

Enhancing and Demonstrating the Value Proposition of Short Line Railroads to Diverse Stakeholders

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Acknowledgements

Hitarth Joshi and Colin Gibson wish to express their sincere gratitude to Mr. Paul Delp, Lansdale Warehousing, Professor Mulherin, and Sigma Chi Mu Tau for the invaluable opportunity to engage in this project. Their guidance and support throughout the semester provided us with a unique platform to deepen our understanding of short line railroads and their strategic importance within the freight transportation network. This experience has not only broadened our perspective on the operational and logistical challenges facing the sector but has also enriched our academic and professional development. **We are truly thankful to everyone who contributed to making this learning experience both insightful and rewarding.**

Industry Overview

Lansdale Warehouse Background

A family-run logistics solutions provider, Lansdale Warehousing has been in business for close to 60 years now. Established in 1958, It is widely recognized for its commitment to customer-centric service and high standards of operational performance. After five strategically located facilities with over 500,000 square feet of warehouse space, the range of services also comprises real-time inventory control, e-commerce fulfillment, and tailored logistics consulting. It is an ISO 9001:2015 certified supplier for food, pharmaceutical, automotive, and retail industries, ensuring high standards with every aspect of operation. An additional advantage for the company is its double rail access and strong regional trucking company that makes transportation feasible for either short haul or long-haul journeys. With advanced warehouse management systems and dedicated supporting teams, Lansdale Warehouse is a trusted partner for businesses seeking reliable, scalable, and tech-enabled supply chain solutions in the Mid-Atlantic region.

Transportation and Warehousing in the US

The US economy is heavily reliant on the transportation and warehousing industry. Freight, storage and logistics are all part of this industry. The industry has grown 0.8 percent per year over the last 5 years and is projected to reach around \$1.2 trillion in 2025. The general warehousing and storage segment is doing exceptionally well with a growth rate of 4.7% from 2020 to 2025 and is expected to be \$43.1 billion in 2025. Higher demand from manufacturing, wholesale and retail sectors is driving this growth partly due to the rapid

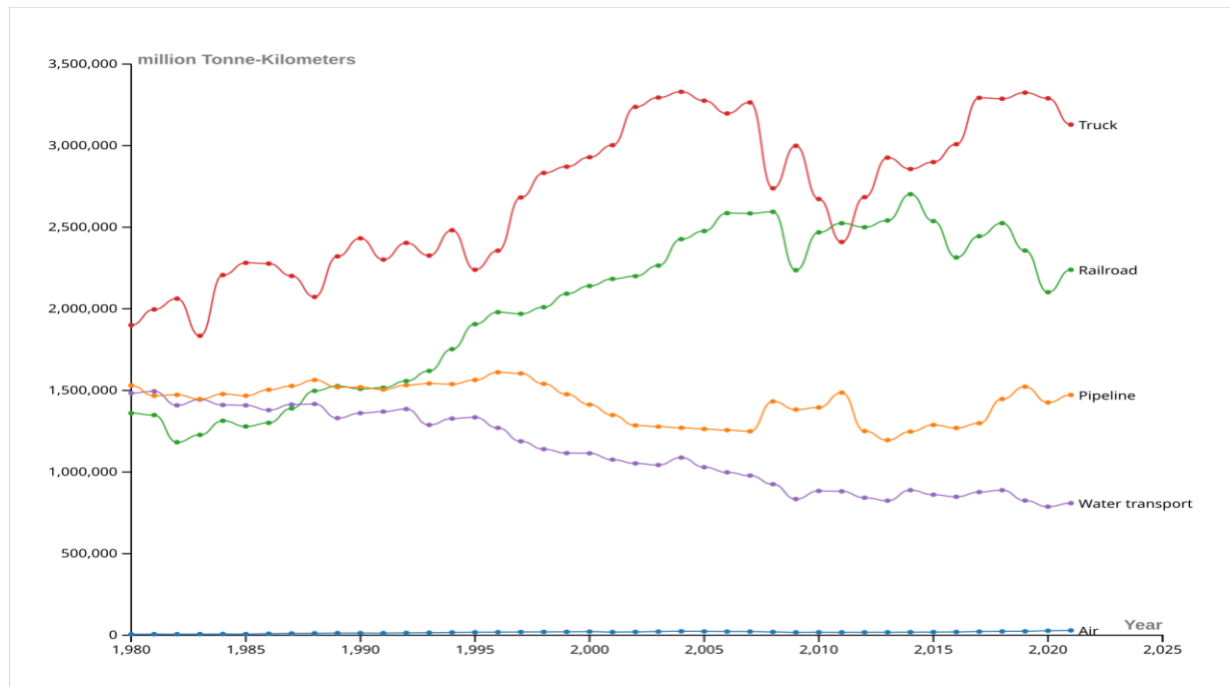
growth of e-commerce and complex supply chains. Businesses are using new technologies to be more efficient as they navigate these changes, and many are turning into 3PL providers for help. They are using sophisticated systems like radio-frequency identification (RFID), warehouse management systems (WMS), radio-frequency identification (RFID), and real-time inventory tracking have become critical for operational efficiency.



Furthermore, industry is witnessing a shift towards sustainable practices, with companies investing in energy-efficient facilities and green logistics solutions. In this dynamic landscape, firms like Lansdale Warehouse Co., with their ISO 9001:2015 certification, dual rail access, and commitment to technological integration, are well-positioned to meet the evolving needs of diverse sectors, including food, pharmaceuticals, automotive, and retail. The focus is shifting from speed to cost efficiency in delivery services - Companies are navigating this shift by investing in route-planning software and cost-effective strategies, ensuring customer retention through affordable yet timely deliveries.

Rail transportation in the United States consists primarily of freight shipments along a well-integrated network of standard gauge private freight railroads that also extend into Canada and Mexico. The US has the largest rail network in the world, about 160,000 miles (260,000 km). The first railroads in the US were built in the 1820s and 1830s in New England and the Mid-Atlantic states. The Baltimore and Ohio Railroad, chartered in 1827, was the first common-carrier railroad. By 1850 an extensive network had been built in the rapidly industrializing Northeast and Midwest and fewer in the South which was more agricultural. During and after the Civil War the first transcontinental railroad was built to connect California to the rest of the network at a connection in Iowa. US railroads still play a big role in freight shipping. They moved 750 billion ton-miles in 1975 and 1.5 trillion in 2005. In the 1950s the US and Europe moved about the same percentage of freight by rail; by 2000 the US was 38% and Europe 8% and a big part of that difference is due to external factors like geography and more coal. Railroads move over 25% of US freight and connect businesses to each other across the country and to markets overseas. In 2018 US rail freight had a

transport energy efficiency of 473 ton-miles per gallon of fuel. In recent years railroads have been losing intermodal traffic to trucking.



Freight Transport volumes (Ton-Kilometers)

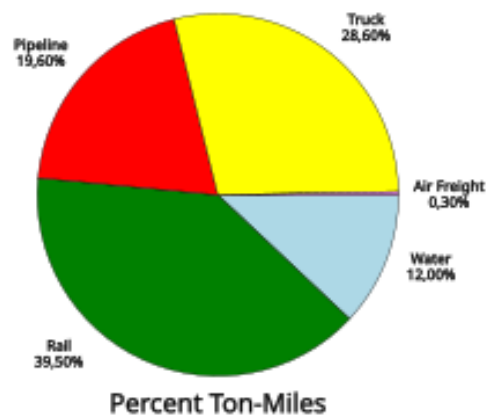
Railroad Classes- The U.S. freight railroads are separated into three classes, set by the Surface Transportation Board, based on annual revenues:

- Class I for freight railroads with operating revenues of more than \$346.8 million per year in 2006 dollars. In 1900, there were 132 Class I railroads. As of 2024, because of mergers, bankruptcies, and major changes in the regulatory definition of "Class I," there are only six railroads in the United States that are classified as Class I. As of 2011, U.S. freight railroads had 139,679 route-miles (224,792 km) of standard gauge within the U.S. in service. Although Amtrak satisfies the revenue requirement for Class I designation, it is not considered a Class I railroad because it is a non-freight railroad.
- Class II for freight railroads having revenues between \$27.8 million and \$346.7 million
- Class III for all other freight revenues.

Class I railroads are railroads with revenues of \$346.8 million or more in 2006. They comprise only 1% of the freight railroads in number, but they own 67% of the industry's

mileage, 90% of its employees, and 93% of its freight revenues. A regional railroad is a line haul railroad with 350 miles (560 km) or more and/or between \$40 million and the Class I minimum. There were 33 regional railroads in 2006. They have between 75 and 500 employees, most of them. Local line haul railroads operate less than 350 miles (560 km) and earn less than \$40 million annually (most of them earn less than \$5 million annually). There were 323 local line haul railroads in 2006. They tend to offer service from point to point over relatively short distances. Switching and terminal (S&T) carriers are railroads that chiefly offer switching and/or terminal service, irrespective of the revenue they receive. They carry out pickup and delivery service within a specified territory.

Traffic and Public Benefits: According to a 2010 FRA report, within the U.S., railroads carried 39.5% of freight by ton-mile, followed by trucks (28.6%), oil pipelines (19.6%), barges (12%) and air (0.3%). However, railroads' revenue has been slowly falling for decades, a reflection of the intensity of the competition they face and of the large rate reductions railroads have passed through to their customers over the years.



In 2011, they had 1,471,736 freight cars, 31,875 locomotives, and 215,985 employees in North American railroads. In 2014, they handled 39.53 million carloads (63 tons average) and had \$81.7 billion freight revenue. They had an average distance per shipment of 917 miles. The large U.S. railroads moved 10.17 million intermodal containers and 1.72 million piggyback trailers. Intermodal freight accounted for 6.2% by weight and 12.6% by revenue, the most notable commodities being coal, chemicals, agricultural products, nonmetallic minerals, and intermodal freight. Cheaper natural gas in 2015 made the volume of coal drop 11%, rail shipment of coal falling 40%, boosting the transportation of automobiles by rail, some by making use of tri-level railcars. US coal consumption fell from over 1,100 million tons in 2008 to 687 million tons in 2018.

Regulation: The regulation of railroads at the federal level is done primarily through the United States Department of Transportation through the agency to which the Federal Railroad Administration pertains for safety regulation and the Surface Transportation

Board, which regulates rates, service, construction, acquisition and abandonment of railway lines, carrier mergers and interchange of traffic among carriers. In discussing the FRA, it is an agency under the United States Department of Transportation (DOT). It was created by the Department of Transportation Act of 1966. Among the activities of this agency is formulating rules and regulations for safety at railroads, administering assistance to railroads, performing relevant research and development to improve safety in railroads, as well as to national rail policy, rehabilitation services for rail passengers traveling through the Northeast Corridor, and to consolidate the efforts of all government bodies in support of rail transportation activities.

The FRA is just one part of the Department of Transportation (DOT) that deals with the shipping of goods in different modes of transportation or what we call intermodal transportation. It is composed of seven divisions which are under the office of the Administrator and Deputy Administrator. The divisions include Financial Management and Administration, Chief Counsel, Civil Rights, Public Affairs, Public Engagement, Railroad Policy and Development, and Safety. There are around 850 people working there as staff. The FRA oversees rail traffic in the United States that is carried out with the national interconnected rail infrastructure for both passengers and freight. FRA is the authority that oversees the provision of public and intercity rail services. However, FRA has no power to regulate "closed" railways that operate exclusively on private property, for instance, a rail system between buildings at a steel mill, neither do they regulate subways, light rails, or elevated intra-city passenger rail systems that don't connect to public rail networks.

DOTX-218 Gage Restraint Measurement Vehicle



Introduction to Short Lines Railroad

In the United States, early railroad development was focused on building short, local lines to connect different cities and towns. These local lines were typically operated by a single company that owned all of the track, locomotives, and rolling stock. In other words, in the very beginning, all railroads were short line railroads. A short line railroad is a small or mid-sized railroad company that operates over a relatively short distance compared to major Class I railroads. The majority of short line railroads in the United States are classified by the Association of American Railroads as Class III. A Class III is any railway with an annual operating income of less than \$40.4 million, as defined by the Surface Transportation Board. Short lines generally connect to larger railroads to form a national rail network, and they ship freight that originates and terminates on their system. While most short lines are privately owned, some are publicly traded companies, and others are owned by large Class I railroads. Today there are over 500 short line railroads in the United States, and they account for approximately 30% of all railroad traffic. Short line railroads continue to play an important role in the U.S. economy, and they are increasingly relied upon to move freight over short distances and to connect different parts of the country.

A Bit of Short Line-Railroad History: The short line railroads, right from the inception of railways, have been coming down the track. Initially, the majority of the sections of the early railroads in the 1800s were treated as Class I railroads because of their big-time status being part of large rail companies. However, the advent of new technology and the growing popularity of the short track movement enabled these early tracks to be described as short lines. By the time the tracks were divested from their ownership by the larger railways and were operated by a private firm or even a single business, their original identity was clearly distinct from the Class I railroads.

Some of the earliest short line railroads include:

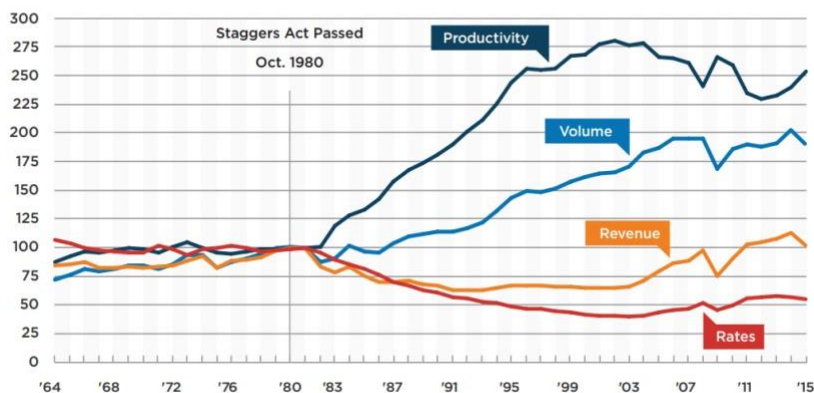
- The Erie Canal Railroad (1825)
- The Granite Railroad (1826)
- The Mohawk and Hudson Railroad (1826)
- The Baltimore and Ohio Railroad (1828)



The Staggers Rail Act of 1980: During the 1970s, the railroad industry was in a state of decline. This was largely due to a combination of factors, including declining rail traffic, rising labor costs, and increasing competition from trucks and airlines. In 1980, Congress passed the Staggers Rail Act in an attempt to revitalize the railroad industry. This act relaxed many of the regulations that had been put in place during the 1930s, and it allowed short-line railroads to compete more effectively with trucks and other modes of transportation. The result was a significant resurgence in short line railroad activity. In fact, between 1980 and 1990, the number of short line railroads in the United States more than doubled! In saving the Class I industry, the Staggers Act preserved the private national railroad network.

U.S. FREIGHT RAILROAD PERFORMANCE SINCE THE STAGGERS ACT

Today's Balanced Regulatory System Has Benefited Shippers and Allowed Railroads to Flourish



Source: AAR

In creating the modern-day short line industry, the Staggers Act ensured that huge areas of rural and small-town America would stay connected to that national railroad network. For the small businesses and farmers in those areas, the ability to take a 5-car train 15 miles to the nearest Class I interchange is just as important as the Class I's ability to attach that block of traffic to a 100-car train and move it across the country. Thousands of rail customers cannot make the journey across the country without Class I railroad service. The Staggers Act has also been good for the customers and suppliers of the short lines. The Association of American Railroads (AAR) reports that the Staggers Act has led to a 45% reduction in average shipping rates, a doubling of rail traffic, and an investment of \$600 billion into the rail system. In many respects, the Staggers Act is also the genesis of the short line industry as it exists today. The economic freedoms and regulatory flexibility embodied in that Act allowed entrepreneurs to save light-density branch lines rather than abandon them.

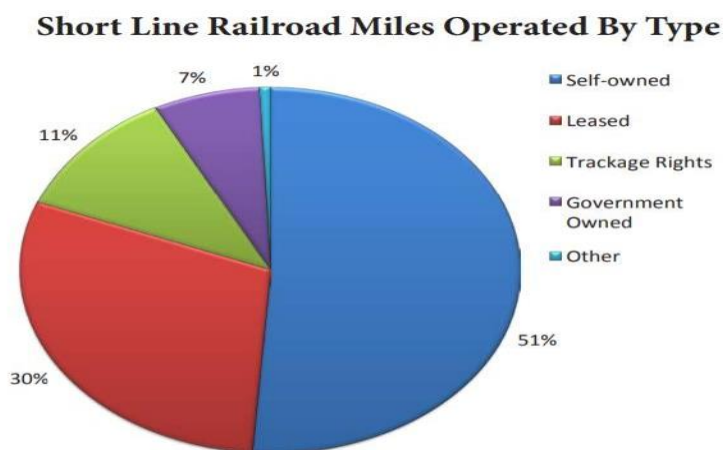
Short Line Railroads in Southwest Florida: In 1885, the Florida Southern Railroad began construction of the first rail line from Arcadia to Punta Gorda. By March 1886, the railbed was finished, and the first train operated into Punta Gorda on July 24, 1886. This line was originally built as a three-foot narrow gauge. The tracks were widened to standard gauge (four feet, eight and a half inches) on December 17, 1892.

Modern Short Line Industry:

Short line rail freight is a critical part of the U.S. freight network. The nation's 603 short lines provide the first and last mile service for one in five cars moving each year. Operating 47,500 route miles, or 29% of freight rail in the U.S., these small railroads play a vital role in the hub-and-spoke transportation network, providing the connection between farmers, manufacturers and other industries, and ultimately, the consumer. For large areas of rural and small-town America, short line and regional railroads are the only way shippers can be directly connected to the national network, helping business and employment stay local.

Short lines provide high value to their customers and to the seven North American Class I railroads. In their service areas, short lines place cars, consolidate shipments, and move the goods to the main lines. At the junction point, it is often the short line that manages by adding the carloads to a larger train for the next leg of the journey. At the destination, the process is reversed, and short lines deliver the cars to the customer or to another form of transportation, such as barges, container ships or trucks.

Short line and regional railroads operate under many types of agreements in order to provide service. The majority of route miles (51%) are wholly owned and 31% are leased from Class I's and other entities. The remaining 20% of miles used are owned by the government or made available via interchange agreements.



Source: 2016 ASLRRA Data Survey

Relationship to Class I Railroads:

The operational synergy between short line and Class I railroads is foundational to the US freight rail ecosystem. While Class I railroads focus on high-volume, long-distance corridors connecting major metropolitan hubs and ports, short line railroads specialize in bridging the gap between high capacity mainlines and localized customers. This partnership model maximizes network efficiency by allowing Class I railroads to avoid the inefficiencies of low-density branch line operations while enabling short lines to concentrate on high service, customer focused operations in regional or niche markets. Short lines typically maintain physical interchange points, either yards or sidings, where cars are handed off between networks. These interchanges require close coordination in terms of scheduling, billing, car tracking, and regulatory compliance.



Many short lines leverage advanced rail management systems and real time data sharing to ensure fluidity at these interfaces. With an average of four interchange agreements per short line, they not only gain access to multiple Class I networks but also enhance routing flexibility and rate competitiveness for their customers. This multi-interchange capability is particularly beneficial in pricing negotiations and in mitigating service disruptions by offering alternate routes. Furthermore, short lines often play a proactive role in industrial development. By working closely with local economic development agencies, they help attract manufacturing, agribusiness, and logistics firms to areas with rail access, thus increasing carload volumes for both them and their Class I partners.

Short lines also invest significantly in infrastructure upgrades, often supported by federal or state grant programs, to ensure compatibility with Class I equipment standards. Ultimately, the relationship between short lines and Class I railroads exemplifies a high functioning intermodal partnership, one that expands reach, increases system fluidity, and supports

US economic competitiveness by ensuring that goods can be shipped efficiently from even the most remote points to domestic and international markets.

Pennsylvania Northeastern Railroad (PN): The Pennsylvania Northeastern Railroad was originally built by the North Pennsylvania Railroad in 1856, connecting Bethlehem, PA and Philadelphia. In fact, it also serviced passengers until 1981. Today, it is a short line railroad primarily servicing Bucks and Montgomery counties, north of Philadelphia. It was formed in 2011 when it took over operations from CSX Transportation. The PN is managed by highly experienced railroaders, who operate freight lines in the Greater Philadelphia Region. Customers of the PN benefit from high quality service and direct customer to railroad interaction needs. The PN connects a wide number of customers, both locally and regionally, helping local economies thrive. On the Pennsylvania Northeastern Railroad, you can find any of the following in transit:

1. Aggregates: Rock, Gravel, Sand, Mineral Fragments

- a. These products are used for building roads, concrete and railroad track beds, managing snow and ice.

2. Agricultural Products

- a. Wheat, Soybeans, Corn, Peanuts, Malt or Dried Distilled Grains (a by-product in ethanol production).
- b. Peanuts used for peanut butter / Malt used for beer and energy drinks

3. Building Materials

- a. Pipe, PVC, Brick, and Lumber
- b. Materials used in various pipeline projects and building construction.

4. Chemicals

- a. Powders, Resins, Polymers
- b. These are used to make other products like rubber and plastics stronger and last longer

5. Food Products

- a. Sugar, Tomato Paste, Soybean Oil, and Corn Syrup
- b. All products that go into many of the different foods we eat every day

6. Frozen and Cold Foods

- a. Frozen and Cold Food storage, management, and truck distribution is provided through third-party logistics (3PL)

7. Metal Products

- a. Steel, Aluminum, Copper, Specialized Alloys, and Scrap Metal

8. Military Machinery

- a. Assist Military Contractors with their logistical needs to efficiently ship equipment to the nation's armed forces

9. Petroleum & Plastics

- a. Petroleum is used in a wide variety of products such as Fuel, Synthetic Rubber, and Plastics.
- b. Toys, Laundry Detergent Bottles, and Floor Mats come from the plastics hauled on PN.

10. Railroad Materials

- a. Steel Rail, Cross and Switch Ties, Tie Plates, Anchors, Railroad Spikes.
- b. Railroads need material for maintaining and upgrading their rights-of-way

11. Wood and Paper Products

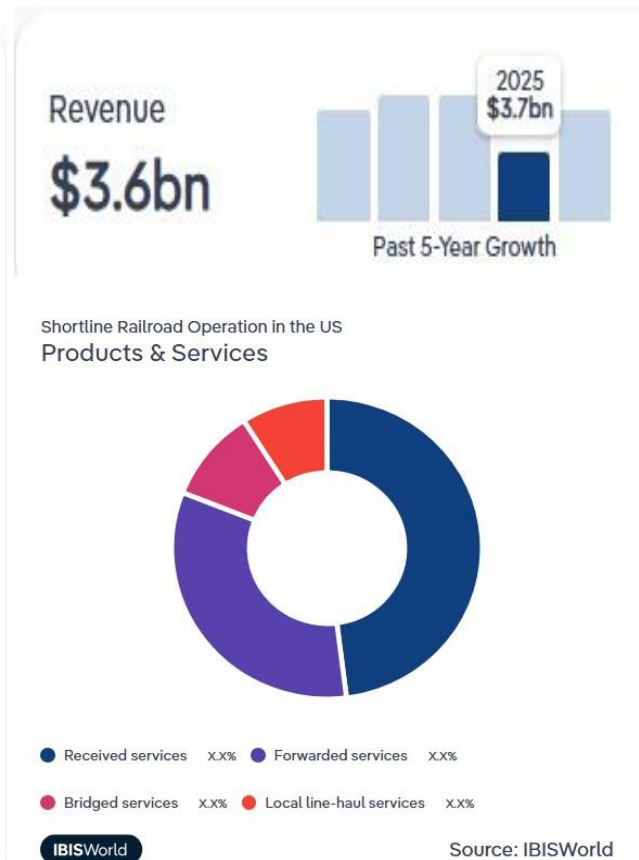
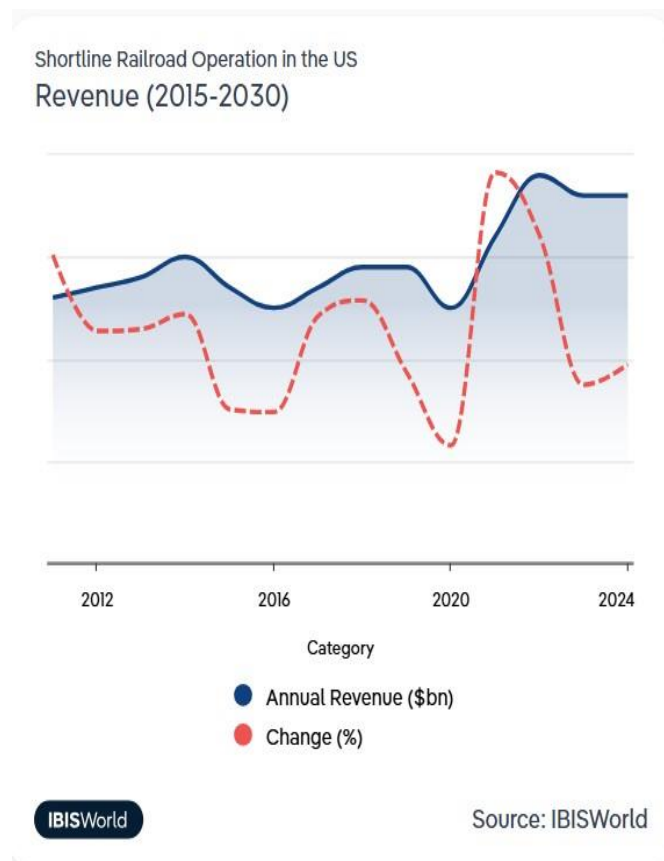
- a. Various Timber, Fiber, Particle Board Products
- b. Products are moved get manufactured into cardboard boxes, various packaging, diaper boxes, and catalogs.

Revenues and Stats:

The industry is tied to 478,000 jobs nationwide, \$26.1 billion in labor income and \$56.2 billion in economic value-add. Approximately 10,000 businesses nationwide rely upon short line freight railroads to get inputs to manufacturing locations and finished goods to the U.S. and world markets. Short lines are small, entrepreneurial businesses, with most employing fewer than 30 people, running an average of 79 total route miles, and earning an average of \$7.7 million or less in revenue per year. These businesses are all identified as Class II and Class III railroads by the Surface Transportation Board. Revenue is expected to increase at a CAGR of 4.6% to \$3.6 billion through the end of 2024, including a contraction of 0.8% in 2024 alone. Short lines will continue to play a critical role in sustaining economic activity. With 47,500.0 miles of rail, they account for an estimated 29.0% of all freight rail in

the US (ASLRRA), facilitating first and last-mile delivery services for many rural areas that would otherwise lack connection to central Class I railways. Leading Short Line Companies like Genesee & Wyoming Inc. and Watco Companies alone generated approximately \$661M and \$321M respectively in Annual Revenue, so from this we get an idea about how big the industry really is.

Here are some of the stats from IBIS World:



Impacts of Short Line Railroads

- **Extensive Network Coverage** - Together, short line railroads operate approximately 50,000 miles, accounting for nearly 29% of the total rail terrain in the US. They can operate on that extensive scale because they connect to and are therefore in close proximity to thousands of communities and industrial locations that are left untouched by the major Class I railroads' networks. This is precisely why their decentralized

placement is so critical to hold the highways for transportation equity and economic coherence across the nation and probably especially to the rural and under-density areas.

- **Significant Freight Movement** Short lines are important to national freight logistics even though they run less track than Class I carriers. Short lines originate from about 33% of freight shipments and receive an additional 48%, while approximately 9% of freight shipments are made entirely within short line systems. This assessment of short line freight's role and volume demonstrates the importance of short lines in first mile and last mile freight logistics, with short lines serving as a seamless modal transfer enabling available freight modal choices and collectively increasing the overall tonnage on the rail system.
- **Broad Customer Segment** - Short line railroads provide service to almost 10,000 customers every year, spanning a very diverse set of industries. Some of their industry customers include agriculture, automotive, construction materials, forest products, energy, and chemicals. Their ability to cater to the needs of local customers, with flexible scheduling, interaction with customers, and customized freight handling provides short line railroads with favorability as a chosen partner with small to midsized shippers.
- **Widespread Presence** - Short lines operate in 49 states across the US, forming a dense network of regional and local rail corridors. The geographic reach of short lines will benefit nearly every significant economic region with some connection to rail, which is a significant asset for export-based industries and rural communities. Their geographic reach also supports multimodal systems by connecting to ports, transload facilities, and intermodal terminals.
- **Economic Contribution** - Short line railroads generate over 4.64 billion dollars every year in revenues supporting the U.S. economy. Clearly, they have an extraordinary degree of economic importance even though they operate on a smaller scale than Class I railroads. In fact, over 83 million dollars is tax revenue to federal, state, and local governments. Short line railroads support thousands of jobs, help drive industrial development in rural and regional markets, complement national rail service, and provide important first mile and last mile connections that enable goods to be moved effectively across the national network. Their customer-focused operations, significant investment in infrastructure, and critical links to local economies helping integrate them into global supply chains are why short line railroads are vital parts of the transportation system and providers for broader economic development.

- **Employment Opportunities** - There are currently 18,000 railroaders across the country, and many are from small towns or rural areas. These jobs offer reliable and wellcompensated work in many communities where dearly needed economic development won't happen otherwise. Workforce development or alternative career paths are available in railroad-related fields such as train operations, track maintenance, logistics, safety management, and mechanical.
- **Environmental Benefits** - Rail transportation fundamentally consumes less fuel than road transport, and short lines are even more environmentally responsible by taking freight off the highway. Rail accounts for less than 1% of transportation-related greenhouse gas emissions in the US. Short lines are more environmentally responsible shipping for shippers who want to reduce their carbon footprint by consolidating shipments and using locomotives that consume less energy.
- **Reduction in Road Congestion** - Short lines also ease road congestion by removing over 30 million truckloads or "semis" off the highways in the US every year. This results in fewer traffic jams, reduced costs for the maintenance of roads, and less wear and tear on infrastructure that is already in very poor shape. Their participation in modal shift supports state and federal outcomes for infrastructure resiliency and sustainable urban mobility.
- **Technology Adoption and Digitization in Small Markets** - Numerous short lines use digital solutions (for example, GPS-based car tracking systems and EDI) that introduce modern logistics capabilities in rural or underserved markets and achieve digital equity in freight mobility. In these cases, public-private partnerships or other federal funding programs often implemented these investments to ensure that even the smallest operators could use the latest technologies. Also, by digitizing core functions, short line railroads will not only improve the quality of service but will also become part of the emerging data-driven intermodal logistics networks and modern freight economy.

Short line railroads, which are individually owned and operated businesses, have saved the small-town freight service and rural business freight service neglected by most other rail carriers. While short lines typically serve fewer customers, it is common for short lines to have only around 10-15 customers per line, while large class 1 railroads may serve thousands of short lines fill an important niche for first mile and last mile service to serve small and rural industries to the national and worldwide supply chain. Short line railroads are also in a better position to provide personalization and flexibility.

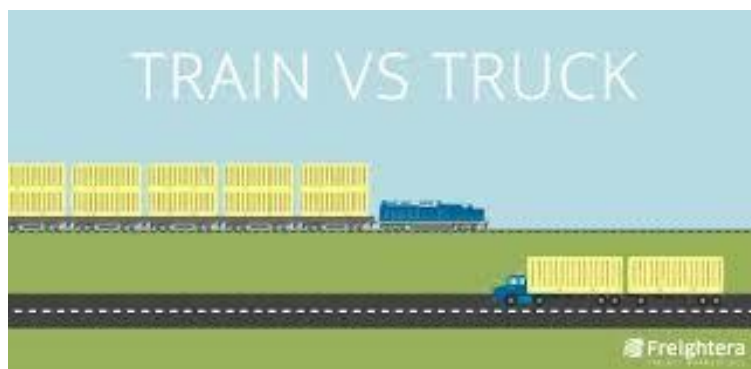
Because running a short line railroad is expensive and profit margins are small, short line railroads tend to be bigger things than transposition business, otherwise known as accumulate and pass-through business.

Challenges Facing Short Lines

- **Funding and Access to Capital** – Short-line railroads are presently underfunded, and because of this shortfall, they are unable to pursue vital updates and maintenance. They operate an often “thin” margin and do not have many traditional avenues of capital investment, which forces most short lines to delay a multitude of maintenance, including tie replacement, and bridge work. Continued neglect will lead to continued disinvestment, weak infrastructure, and insufficient safety. Most cannot financially afford to upgrade their track infrastructure for 286,000-pound railcars, leaving them at a competitive disadvantage with both rail and road competitors. They lack reliable investment opportunities, often choosing to rely heavily on unpredictable federal grants and initiatives like CRISI grants and the 45G tax credit. This chronic underfunding leads to a risk to long term viability of short lines, as well as the rural economies they support.
- **Infrastructure** - Numerous short line railroads operate upon outdated infrastructure built upon by larger carriers with decades-old tracks, bridges, and equipment that are not up to modern rail standards (in terms of safety or performance). Insufficient funding for infrastructure upgrades and repair means slow speeds, increasing maintenance costs, and higher risk of service interruptions. Possibly the toughest issue is that the weight limitation imposed by many short lines means that they are unable to service the industry standard 286,000-pound rail cars used on Class I carriers or by shippers. This inability to service a larger carriage creates inefficiencies and limits interoperability, forcing a customer to either ship less efficiently, or switch to a different mode of transport, generally the truck. This can result to poor rail performance and outdated infrastructure that can limit short line railroads capacity, efficiency, and competitiveness.
- **Labor** - Short line railroads are seriously affected by labor challenges, especially with recruiting and retaining skilled workers, particularly engineers, conductors, and maintenance workers. Many of these railroads operate in rural locations, and the labor pool is limited, making it hard to find qualified candidates. In addition, the workforce is aging with more experienced workers approaching retirement and fewer younger

employees entering the field. Small railroads are also unable to offer competitive wages, benefits, and training programs, which are having an impact on staffing levels. These constraints around labor can affect daily work and the ability of the railroads to expand, as well as comply with safety and regulatory requirements.

- **Lack of Technology** - Many short line railroads find it difficult to modernize for two key reasons – financing and technical capacity. Short line railroads, unlike larger railroads, often do not have sophisticated tracking, scheduling and data management systems which can impact operational efficiency and visibility to consumers. Innovations such as automated switches, real-time tracking of shipments, and energy-efficient locomotives are often out of reach. Moreover, while most small railroads don't face issues with Positive Train Control (PTC), small railroads that interact with Class I railroads' networks may incur substantial costs in dealing with PTC integration. The technology gap makes it difficult for short line railroads to compete in a logistics environment where the use of information and technology, and automation continues to expand.
- **Truck Competition** - Short line railroads encounter increasing competition from the emerging, more flexible, and more economical trucking company, which can offer faster door-to-door service and has access to an existing vast infrastructure. For many shippers, particularly those with small quantities of freight or tight time constraints, trucks are simply easier to use and more reliable than rail service. Trucking does not require transloading or reliance on a limited infrastructure base such as sidings or interchanges. In several areas, short line railroads operate on poor quality tracks or tracks with a limited top speed, which further handicaps their competitive advantage against trucking. As logistics technology improves and the fuel economy increases in the trucking industry, short lines must work even harder to keep customers and demonstrate rail's cost and sustainability advantages over longer distances.



- **Regulatory and Policy Challenges** - There are regulatory barriers for short line railroads that are hard to navigate with little resources. On top of being smaller, short line railroads face some of the same federal regulations covering safety, reporting (e.g. rail crossings), and environmental issues like Class I railroads, which can act as a hindrance to better performance. Regulatory compliance requires interaction with the Federal Railroad Administration (FRA) for inspections, qualifications for crews, and other environmental rules, all of which use time, workers, and funds that some short lines do not have. There are even federal grants available through CRISI and RAISE for investing in the railroad's infrastructure; however, the specifics of the projects or programs that need funding can be complicated, difficult to understand, and angles of the programs tend to favor larger entities with capacity to administratively apply and manage grants. This is well intended, but with more purpose-specific regulatory policies or a wider, easier pathway to accessing public funding sources, short line railroads would succeed in compliance and improving performance.
- **Environmental Pressures and Sustainability** - Rail transportation is an inherently more fuel-efficient and environmentally benevolent means of transportation than trucking; however, many short line railroads face difficulties in achieving modern environmental standards, largely due to old equipment and limited finances. In addition to the limited funding, regulations on emissions, fuel usage, and stormwater runoff will bring additional costs to compliance that small railroads would be sidelined. Nevertheless, with proper investment, short lines have great potential to impact national sustainability goals. Well, maintained cleaner locomotives, energy use upgrades, and better fuel use and management could improve environmental performance in short line rail service and positively shape the competitive landscape for short line rail services.
- **Demurrage Bills** - Short line railroads and their customers often experience additional costs, like demurrage fees, which further constrain an already precarious operating margin. Demurrage, or fees or charges for holding a railcar past the allocated free time, can be established by Class I railroads when freight is delayed during interchange or at the final destination. For short lines that operate on aging infrastructure with slow speeds and inefficient operations, these costs add up quickly, regardless of their control over the delays. These costs affect the bottom line of the railroad and deter shippers from using rail, especially when they have unpredictable costs and service. Customers can lose faith in rail when billing practices for demurrage and other

accessorial charges lack transparency, and freight can shift to a more flexible and reliable trucking alternative.

Strategic Recommendations

- **Technological Improvements**

RAILPulse is a company that is hoping to change the future of railroads. They aim to service rail shippers, railcar lessors, and the general population of railroad users. This is a product in which railcars are tracked live to show the location, condition, and health to the companies shipping/receiving these goods/products. Created by the RAILPulse coalition, a group of logistics firms, they felt the need to adopt more efficient railcar telematics. This product helps establish an industry wide platform, assisting in increasing rail visibility for all parties involved. RAILPulse uses GPA location tracking which helps companies gain valuable insights, improve security and enhance overall efficiency. The condition of the car is an extremely useful feature for shippers. Monitoring the railcars status through RAILPulse can show if a car is loaded or unloaded, the doors are open or closed, if the hatches are open or closed, and also the current temperature and moisture levels within. The actual health of the railcar is another benefit that RAILPulse provides shippers. The mechanical data such as handbrake, bearing, wheel, bolster, air pressure, and coupler information are all available to shippers.

All railcars are equipped with a standard set of telematic sensors that report back to the RAILPulse network. Installation is seamless on any type of railcar, including box cars, covered hoppers, tank cars, and even gondolas. Once equipped, real time data is generated from the sensors. The shipper now has access to all facets of their rail car, allowing them to have increased visibility, and give their business partners pinpoint accurate times.

Additionally, technology such as Radio Frequency Identification (RFID) could be an amazing addition to the Lansdale Warehousing team. RFID can change any warehouse by turning every pallet into a real-time data point. RFID readers can capture hundreds of tags per second, without any line of sight necessary. RFID provides near perfect location accuracy through docks, conveyors, or even forklift zones. This allows warehouses to enjoy touch-free receiving and shipping, helping shorten the amount of time counting inventory,

while also limiting the number of manual mistakes possible. Each transaction can even be read right into Lansdale's ERP system, allowing for quicker and easier exchanges. Strategically, RFID allows for retailers, regulators, and customers to enjoy the benefits of constant product surveillance, while warehouses gain elite visibility on the movement of their inventory.

- **Demurrage Bills**

Demurrage is a time-based penalty imposed upon short line railcars that stay on carrier property over their designated "free time", as per a contract. This occurs when a rail car is loading or unloading at a company's dock. This charge serves 2 purposes, the first being it reimburses the carrier for taking up the track space as well as reimbursing the crew responsible. Secondly, it forces the company to unload cars quickly so that cars can stay in circulation throughout the line. To avoid this, we provide multiple suggestions to Lansdale Warehousing:

- Avoid peak congestion hours to container pickup
- Negotiate longer free time with carriers based on trade volume
- Maintain regular record-keeping
- Dispute the charge by submitting evidence of timely loading/unloading
- Include clauses for exceptions (e.g., customs delays, labor strikes) - Use container tracking systems (e.g., RFID, Project44, FourKites)

- **Infrastructure Management**

Infrastructure management is an integral part to any rail operation. Short lines typically reinvest about 25% of their operating cash back into track and rail improvements. Maintaining track lines and ensuring proper safety procedures are of the utmost importance to keeping operations up and running. Some ways to help aid these initiatives are through Consolidated Rail Infrastructure Safety Improvements (CRISI) grant as well as Infrastructure Investment and Jobs Act (IIJA).

CRISI grants are a phenomenal way to gain funding for infrastructure projects. These are grants that companies do not have to repay. The money given can replace old ties, bridges, rail so that railcars can run safely. Improved tracks let trains move faster and avoid costly derailments or slow order shipment speeds. These CRISI grants cover up to 80% of a project, so cash provided by the company can go further, and get more for their dollar than if it was unassisted. CRISI grants, according to

transportation.gov, distribute more than \$2 billion a year, with at least 25% automatically set aside for rural projects.

Additionally, the Infrastructure Investment and Jobs Act was signed by President Biden on November 15, 2021, and authorized \$1.2 trillion for transportation and infrastructure spending. It provides federal money straight to areas of need for short line railroads. Because of the IIJA, even smaller companies can now tackle infrastructure issues that they once thought improbable. They help smaller, more rural companies stay up to date on infrastructure, while keeping them connected to national freight lines. It has turned CRISI grants into a billion-dollar-per-year lifeline and together, the two forms of funding allow short lines to tackle decades-old infrastructure issues.

Projects with funding from these grants could be used to raise track standards to handle heavier cars, replace life-expired bridges, culverts and drainage, and even add sidings, crossovers or yard capacity. Stronger infrastructure allows for lower insurance bills and meets stricter safety regulations. These 2 federal fundings can change the infrastructure in an area, and could be extremely beneficial, especially to the Lansdale Cluster.

- **Policy and Funding**

Notably, a clear plan for enhancing the acceptance and access to funding sources and support mechanisms is required for ensuring the sustainability of short line railroads long term. In terms of what funding opportunities could add value quickly, funding for targeted grant programs, including CRISI, are an essential funding opportunity source for short lines that need infrastructure rehabilitation and modernization.

Public-private partnerships (PPPs) are also a collaborative opportunity that can promise government resources and private investment to fund high-impact projects that will have a positive impact on regional economies.

Short lines could also take advantage of the opportunity to submit joint funding grant applications with other railroads, shippers, or municipalities, which may further enhance their competitiveness in the grant process.

It would also assist in eliminating the administrative burden on the applicants' side because the more streamlined the application process is, the easier it is for small

operators to be involved, especially those who operate on a small scale and have to limit the number of staff who are involved.

Other options such as low-interest revolving loan funds or infrastructure banks that only fund rail specific initiatives may also be viable options that provide a more predictable and reliable source of funding.

Finally, developing partnerships with either the state or local governments will provide a deeper level of collaboration for financing infrastructure investments that consider transportation, economic development and/or environment perspective. Collectively a range of options would create opportunities that would enhance the ability of short lines to be of service to local industry (while preserving connectivity for rural communities) and help facilitate greater freight efficiency at the national level.

Some of the most beneficial grants we found are as follows:

Federal Programs

- **CRISI** (Consolidated Rail Infrastructure and Safety Improvements Program): Created by the FAST Act, Provides grants for infrastructure upgrades, safety improvements, and operational enhancements.
- **INFRA** (Nationally Significant Freight and Highway Projects Program): Supports freight movement and highway improvements of national or regional significance.
- **RAISE** (Rebuilding American Infrastructure with Sustainability and Equity): Formerly TIGER/BUILD. Funds local and regional transportation projects, including short line rail enhancements.
- **RCE** (Railroad Crossing Elimination Program): Aims to improve safety and eliminate highway-rail grade crossings.
- **PIDP** (Port Infrastructure Development Program): Supports rail infrastructure connected to ports to improve intermodal efficiency.
- **Section 130 / Railway-Highway Grade Crossings Program**: Funds improvements at rail-highway crossings to enhance safety.
- **Mega (National Infrastructure Project Assistance Program)**: Provides funding for large-scale, high-impact infrastructure projects, including freight and rail.
- **National Highway Freight Program**: Enhances the movement of freight across highways, often benefiting intermodal rail connections.
- **Rural Surface Transportation Grant Program**: Supports rural infrastructure projects, including short line rail improvements in underserved areas.

State-Level Program—Pennsylvania:

- **Rail Freight Assistance Program (RFAP):** The Rail Freight Assistance Program (RFAP), operated by PennDOT, is a state-level program that provides substantial funding for rail infrastructure projects in Pennsylvania. If funding is awarded, the program will reimburse up to 70% of the project cost, which is significant for short line railroads with limited capital. Pennsylvania is one of the few states in the country with such a program, making it one of the leaders in providing statelevel support for freight rail.

Regional Coordination:

- **Metropolitan Planning Organizations (e.g., DVRPC):** Serves five counties, in Pennsylvania, and portions of New Jersey and Delaware. DVRPC facilitates interstate transportation planning and promotes regional rail infrastructure needs. DVRPC provides hotlines for operational issues including bridge crossings and failed crossing gates and works on enhancing the movement of interstate rail.

Labor Shortages / Retention

Many companies in the rail and warehousing industries have seen a decline in the number of qualified and interested job applicants. In order to fix this issue, we recommend investing in the future. There are many applicable programs and initiatives that can help us do that. Firstly, tracks to the future are a summer program hosted by certain colleges for high school students to investigate career paths in the railroad industry, especially transportation and engineering. Six college partake, Michigan Tech, Penn State Altoona, Illinois RailTEC, South Carolina, New Mexico and Fresno State. It is a one-week summer camp that has campers building track panels, ride yard engines and tour dispatch centers on-site, giving them a real taste of the railroad profession. Penn State Altoona, one of the schools that participates in Tracks to the Future, also is the only school in the country with a degree in rail transportation engineering. has the only Rail Infrastructure Technology major in the country, while schools such as Michigan Tech and the University of New Orleans are increasing their scholarship and research award money in order to attract the future of railing.



Additionally, the American Railway Engineering and Maintenance-Of-Way Association (AREMA) has established student chapters at over 20 colleges, with more than 500 students utilizing this association to gain internships or full-time jobs in railroading. Every two years, AREMA, in conjunction with the Railway Engineering Education Symposium (REES) facilitate a professor bootcamp. Here, faculty will have the chance to gain education on rail curriculum and lab modules so that they can incorporate this information into mechanical and general engineering courses. This help students gain exposure to the rail profession as well as increasing the number of students who gain a basic understanding of railroad concepts.

- **Competition**

The transportation industry is fiercely competitive, as businesses are striving for a piece of the growing market as a result of the increase in demand tied to e-commerce and the pressure to move goods faster while keeping costs low. Short line railroads now face more competition, particularly in rail's most ideal market share which has been lost to the trucking industry. Not only does trucking offer door to door service, but they also have quicker transit times and use the digital tools that shippers demand today, like real-time tracking and scheduling changes.

Rail is also hindered logistically because of infrastructure challenges with weight restricted tracks, slower speed limits, etc., and the railroad is chasing a more reliability and efficient product that customers are asking for. Many shippers have gone to use trucks all together, especially with short haul moves which can come in at a higher price than rail at short distances. Short lines must evolve from being a truck feeder - rail needs to find ways to integrate into the entire logistics system.

One exciting area to explore is intermodal. Short lines can offer a unique way to be a viable option to trucking by being integrated into an intermodal system where they are transferring product from the rail to trucks to truck the last mile. Transfer points that function as a partnership, as described by the Lansdale hub, show an innovative approach to the industry as a way to reduce road traffic and emissions and fuel consumption while reducing the costs of doing business. If short lines integrate into partnerships using intermodal, they can present themselves with an opportunity to be part of a long-term transportation solution and offer more to their customers.

Benchmarking

Benchmarking is a practice commonly used in consultation to gain a measure on a client's performance in comparison to industry leaders. This helps target specific goals by gaining measurements on improvements and practices companies have in common. This additional literature review provided us with information necessary to make recommendations to Lansdale Warehousing on the subject at hand.

We looked into multiple different short lines and their performance. Given below are improvements they made and the impact it had on the rail line as a whole:

□ Genesee & Wyoming (G&W) (Nationwide) -

G&W merger dispatching, customer service, and asset health into a single 24-hour Network Operations Center that draws live data from its RailConnect telematics (similar to RAILPulse). This allows the railroad to re-route power and maintenance crews across more than 100 priorities in real time.

Impact: Higher reliability and reduced operating costs across 100+ short lines.

- Iowa Interstate Railroad (IAIS) ~ Iowa, Illinois, Nebraska
Raised the track to 286,000-lb capacity and 40 mph speeds. This along with increased interchange scheduling speed, cut dwell time at Council Bluffs and Rock Island, allowing for new grain, ethanol, and intermodal transportation.

Impact: Increased freight volume, lower dwell time.

- Reading Blue Mountain & Northern ~ Pennsylvania

The railroad built three truck-to-rail transload centers, added a growing tourist-passenger business, and offers shippers same-day problem-solving through a dedicated customer team. This has doubled freight revenue in a decade and earned RBM&N repeated honors as one of the nation's top-performing short lines.

Impact: Revenue growth, national recognition as a top-performing short line.

- California Northern Railroad (CFNR) ~ California

With state clean-air grants, CFNR swapped aging diesels railcars for low-emission locomotives that cut fuel use and slash NOx and additional pollution up to 80 percent. Infrastructure funds for ties, bridges, and crossings paired with the low-emission locomotives cut operating costs and kept the CFNR well ahead of strict California Air Resources Board rules.

Impact: Reduced emissions, cost savings, and regulatory compliance.

- Twin Cities & Western Railroad (TC&W) ~Minnesota

TC&W partnered with Minnesota DOT and the FRA to reroute its main track onto the Bass Lake Spur. This TIGER-funded relocation helped removed sharp curves and neighborhood conflicts in Minneapolis. The rebuilt segment now carries full-weight cars at higher speeds, trims end-to-end transit times and has improved relations with local communities along the route.

Impact: Faster service, increased carload capacity, better community relations.

Conclusion

This study illustrated the value and pervasiveness of America's 603 short line and regional railroads. They run around 47,500 miles of track—almost a third of the whole system—serve nearly 10,000 shippers, originate one-third of all rail loads, and support hundreds of thousands of jobs. Lansdale Warehousing's facilities are a perfect example, pairing rail connections with storage and e-commerce services that keep local factories tied into large railroads and world markets.

But that worth is at risk because most rail lines have outdated track, struggle to fund large projects and are unable to secure new workers. Most short lines allocate a quarter of the operating cash they have just to fund rail projects and perform necessary infrastructure maintenance necessary to continue day-to-day operations. Money problems compound when regulations tighten, demurrage feels pile up and veteran workers are few and far between.

Government support can alleviate the gap. The CRISI grant program now allocates over \$2 billion a year to rail projects, and the Infrastructure Act adds money on top of that. States like Pennsylvania will also pay up to 70 % of project costs, and local organizations bundle jobs that cross county lines. These funds begin to fix the track, bridges, and crossings that slow down trains and impair service. to leverage this support, we recommend four main points of action: bring innovative tools like RAILPulse and RFID to detect cars and parcels in real-time; align grants and private funding to raise track to 286 k pounds and replace aging bridges; track costs efficiently and avoid demurrage wherever possible; and create a next-gen workforce with rail camps and college chapters.

Short lines, though limited in size, are powerful contributors to regional logistics performance and economic stability. Their success is crucial to many local economies throughout our country.

Through a combination of implementing new technology, utilizing applicable funding, avoiding additional overhead charges, and investing in the youth. We believe, Lansdale Warehousing can successfully improve and demonstrate the value proposition that short lines provide.

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