early on, the participants need to reach agreement as to who pays for what and when, the ongoing infrastructure upgrades and improvements, and how to handle Positive Train Control, Hours of Service changes, or regulations for handling hazmat.

On the other hand, the panelists have found that the improved track and signaling that passenger trains need lowers the cost of running the core freight franchise. Transit times over the road get shorter, and variable expenses—fuel, labor, car-hire, and non-program track maintenance—all go down on a per-unit basis.

The downsides, though minimal, are still there. Total track maintenance expense and capital spending can go up because running passenger trains may require maintaining to a higher FRA class of track than one might otherwise. Temporal separation is required for diesel multiple-unit (DMU) or similar operations. And there are the uncertainties of dealing with government, where knowledge of railroading may be limited” (p. 53).

**Short Lines - Marketing and Generating Good Will**

Short line railroads can only thrive if customers in their service region are well aware of services offered. While trucks are out on the road and in the face of
business owners, short lines often find themselves tucked away, passing behind big industry and, literally, through the woods at the edge of town. Just because shippers are not rail side does not mean they cannot appreciably benefit by switching the right freight to rail. The AAR and ASLRRA freight rail campaigns are working to get information about railroads to business owners. But it is up to short lines to really connect with their local industry and exert major efforts to increase traffic.

Short line railroads typically face a customer turnover rate of about 10% a year. This can be due to a number of factors including: relocation, trucking competitors, closure, or simply product discontinuation, and can be especially harsh in areas where economic pressures are high. Visibility to customers and local industry is absolutely required. Multiple short lines have become profitable by becoming knowledgeable about their regions, connecting with customers, and informing them about the advantages and possibilities of rail. Regional Rail LLC’s Middletown & New Jersey railroad is a prime example. The line, nearly abandoned, was forgotten by local business. Norfolk Southern’s March 2012 short line newsletter observed that most businesses in Orange County, New York were not even aware of the line’s existence. Persistent marketing by the new owner has paid off. Regional Rail LLC’s purchase and management of the Middletown & New Jersey Railroad is a perfect example of this. The line went from one customer in 2007 to more than 30 today. Many of those new customers had no idea the railroad was an option until Regional Rail reached out to them. The entrepreneurial spirit that started so many short lines cannot be allowed to
wither as companies become more successful. Instilling the entrepreneurial spirit in future generations of railroaders within the line will help ensure continued creativity and can-do spirit.

In the modern economy a substantial web-presence is vital to success. In doing the research for this project the author found most short line websites be a decade or more behind in advancement. Some lines, such as the short line Finger Lakes Railway (fglkrail.com) were very good featuring up to date information, substantial content, informative and helpful links for shippers, and much more. Other short line railroads, such as the Winchester and Western Railroad had abysmal, almost non-existent websites. Even big regionals like Pan Am Railways (guilfordrail.com) and publically traded Providence & Worcester (pwrr.com) feature websites harkening back to 1990’s design and functionality. A poorly designed website leaves a potential customer with a less-than-impressed feeling. As technically savvy supply chain managers enter the workforce, railroads will need to appeal to a group of managers that has grown up with the Internet. Increasing Google rankings, getting substantial, informative, and quality websites up and operative should have been accomplished by operators, years ago. Even for cash strapped lines, redesigning a website is a relatively minor capital expense. Short lines must ensure that the quality of their service and brand is not negatively impacted by a poor web presence. Supply chain managers at local firms should gain trust and knowledge from a well-designed, and informative short line website. A trucking company with a good website and brand image has a leg up in negotiations over a rail carrier with a poor website and limited
branding. First impressions are key, and in the information age, potential customers have done their online research well before the first railroad representative shakes anyone’s hand.

To continue their rebirth, short line railroads must continue improving their public image. Walter Rich, former owner and operator of the New York Susquehanna & Western knows this well. Rich was a law student at Syracuse University when he got his start in short line railroading. His company would expand and grow tremendously. Rich knew the ins and outs of pleasing the public. Governors and even the presidential candidate George W. Bush at the time, came to visit him and ride the rails, discussing entrepreneurship, and railroading among other topics (Wilner, 1999, p. 76). Walter Rich advised other short lines:

“Railroads cannot bet their future on a public perception of railroads as environmentally friendly and efficient. Lawmakers listen to constituents. Railroads must be more cognizant of public relations--and not the Madison Avenue type. At the end of the day, he who wins the PR campaign wins the battle” (Wilner, 1999, p. 76).

Short lines must market their services. Making people aware of service is the first step to gaining traffic. With a substantial marketing plan, web presence, and service, short lines stand to make real gains, especially from off line shippers. Improving websites should be the first and easiest marketing initiative in a company’s toolbox. From there, developing a plan specific to the region’s industrial make-up and railroad’s ability to handle traffic should be created.
Having a team track or transfer station already in operation before pitching to customers is ideal. Use of a 45G tax credit, or other similar program should not be forgotten in drumming up business. Additionally, maintaining public trust is important as well. Keeping a railroad in the positive with the public makes government funding and political alliances much easier to obtain.

**Technology and Short Lines**

Railroads were at the cutting edge of technology in the 1800s: shortening travel times, traveling at unheard of speeds, and delivering goods to far off locations quickly and efficiently. Railroads have utilized technological advancement throughout their history. Today’s short lines will depend on technology even more to keep them running successfully through the 21st Century. Class I railroads are adding technology enabled solutions to their lines every day, and some regionals and short lines have already caught on. From remote-controlled yard locomotives to computer controlled schedules railroads are installing technology to lower operating expenses and gain efficiency.

The ASLRA created a technology committee to assist railroads in the adoption of advanced systems and new methodology. The committee consists of 16 standing members. Technology committee members must be well versed in railroad mechanical engineering, signaling, information technology, communications, and operations. The committee works as a clearinghouse for new technology. It evaluates product claims and figures out exactly what short lines can best utilize to their benefit. Centralizing this research through the
ASLRA saves short lines cash and time. If asked, the committee will work to find solutions for specific issues on member lines (Friedland, 2004, p. 10).

The biggest leap in railroad technology will be required by federal law in December 2015. Positive Train Control, PTC is currently being installed and tested by all Class I railroads. While many short lines will be exempt from the requirements for a time, any moves with hazardous loads will require PTC. The goal for installation is dramatically increased safety for all railroad employees, and the general public. The FRA’s official description is as follows:

“Positive Train Control (PTC) refers to technology that is capable of preventing train-to-train collisions, over speed derailments, and casualties or injuries to roadway workers (e.g., maintenance-of-way workers, bridge workers, signal maintainers) operating within their limits of authority as a result of unauthorized incursion by a train. PTC is also capable of preventing train movements through a switch left in the wrong position. PTC systems vary widely in complexity and sophistication based on the level of automation and functionality they implement, the system architecture utilized, the wayside system upon which they are based (i.e., non-signaled, block signal, cab signal, etc.), and the degree of train control they are capable of assuming. Prior to October 2008, various carriers were voluntarily installing PTC systems. However, the Rail Safety Improvement Act of 2008 (RSIA) (signed by the President on October 16, 2008, as Public Law 110-432) has mandated the widespread installation of PTC systems by December 2015” (Positive Train Control, 2012).
PTC systems allow all information about a train to travel back and forth to its control center in real time. Dispatchers will be able to see the location of everything on their railroad with precision. Some systems even enable the engineer to see signal positions and speed limits on screens in the cab, augmenting the traditional wayside signal and speed limit postings. Most importantly, PTC systems can take control of a train that has run a stop signal, is at risk of going off route, or otherwise breaking the rules, and bring it to a controlled stop automatically.

Installation of PTC systems is extremely expensive. Hundreds, sometimes thousands, of sensors will need to be installed on short lines. Many of the sensors and technical equipment needed to capture and relay the data are still in development. For now, only about 100 short lines in the United States are affected by the mandate. However, for the affected lines the expense of installation and maintenance will be substantial.

The ASLRRRA estimates that affected Class II and Class III railroads will spend an estimated $16 million to install PTC with 75% of that going just to installing the locomotive PTC systems. An additional $2.6 million will be needed for annual maintenance (Blanchard, 2010a, p. 30). Locomotives built during the last two decades already have microprocessor based control systems. Those locomotives will require about $50,000 each to be PTC equipped. Locomotives build before the 1990s, very common on short line railroads, and lacking electronic control will require much more work. Installation of an electronic control system and PTC on an older locomotive will cost anywhere from $95,000
to $140,000 depending on the necessary work (Blanchard, 2010a). In many cases the installation of PTC will cost more than the locomotive is worth. These are substantial numbers, even for Class I’s to deal with. Regional railroads with large locomotive fleets and small struggling short lines are facing many tough choices regarding the PTC mandate.

Even lines that are not officially impacted by the PTC requirement will feel the effect. Class I railroads with PTC installed will, almost certainly, not allow a non-PTC equipped locomotive onto their rails once the mandate takes effect. This means that short lines with trackage rights over Class I rails, or interchange tracks with Class I’s will have to equip locomotives with compatible PTC equipment to continue operations.

PTC is not the only technological development short lines are being forced to adopt. While not a government mandate, the railroad industry as a whole is working to improve customer communication. As a part of that, and in keeping with other freight transport methods, railroads are working to alert customers to the location and status of their freight at all times. Installation of line side equipment and data processing equipment are necessary for this to occur. Car event records are currently updated every few hours, but shippers and Class I railroads are pushing to get this data updated every hour. Automatic Equipment Readers (AEIs) are the most expensive component of the systems needed to accomplish this. The ASLRA has charged its technology committee to work with AEI vendors to create simplified and less expensive units for short lines. Short lines’ slower speeds, and more common single track mean AEIs can be less
complicated than those required for Class I railroads. If the ASLRA technology committee can get the readers down to $7,000-$10,000 per unit, short lines will be able to supply customers and Class I railroads with the real time car information they want, making rail more attractive (Friedland, 2006, p.10).

Track technology is not to be ignored. Railroad ties, long made of woods, are being replaced with concrete and composites along high traffic Class I railroads. While many short lines have little need for advancement in load abilities, the resistance to rot and splitting are attractive. Concrete ties have an estimated life span of around 60 years, nearly double that claimed for treated wood ties. Additionally concrete ties can reduce initial construction costs because of pre-gauging and reduced per-mile count (Forecasts/AIrticles, 2012). Concrete ties, however, do not make suitable replacements for wood when only a few ties need replacement. Composite ties are making inroads in the rail industry and can be used to replace wood ties in pre-laid trackage. Short lines will benefit from this sort of technology as Class I’s continue with their own line replacements, figuring out the best process as the rest of the industry watches.

Hand held computers/tablets, cell phones, GenSet locomotives, GPS and even the Internet did not exist when the short line explosion began in the 1980’s, but these tools are changing the way short lines operate and earn money. With instant access to personnel in all locations, instant access to freight status plus train location, and with computerized optimization programs, railroads are making use of technology. With the implementation of PTC, and improved car event reporting, railroading stands to be the safest it has ever been in its history.
Short lines implementing technology solutions to the fullest will realize impressive efficiency and customer satisfaction gains. Remaining competitive requires not being complacent.
IV. Threats and Opportunities to Pursue

Threats

Successful railroading depends on management of risks. Successful entrepreneurs will freely admit the mistakes and failures that brought them to their goal. The entrepreneurs who bought line segments and branch lines cast off from big railroads were risk takers. Their goal was to manage risk, and make deficit-creating railroads into profit makers. Short lines have a lot of risk associated with them, from customer health, to fuel costs, to potential accidents any of which could have a pronounced impact on a small railroad.

Paper barriers present a threat to the competitiveness of some short lines. Born from a big railroad, short lines with paper barriers impacting their shipping rates have a serious issue to deal with. The RIA, ASLRRA, and CURE are all fighting for decreases in paper barriers, but the contracts will not disappear overnight. Keeping professionalism high and working with paper barrier issuing railroads in a constructive manner is the healthiest method. Cooperation keeps all parties happy and profitable.

Local governments and bureaucracy are also threats. The Surface Transportation Board and Staggers Act limit the time railroad related matters may take for approval therein significantly improving the ability for free markets to create stronger railroads. Despite this, some local governments in particular, take issue with railroad federal preemptions of local zoning and land use laws. This has become an especially controversial area as short lines get into solid waste transfer facilities.
Landfill space in the northeast has become dramatically more expensive as taxes, liability issues, NIMBY effects, and reduced availability of land take their toll. Railroads have found this market shift to provide potential for shipment of solid municipal waste to landfills in the Midwest and elsewhere. Several northeastern railroads have built solid waste transfer facilities to collect municipal and construction garbage, pack it into containers, and ship it to distant landfills. To accomplish this short lines have used federal preemption of zoning laws to build solid-waste transfer facilities in areas not locally zoned for such development.

The trash industry is well known for its political involvement and influence and has managed to get several local governments to push back against the short lines. Two northeastern carriers have ended up in court during the past 5 years. The cases, Green Mountain Railroad v. Vermont, and N.Y. Susquehanna & W. Ry. v. Jackson, influenced the STB to issue substantial verbiage changes to federal preemption rules in March 2011 (Solid Waste Rail Transfer Facilities, 2011). Railroads are an attractive method of solid-waste shipment, and the market stands to be lucrative. However, threats from local government and trash handling concerns remain, to avoid issue railroads should carefully consider the location of transfer facilities to avoid getting agitating the public as well.

Loss of industry is always a major threat for short line railroads. The closure of plants and industry in the Northeast due to right-to-work laws and more favorable taxation in the south is a very real threat. Northeastern railroads have already dealt with many shifts in traffic type and volume. Railroads’ strength lies
in bulk shipment, specialty shipment, and consistent business. The loss of major customers’ entire lines is a real hazard.

The north central Pennsylvania based Nittany & Bald Eagle (NEBR) knows this all too well. The company lost 50% of its carloads in 2001, nearly 8,000 carloads per year worth. Four closures along the line, all within a year, were to blame. When a paper mill closed, the line lost 500 carloads/year; then came the closure of an International Paper mill with a loss of 6,000 carloads. Following the paper mills was the closing of Corning Asai Video Glass plant and 1,000 carloads lost. Finally RJ Corman Material Sales closed with an additional 60 carloads lost (Short-haul moves equal long-term success, 2004).

The company is alive and strong today, however, because it handled the threat well. Company officials were creative and marketed hard as soon as the first carloads were lost. The company has been growing an 8,000-ton stone movement since the mid 1980’s and enhanced marketing for it after the other losses. By 2003, two years after losing 50% of their business, that stone movement had grown to 1.1 million plus tons. The move took 20,000 truckloads off the highway every year. The company also turned its attention to the short haul market targeting moves in the 5-70 mile range. Those short moves netted an additional $1 million in revenue for the railroad (Short-haul moves equal long-term success, 2004).

Working with the state, the NEBR has been able to complete 12 miles of continuous welded rail, work on an additional 36 miles, install 4,300 crossties, and get its mainline up to 40 mph FRA Class 3 track. Jeff Stover, executive
director sums up the turn around, “The Nittany has been able to weather significant hits by taking advantage of and creating new opportunities… Through our classic public-private partnership, we are trying to make it easy for companies to do business with us. It's not 'no, we can't do that,' but 'how can we help you do that?’” (Short-haul moves equal long-term success, 2004, p. 31) With an attitude like that the company is poised to do well. Weathering a 50% drop in traffic without laying off a single employee is impressive.

The short line industry may be on a path to fewer unique road names and un-affiliated lines. The likelihood of new lines being created from Class I spin offs is shrinking every day. Railroad unions are challenging safety and competitiveness despite the positive track record short lines have on both. Short lines stress safety to an incredible degree for the simple reason they cannot afford an accident. As a result safety culture is extremely high among regionals and especially short lines. Rail unions are a threat to an increase in short line diversity and route mileage if abandonment becomes a preferred alternative to sale.

A shortage of carload business freight cars presents additional threats to the short line industry. Class I railroads are increasingly disinterested in maintaining their car fleets preferring instead to lease cars from lessors, or have customers purchase/lease their own car fleets. Short lines have long depended on Class I’s to provide cars for interchange traffic. Class I’s are investing in some types of cars, such as coal hoppers, auto-racks, and well cars, but most short lines find these specialty car type of little use (Betke, 2007, p. 52).
Short line customers more often demand boxcars, covered hoppers, and flat cars for their shipments. The decline in fleet numbers and growing fleet age is resulting in increased car rejection by customers. Car rejections occur when customers do not wish to load their product due to leaks, holes, bad/poor lining, dirt/grime, etc. This sort of refusal is unfortunate for everyone involved, frustrating/slowing down the customer, and costing the short line unnecessary transportation, car-hire, and labor costs, while damaging their reputation, even if the car is not their property. Between 1999 and 2004, a period of intense freight rail growth, only 440 boxcars were added to the rapidly aging national free roaming car fleet (Betke, 2007, p. 1).

Danger lurks in short lines being unable to obtain the cars requested by customers. Turning down business because of unavailable equipment is detrimental for the whole rail network. Short lines try hard to stay ahead of customer demands, and recognize periods of peak car requests, such as boxcars for Christmas trees, or flat cars for farm equipment.

The irony is that this threat could grow even bigger because of the business practices of some short lines themselves. Class I railroads complain that some short lines are not abiding by car hire rules. The Class I’s claim that 322, 55%, of short lines across the country are at least 14 days delinquent in car-hire payments. Twenty-six per cent of short lines are reportedly 30 days or more delinquent (Brown, 2010). Some short lines are also not paying their car lease agreements. These are lines that have gone to lessors directly in an effort to obtain cars for service. Their delinquency in payments is harmful for the industry
as a whole, especially when lessors, used to the timeliness of Class I’s, shy away from future short line contracts. If the lessor is not getting paid, they are not getting a timely return on their investment in rail cars (Kruglinkski, 1997, p. 12).

Additionally the system for returning cars to their owners is incredibly inefficient. Often 50% of car mileage is put on while the car is empty. An empty car costs money, space, time, and potentially a customer. Greater use of backhauls and communication with neighboring railroads needs to be accomplished. Running 50% of an already limited fleet empty makes little sense.

Some ideas to solve this have come to the surface with Class I’s and some short lines supporting an electronic monthly monitoring of rail cars. If cars are delinquent and being hoarded by a short line, the electronic system would allow for fining the offending railroad into compliance. By following the rules and decreasing empty run time, short lines can overcome this threat. The carload freight fleet will continue to age until it becomes economically viable to freshen it up. In the meantime all railroads, particularly short lines, must ensure that what they do have access to in the rail network stays moving and earning revenue.

Finally, short lines face a substantial threat from being unnoticed in society. Running short trains through small towns and cities or switching industries in rural areas may not be glamorous or headline grabbing, but it is vitally important to the economic health of a region. A 2008 case study on regional railroads by the National Association of Development Organization Research Foundation’s Center for Transportation Advancement and Regional Development explains the situation clearly:
“One problem with railroads is their near invisibility, says Don Rychnowski, executive director of Southern Tier West Regional Planning and Development Board (RPDB), a regional development organization covering three rural counties in western New York State.

Local officials and economic development professionals work hard to improve roads, water and sewer service, and internet access, but they tend to think of rail freight traffic as a business-to-business issue. As a result, reductions in traffic over short line railroads whose customers are small manufacturers, grain mills and quarries may appear unnoticed—or shrugged off as unavoidable local impacts of national trends.

Why should it matter if a railroad company plans to abandon an old stretch of track, overgrown with weeds and brush? Maybe it’s time to add a “rails-to-trails” component to a new eco-tourism initiative. That mindset, Rychnowski says, can be a terrible mistake. “Before you know it,” he adds, “you’ve lost an asset. Unless you’re absolutely convinced that a particular portion of a rail line has no future use, do not allow it to be abandoned. And do not allow it to go into rails-to-trails or any other public program. Once abandoned or used for a different purpose, it’s impossible to get that right-of-way again.”

What’s at stake, he and other rail-savvy development professionals explain, may be no less than a region’s capacity to retain or attract a diversified mix of industry. “Rail gives you options you don’t otherwise have,” agrees Jeff Stover, director of the SEDA-COG Joint Rail Authority
in Lewisburg, Pennsylvania. “In some parts of the country, it’s identified only with old smokestack industries, but we serve new high-tech industries. Without the rail, they’d be somewhere else.” (Baldwin, 2008, p. 1)

Short lines are threatened by one of their biggest assets which is being out of the way and out of the minds of the public. Short line railroads are vitally important conduits of commerce throughout the northeast. Their preservation must be ensured to maintain shipping competition and access to efficient transportation modes for shippers.

In conducting interviews a common concern among short lines and regional railroads became evident, demographics show the average age of the industry is rising. To continue their success short lines must bring on younger generations of railroaders to learn the ropes. Jan McNeal, Vice President of Marketing at Sales at the Finger Lakes Railway explained the situation and how her company is addressing the issue in a personal e-mail to the author:

“The industry needs a new generation to come in learn the complexities of the business as we are in every macro-economic sector… the new generation must be trained to carry on our legacy to grow rail market share and create a "New portfolio" of equipment/service and ease of doing business. Technology is addressing some of the issues to support growth but young, bright individuals are the future of the industry… and we will work with people who have the right attitude and
effort to learn the business from the grass roots (or routes as they say in Railroading).”

Short lines must keep an eye to the future both by growing market share and profitability, but also thinking about who will be there to carry on the line when the current crop of operators have retired.

What Works? Opportunities and Methods for Success

Short lines can learn a lot from each other. Keeping abreast with industry trends, knowledge, and strategies all work to keep short line railroads profitable and engaged in the fast moving transportation environment. As a part of that, management must not forget the entrepreneurial roots from which their lines grew.

Keeping up with the industry is only useful if management also keeps its ‘boots on the ground’. Old ‘Dead-Eyes’ ‘Ice Cream Shoes’ metaphor should not be lost on managers. Keeping up with issues on the railroad and knowing what crews face on a daily/nightly basis are a must for successful short lines. Managers getting out on the rails in their steel-toe boots, and not their dress shoes, show their employees that they care, and show customers they mean business.

Short-hauls offer huge opportunities to short lines especially among local businesses that are not aware short line railroading is an option for them. Competition against trucks on fewer than 500-mile routes is tough, but doable. Creativity, backhauling, and partnerships with Class I and/or other short lines can make those moves profitable. Reading & Northern, Norfolk Southern, and Winchester & Western accomplished their short haul movement in textbook
fashion. Taking away a truck dominated route, clearing highways, pleasing
customers, and making a profit.

A ‘retail approach’ to railroading is increasingly becoming the way short
lines create business. No longer should small railroads sit idle and wait for
customers to come to them. To make money and gain market share, especially in
the short haul, short line railroads must beat-the-bushes. Knowing the service
area well is vital. Keeping abreast of customer wants and needs, understanding
their process, and communicating with them are key to sustaining and growing
business. Railroad managers must remember it is not transportation costs only
that factor into customer decisions, but the landed cost of their freight getting into
the customer’s process. Keeping up the retail approach means maintaining
excellent dialogue with partner railroads, especially Class I lines. The big
railroads of the east, CSX and Norfolk Southern, both have short line divisions
built into them. Northeastern railroads should use all of the tools, partnerships,
and equipment the Class I’s offer and it is almost always mutually beneficial.

To survive and prosper, short lines must not neglect local governments
and the public. Maintaining good relations with both groups increases the
likelihood that public funds will be allocated to assist with infrastructure, and also
that there will be less resistance to industrial growth. Local governments can
make small changes a major hassle for a railroad if they choose, even when the
railroad has a federal preemption on the issue.

For independent short lines, purchase by a holding company presents a lot
of opportunities for economies of scale. New owners often have the ability and
capital to make improvements that independently owned short lines struggle with. If purchase is not an option, sharing resources such as construction equipment, with neighboring lines can offer great ways to save money. Railroading succeeds when economies of scale are realized; achieving them in every facet of railroading should be management’s goal.

Short line railroads must remain flexible and creative to keep and gain customers. The large railroads were not profitable on small branch lines and secondary lines because they were not flexible, quick to adapt, or thrifty. Creating new customers takes time, effort, knowledge, and flexibility. Being able to offer personalized service is a hallmark of short line railroading. Industry needs quality transportation methods to get their products to market at a healthy margin. This could not be more important than in the northeast, where labor laws, environmental regulation, and taxation are particularly tough on industry. In addition to staying flexible, maintaining a constant and close communication line with customers goes a long way toward building trust. Regional Rail LLC Vice President Alfred Sauer explained in a phone interview that equipping crews with a GPS enabled cell phone has helped keep that information line open. Train crews call ahead to a customer if they are late and make arrangements accordingly. Using the GPS features in the cell phone, headquarters knows the exact location and speed of the train as well and can relay that as needed. Issuing a cell phone to train crews is a simple, easy, and cost effective way for short lines to maintain communication and transparency with their customers. Larry Parsons, chairman and CEO of the Wheeling & Lake Erie Railway also explains the need for
consistency. Customers must be able to count on short lines to do what they promise. Over promising and under-delivering will drive customers away from short lines and back to truck if the option exists. Parsons explains in an interview with the article’s author:

“While railroads are not as fast as trucks, the biggest liability the industry has is a lack of consistency, and we have proven to be very consistent. We do the same thing, in the same way, at the same time. That sounds fundamental, and you’d think it would be easy, but it is the toughest challenge we have, and we've proven that we can do it and do it well” (Short-haul moves equal long-term success, 2004, p. 32).

With new or growing customer traffic comes the responsibility to deliver quality services. Being able to provide quality service requires quality infrastructure, from reliable locomotives, to strong 286,000-pound compliant rails. Keeping up with industry standards and technological advancement is the only way to remain competitive. As fuel prices rise, 286,000-pound cars and locomotive efficiency policies and enhancements will be vital to taking full advantage of the efficiency of railroads. Making locomotives PTC compliant, while limited in short line railroading for the time being, is an important future expense for short lines to keep in mind. All future purchases of equipment should come with PTC or allow for an easy and affordable upgrade.

Short lines are being given the opportunity to benefit from Class I investment, and partnership through initiatives like the Empire Link and the Patriot Corridor. These routes stress the use of short lines as originators and
distributors of rail cars to customers, with Class I rails serving as intermediaries. The setup is ideal. Short lines create unit trains of mixed freight for other short lines. Class I’s pick up pre-assembled trains and deliver them to the other short line. From there the trains are broken down and switched to the customers. In such a setup each segment of the railroad industry does what it does best. This sort of cooperation takes advantage of the economies of scale in railroading, particularly Class I railroading.

Finally, short line railroads, especially in the northeast, can do well by specializing in particular commodities or activities. The Reading Blue Mountain & Northern, for example, ships out 95% of America’s anthracite coal. The high carbon content coal is heavily sought after by select industries. The Reading Blue Mountain & Northern has used this to its advantage and positioned itself as the efficient source for anthracite. It accomplishes this by working with local mines and far off shippers to optimize shipments. Like the Reading Blue Mountain & Northern, some short lines find themselves geographically positioned to market plays, such as the Marcellus Shale drilling boom. Railroads in these areas can position themselves as highly responsive conduits of goods. Railroads can use their lines as rolling warehouses/distribution centers enabling purchasers of things like fracking sand to receive additional loads almost instantly rather than waiting for a cross country shipment. Short lines with substantial out-of-use rail line can use the mileage for car storage. During the recession, Regional Rail LLC’s Middletown & New Jersey cleared five miles of brush and debris from the tracks just a week after purchasing the line. The track had not seen a train in years and
no customers existed along it. The line was perfect for storing covered hoppers belonging to other railroads and some lessors that were not needed in the down economy. Gaining some kind of revenue from otherwise forgotten track can keep a short line afloat. However, short lines must take care not to anger the public with eyesores, or cut off potential shippers by storing old railroad cars on their routes. Niches are great ways for short lines to keep revenue streams healthy and traffic levels consistent.
**Conclusion**

Short lines are an indispensable link in the North American Rail Network and play a major role in keeping industries competitive and connected. This role is becoming ever more important as fuel prices rise, population growth increases demand for more materials, and resulting congestion clogs highways. In the Northeast, short line railroads form a tight web of connections that likely would have been abandoned over the last three decades were it not for government, entrepreneurial, and customer actions to maintain the routes. While new routes are increasingly unlikely, the rehabilitation of existing lines and combination of complimentary routes will continue for years.

Class I railroads are currently experiencing a surge in traffic volume, profits, and reinvestment opportunity not previously seen in railroad history. Regional railroads and short line railroads stand to benefit as well. Taking advantage of this opportunity will require lines to keep up with advancements, earn respect, and prove their worth. Advocates for railroading are more vocal and positive than could have been imagined just ten years ago. Short lines’ importance to maintaining northeastern industry is also important. Short line railroads not only deliver traditional railroad commodities like coal and aggregates to customers, but they also deliver carloads to high-tech industries and box cars to transload facilities for local truck pick-up. Making the transition from traditional rail freight commodities to new industries keeps short lines invested in the Northeast’s likely future industry make-up.
To remain viable competitors to trucks and other railroads, short lines must keep costs in-check, efficiencies as high as possible, and communication levels high. Personalized service for customers, open communication channels, and consistent service, offer short lines leverage in searching for additional business. Operators focused only on running trains will miss out on gaining new business and must make certain to keep new customers choosing rail.

By successfully fulfilling a need in the marketplace and offering efficient distribution and collection of freight, short lines will ensure their continued existence. Short line health is important to industry; many industries are local employment and tax anchors in their regions. As a result governments, local businesses, and the public share a mutual interest in keeping these conduits open. Short line railroading is growing, and stronger than ever before. Those in the industry will need to keep being creative problem solvers and quality service providers for it to remain that way.
**Figure 3**


- **150-CAR TRAIN**
  - Shipping fresh and frozen food from Oakland, CA to Baltimore, MD by freight rail...

- **1,709 TONS**
  - ...instead of by road saves 1,709 tons of CO₂ from being released into the atmosphere.

- **39,753 TREES**
  - It would take 39,753 tree seedlings 10 years to remove this amount of CO₂ from the environment.
Figure 4

2002

2035 (estimate)
References


Sapienza, H., & Grimm, C. (1997). Founder characteristics, start-up process, and strategy/structure variables as predictors of shortline railroad


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**Interviews conducted**


McNeal, Jan. Interview by author. Email interview. Syracuse, NY, September 13, 2011.

Summary of Capstone Project

Railroads play a crucial role in the movement of freight through the United States. In particular, railroads deliver unmatched economies of scale and efficiency, and these characteristics play an important role in the northeastern United States. In recent decades many of the railroads servicing customers in the northeast have not been the large multi-state companies known as Class I railroads, but instead they are companies classified as regional railroads and short lines. Collectively known as short line railroads, these companies are often the first-mile-last-mile connecting lines for cross-country rail shipments. Providing rail service to industries in the northeast is important for economic success. Often faced with increasing tax burdens and unionization, the industry in the northeast requires competitive freight transportation options to compete against distant competitors. This report looks to examine the current health of the short line railroad aspect of the options necessary to maintain competition for freight transportation.

Short line railroads are vital links in the North American rail network. To remain profitable and viable they must keep abreast of technological advancement and increase cooperation amongst both themselves and large railroads. Short line railroads fulfill a need in the market place, efficiently distributing and collecting freight transferred locally, nationally, and internationally. Their health and success are a vital component to continued economic viability of industry in the American northeast.
Today’s short lines are different from those of the past. Short lines of the 21st century are more diverse, dynamic, creative, and entrepreneurially focused than ever before. Many are still privately owned, but increasingly, holding companies and rail operators seek to gain efficiencies and economies of scale by owning and operating many short line railroads concurrently, resulting in increased purchasing of private lines. Other railroads lease their routes from state and county governments. Their routes and bridges were saved decades ago by forward thinking politicians with the hope of one day restoring rail access to their regions.

Investigating the current state of the short line railroad industry increases awareness of the role of short line railroads and the Northeast’s need for their survival. Discussing the service of short line railroads, their relationships with larger railroads, and their push for greater fuel efficiency highlights the ways in which short line railroad operators keep their lines profitable and valuable to local economies. Short line railroads fulfill a vital niche in the rail network by providing the customized service and customer oriented operations that Class I railroads cannot provide from a logistical or financial standpoint.

The short lines of the 21st century are investing increasingly larger shares of revenue into their infrastructure, freight cars, locomotives, technology, and signaling equipment. Currently, one-third of every dollar collected is returned to improve their facilities. Short line operators realize that to be competitive requires performance, timeliness, and customization previously unattained in freight railroading. Short line railroad marketers work hard for every load of
freight. Whether it is a one-railcar-once-a-month shipment or a 100-car train making rounds twice a day carrying the same freight every time, short lines strive to make customers happy and take any business they can. As the first-mile-last-mile of millions of carloads of freight every year, short lines’ actions have a huge impact on the quality of service offered by the North American rail network. In addition, maintaining route alternatives to public highways frees up road capacity, increases motorist safety, decreases pollution, and saves state governments billions of dollars a year in road maintenance due to truck damage. With nearly 18,000 employees, according to industry association website AAR.org, track in every state except Hawaii, and $3 billion in annual revenue, short lines are not an industry of the past, but offer a viable efficient alternative to trucks.

This project will discuss what a modern short line railroad is, and will delve further into factors that affect the status of the short line railroad industry. Those discussions will center upon the following: What kind of relationship do short line railroads form with governments, large railroads, and industry associations. What is the current state of the short line railroad industry? What are potential threats facing the short line railroad industry in the near term? What are some opportunities for northeastern short line railroads to pursue?

To determine the answers to these questions and fill out a quality background of the short line railroad industry, extensive research was conducted using a variety of sources. A long time enthusiasm for and knowledge of the railroad industry aided in having a substantial understanding from the beginning. Armed with a decade long accumulated knowledge base allowed for immediate
immersion, and knowledge gathering from industry magazines, trade journals, textbooks, databases, websites, insider PowerPoint presentations, and personal interviews with short line railroad executives expanded this knowledge base.

Research from databases proved to be substantially important, allowing access to a wide variety of short line railroad focused articles in magazines and trade journals that gave good basis for interview questions and requests. Industry magazines like *Trains* and *Railway Age* were very helpful in gleaning a detailed view of the industry. As research was gathered, a few industry experts emerged, in particular Roy Blanchard. Blanchard’s company provides consulting services for the short line railroad industry. His work stood out and proved an excellent source of stories of railroad missteps and successes. The interviews with short line railroad executives proved most interesting, offering insider perspectives and examples for how their companies have developed. Their knowledge and love for the industry proved the connection that entrepreneurial journals had uncovered namely that short line railroad executives have a special connection to their railroad and strive to make it work. Their passion inspired further dedicated research. From unique intricacies of their operations to frank discussion of industry trends, the three executives from three different northeastern railroad companies (one short line, one regional railroad, and one holding company of several short lines) provided the guidance for where the research should go.

The short line railroad industry is something the northeastern United States would sorely miss. Preservation of active freight moving companies is important to industry, and ultimately the public. Growth of short line railroads
creates increased competition with trucking companies and provides shippers, even ones not located along a railroad, with alternatives for moving freight. Increased freight transportation efficiencies are important for industry, especially if competitors move to right-to-work states, or overseas, where labor costs are generally lower. About 574 non-Class I railroad lines are currently in operation throughout the United States. Author M. Blaszak notes, in the industry magazine Trains’ October 2010 issue, that short line railroads have been growing rapidly over the past three decades expanding from 8,000 miles of active rail line in 1980 to approximately 46,000 miles in 2010. This huge increase in mileage means short line railroads operate roughly 32% of the national rail mileage. The industry is substantial and worth studying in an effort to sustain and grow the success. Conducting this research is an effort to provide a clear purpose for local, state, and federal government funding, private investment, and public support for the continued short line railroad activity in the American northeast.