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16. Abstract This research project assesses the economic role and impact of short line railroads in the state of Louisiana. While relatively small in scope, with 11 operators and approximately 500 miles of track, short line railroads play a significant role in supporting the state's core economic drivers. Overall, short line railroads are small, but significant components of the state's business connections since the primary purpose of these rail lines is to move commodities from Louisiana producers, via rail, to national and international markets and vice versa. This report addresses a number of key factors related to their overall economic impact upon the state's economy, including the regional economic impact of the short line railroads. First described is the scope and presence of the eleven short line railroads currently operating in the state of Louisiana, paying particular attention to their role in facilitating the transportation of goods to and from Class I railroads. Second, a detailed description of the broader economic contribution of short line railroads in Louisiana, focusing on key economic metrics such as employment levels, parish presence and industries served, as well as estimates of the economic impact of the short line railroads on the state and selected regions of the state, is provided. In this section, the fact that short line railroads account for approximately 1,821 direct and indirect jobs in the state, many of which are located in parishes with limited employment opportunities, is highlighted. More importantly, short line railroads directly support the State's leading industries (i.e., agriculture, oil and gas, etc.) which represent the major drivers of the State's overall economy. These major industries support over 260,000 jobs in the Louisiana economy or close to 15 percent of all jobs in the state. In addition, these core industries create the opportunity for other businesses to be successful. In this section, also addressed are possible alternatives to short line rail operations and their environmental and economic impact. Lastly, short line policies (e.g., grant programs for capital improvements) that should be considered by the state of Louisiana in order to accommodate the flow of goods using railways in the state is explored. These policies are drawn from short line rail policies that have been crafted by other states, but are related to the unique short line issues in Louisiana.					
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Economic Impact Analysis of Short Line Railroads

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ABSTRACT

This research project assesses the economic role and impact of short line railroads in the state of Louisiana. While relatively small in scope, with 11 operators and approximately 500 miles of track, short line railroads play a significant role in supporting the state's core economic drivers. Overall, short line railroads are small but significant components of the state's business connections since the primary purpose of these rail lines is to move commodities from Louisiana producers, via rail, to national and international markets and vice versa. This report addresses a number of key factors related to their overall economic impact upon the state's economy, including the regional economic impact of the short line railroads.

First described is the scope and presence of the 11 short line railroads currently operating in the state of Louisiana, paying particular attention to their role in facilitating the transportation of goods to and from Class I railroads. Second, the authors provide a detailed description of the broader economic contribution of short line railroads in Louisiana, focusing on key economic metrics such as employment levels, parish presence and industries served, as well as estimates of the economic impact of the short line railroads on the state and selected regions of the state. In this section, the fact that short line railroads account for approximately 1,821 direct and indirect jobs in the state, many of which are located in parishes with limited employment opportunities will be highlighted. More importantly, short line railroads directly support the state's leading industries (i.e., agriculture, oil and gas, etc.), which represent the major drivers of the state's overall economy. These major industries support over 260,000 jobs in the Louisiana economy or close to 15 percent of all jobs in the state. In addition, these core industries create the opportunity for other businesses to be successful. In this section, the authors also address possible alternatives to short line rail operations and their environmental and economic impact. Lastly, short line policies (e.g., grant programs for capital improvements) that should be considered by the state of Louisiana in order to accommodate the flow of goods using railways in the state will be explored. These policies are drawn from short line rail policies that have been crafted by other states, but are related to the unique short line issues in Louisiana.

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INTRODUCTION

The purpose of this research project was to assess the economic impact of short line rail operations in the state of Louisiana. While relatively small in scope when compared to their national rail counterparts, short line rail operations play a significant role in supporting core industries in Louisiana, namely petrochemicals and agriculture. This is not unlike other states that also depend on short line rail operations to connect major industries to national and international markets. A number of states have initiated state level programs to ensure the continued sustainability and viability of short line rail service. In many respects, short line railroads can be thought of as small but necessary components of the state's business machinery since the primary purpose of these rail lines is to move goods and products from producers to national rail lines and vice versa. This report addresses a number of key factors related to their overall economic impact upon the state's economy, noting their importance to the state's overall transportation infrastructure and export/import process.

First, the report provides an overview of rail operations within Louisiana by describing the scope and presence of both national and local railroads in the state. Second, the report provides a detailed description of short line railroads, focusing on key economic metrics such as employment levels, parish presence, industries served, and economic impact multipliers associated with the core activities of the short line rail operations. Additionally, the report examines alternatives to short line rail operations and their environmental and economic impact. Third and last, the report will review how select states with critical short line rail needs have crafted policies to support their short line railroads and propose the consideration of similar policies that may be beneficial for the state of Louisiana.

OBJECTIVE

The primary objective of this research study was to provide a detailed analysis of the economic impact of short line rail operations in the state of Louisiana. Short line (Class III) rail is defined as those rail operations with revenues of \$31.9 million or less and those handling terminal and switching operations. Short line rail operations function in tandem with larger regional (Class II) and national (Class I) rail operations and are generally responsible for moving commodities from manufacturing sites to interchange points with Class I rail operations where they can be transported to transnational locations.

While not as large as Class I and II railroads, short line railroads play a significant role in ensuring that goods and commodities are shipped and received in a timely fashion. According to the American Short Line and Regional Rail Association (ASLRRA), approximately 8 million carloads of goods, ranging from coal to manufacturing products, were shipped over Class III, short line rail in 2010. In terms of scope, there are an estimated 537 Class III rail operations across the United States which employ approximately 12,000 workers (23 on average per railroad) and generate combined revenue of \$2.1 billion annually [1].

This report is intended to both provide background materials to policy makers on the economic role of short line operations in the state of Louisiana and to provide data on short line rail operations in the state and regional economies. Additionally, this report addresses the impact of short line rail operations on other industries in the state.

SCOPE

The focus of this study was on the economic impact of short line railroad operations in the state of Louisiana. As such, analysis was restricted to short line operations and railroads within Louisiana's boundaries. In terms of the broader economic impact of short line railroads, the following topics related to short line rail operations were addressed: employment, spending, revenue and taxation, environmental savings, and industry support. These estimates included both direct and indirect economic impacts.

In an effort to better address how the state of Louisiana might provide a more robust support structure for short line rail operations, the state level, short line funding programs implemented in comparable states with short line rail operations were reviewed.

METHODOLOGY

There are a total of 11 short line railroads currently providing rail services in the state of Louisiana. Of this group, three railroads focus on terminal and switching needs while eight short line railroads focus on transporting commodities to and from manufacturers to Class I rail lines.

To obtain data relevant to the broader economic impact of short line rail operations in the state, the authors employed a mix-methods approach that combined the use of an electronic survey of railroads (See the Appendix for survey instrument); third party data collection from federal, state, and rail association data sources; discussions with persons who have observed the short line rail industry over many years; and one on-site visit with a short line rail railroad. Relevant data were collected over a 9-month period, from January 2013 to September 2013. The mix-methods approach was used to secure the most reliable base data describing the direct influence of the short line rail industry in Louisiana and to ensure, at least as far as possible, the accuracy of data by cross-checking data sources. This base data becomes the information that allows for the projection of the indirect economic impacts related to the operations of the short line railroads themselves.

Indirect economic impacts are derived by using Regional Input-Output Multipliers (RIMS) as derived by the U.S. Department of Commerce. RIMS multipliers are accepted as the most reliable method of tracing and estimating the economic influence of a particular activity on the state's economy and on specific regions of the state. For example, a basic analysis would be what impact does a direct activity of \$100 million of net new sales by the petrochemical industry in Louisiana, that otherwise would not have taken place, have on overall employment and earnings in the state as well as the state and local tax collections.

However, even more significant to the economic opportunities of the state is the economic role that the short line railroads play in support of basic industries in the state. That is, in certain regions of the state the petrochemical, the agricultural industry, or manufacturing concerns connected to the agricultural industry may not be as robust if short line railroads were not available to connect the producers of these products to national and international markets. The economic importance of these industries is noted, along with estimates of what losing a certain amount of these industries would mean for the state and regional economies.

DISCUSSION OF RESULTS

Short line rail encompasses those rail operations with revenues of \$31.9 million or less and those handling terminal and switching operations. Short line railroads generally function in tandem with larger, Class I railroads, and are typically responsible for moving commodities from shippers to interchange points with Class I rail operations, where they can then be transported to transnational locations.

While not as large as Class I and II railroads, short line railroads play a significant role in ensuring that goods and commodities are both shipped and received in a timely fashion. Nationally, approximately 8 million carloads of goods, ranging from coal to manufacturing products, were shipped over Class III, short line rail in 2010. In terms of scope, there are an estimated 537 short line railroads across the United States that employ approximately 12,000 workers (23 on average per railroad) and generate combined revenue of \$2.1 billion annually [2].

In Louisiana, there are approximately 3,123 miles of track, maintained through a combination of both Class I and short line railroads, with short line railroads servicing approximately 509 miles (16.2 percent) of total track mileage. Table 1 lists short line railroads in the state, along with their corresponding track mileage and parish presence.

Table 1
Short line railroads – size and scope, 2013

Short Line Rail	Parishes Served	Miles of Track in Louisiana	Percent
Acadiana Railroad	Acadia, Avoyelles, Evageline, St. Landry	87	17.1%
Arkansas, Louisiana, and Mississippi Railroad	Morehouse, Ouachita	24	4.7%
Baton Rouge Southern Railroad	East Baton Rouge	2	0.4%
Delta Southern Railroad	East Carrol, Madison, Ouachita	44	8.6%
Louisiana and Delta Railroad	Assumption, Iberia, Lafayette, Lafourche, St. Martin, St. Mary, Vermilion	65	12.8%
Louisiana and Northwest Railroad	Bienville, Claiborne	37	7.3%
Louisiana Southern Railroad	Bienville, Grant, Jackson, Rapides, Webster, Winn	157	30.8%
New Orleans and Gulf Coast	Jefferson, Plaquemines	32	6.3%
New Orleans Public Belt	Orleans, Jefferson	35	6.9%
Ouachita Railroad	Union	8	1.6%
Timber Rock Railroad	Beauregard	18	3.5%

As highlighted in Table 1, short line railroads vary considerably by the mileage of track operated, as well as the number of parishes in which they operate. For example, the Baton

Rouge Southern line is relatively small, operating only 2 miles of track in East Baton Rouge Parish, while the Louisiana and Delta Line is considerably larger in scale and scope, operating 65 miles of track in 7 different parishes. Approximately 53 percent of all the short line railroads are in the central and northern parishes of the state, and, if the New Orleans Beltway is not included, then over 57 percent of all short line rail is in the central and northern parishes. This is a significant notation since some of the less affluent parishes in the state are in the central and northern parts of the state.

Figure 1 illustrates the geographic location of both Class I and short line railroads in the state. As illustrated by the map, Louisiana's short line railroads primarily function as intermediaries between the six Class I railroads servicing the states and local agricultural and industrial interests. For example, short line railroads are prominent along the state's southern border where there is a high concentration of agricultural and petro-chemical interests, as well as the northwest portion of the state where there are growing natural gas interests related to the Haynesville Shale.



Figure 1
Louisiana rail map [3]

Short line railroad mileage, while relatively small in scale when compared to Class I rail mileage, serves a significant role in connecting local industries and shippers to national transportation networks. As such, the economic impact of short line railroads on Louisiana's economy may be more substantial than initial perceptions might suggest. To provide a more detailed assessment of the overall economic impact of short line rail in the state, we look more closely at the impact of short line operations in the following areas: employment, spending, revenue and taxation, environment, and industry support.

It should be noted that over 50 percent of the short line railroads are in central and northern parishes while these parishes contain less than 20 percent of the state's population. The land area of the central and northern parishes make up about 45 percent of the land area of parishes in which short line railroads presently exist. The per capita income in all of the parishes in central and north Louisiana with short line railroads is below the state's average and the poverty indices in these central and northern parishes, with two exceptions, are well above the average poverty index for the state. There are 28 parishes with short line rail operations. Of these 28 parishes, only 8 have a lower poverty index than the state average and in the central and northern parishes, only 2 of 11 parishes have a lower poverty index than the state average.

As will be discussed in more detail later in this report, short line railroads are located in parishes that are relatively poor compared to other parishes in the state. By itself, this suggests that the state should very carefully examine the role of the short line railroads in these parishes and the possible further negative economic impacts if the short line railroads are allowed to deteriorate.

Impact – Employment

As previously stated, there are 11 short line railroads currently serving industries and shippers in the state of Louisiana. The authors estimate that there are approximately 331 individuals employed by short line railroads on an annual basis, but the New Orleans Public Belt (NOPB) railroad represents a disproportionate share of overall employment given its role in servicing the Port of New Orleans, one of the region's largest ports.

Founded in 1904 by the City of New Orleans, the NOPB is distinct in a number of respects. First it is the only publicly operated short line rail operation in the state and is managed by an independent commission. Second, the NOPB manages a number of capital assets that extend beyond rail operations, most notably the 4.35 miles long Huey P. Long Bridge. Third, the NOPB's impact on the New Orleans and larger state economy is quite significant since it

serves as the terminal and switching railroad for the Port of New Orleans, which is serviced by six Class I railroads (BNSF, CN, CSXT, KCS, NS & UP). In contrast, other large ports in the region service far fewer Class I lines. For example, the Port of Houston, TX, only services two Class I lines and the Port of Beaumont, TX, only services three Class I lines. Given the scale of its operations, the NOPB employs approximately 161 individuals on an annual basis, which represents nearly 50 percent of all short line employment in the State of Louisiana. While the NOPB's overall employment levels represent only a fraction of total employment in the New Orleans metropolitan region, prior research has pointed out that its economic impact is disproportionately larger due its support of the Port of New Orleans, one of the major economic drivers for both the region and the state as a whole. Recent estimates of its overall impact on the New Orleans economy, conducted prior to this study, stand at approximately \$112 million annually [4].

While the NOPB is distinct in its ownership structure and scope, the remaining 10 short line railroads in the state employ approximately 170 individuals and are significantly smaller in scale. On average, each short line rail railroad in the state employs approximately 16 individuals, with employment varying by the size of individual operations. Unlike the NOPB, the remaining short line railroads are privately owned and, as will be discussed further on, typically service less than ten customers.

In terms of the overall employment impact of short line operations in the state, the American Association of Railroads (AAR) estimates that each rail job in the local economy supports approximately 4.5 other jobs in the economy [5]. Using this impact factor as a base, short line rail supports approximately 1,490 other jobs in the state economy for a combined total employment impact of 1,821 jobs (including the 331 direct jobs associated with the short line railroads). These jobs, merely based on direct employment with the short line railroads, can be apportioned around the state, based on miles of short line track in each area of the state as follows:

Central and Northern Parishes (Bienville, Claiborne, East Carroll, Grant, Jackson, Madison, Morehead, Ouachita, Rapides, Union, Webster, and Winn): 1,038 jobs

Acadian, Coastal, and Southwestern Parishes (Acadia, Assumption, Avoyelles, Beauregard, Evangeline, Iberia, Lafayette, Lafourche, St. Landry, St. Martin, St. Mary, and Vermilion): 654 jobs

New Orleans and Baton Rouge MSAs (East Baton Rouge, Jefferson, Plaquemines, and Orleans): 129 jobs.

It should be noted that these are jobs directly related to the employment associated with the short line railways and not the jobs related to the core industries that these short line railroads accommodate. It should also be noted that this mileage-based, regional estimate does not account for the disproportionate impact of the NOPB Railroad.

There can be a variation in the intensity of the use of each of these short rail lines so the estimates are based on each mile of short line having approximately the same amount of usage. It should also be noted that there are more transportation alternatives in the New Orleans and Baton Rouge metropolitan areas so the areas of the state most reliant upon short line railroads to transport goods from the point of production to a transportation system will be the less densely populated regions of the state.

Using recent State Occupational Employment and Wage Estimates data provided by the U.S. Bureau of Labor Statistics for the state of Louisiana, the authors estimate the combined wage and benefit rate for rates short line employees to be approximately \$67,000 annually [6]. This compares quite favorably to the mean annual wage for all occupations in the state, which is \$39,230. Using a base of 331 jobs, this represents approximately \$22,177,000 annually in wages and benefits provided to Louisiana residents. Using federal employment multipliers for the State of Louisiana, the authors estimate the direct and indirect impact of short line employment on the state economy to be approximately \$47.4 million [7].

It should be emphasized that this merely represents the direct impact of short line rail employment. It does not include the significance of the industries that the short line rail operations facilitate—the manufacturing and agricultural components of the Louisiana economy. These direct impacts associated with short line rail employment are not to be minimized; however, it should be kept in mind that the purpose of the short line railroads are to connect basic industries in the state with the national and international markets and vice versa.

Impact – Other Spending Besides Wages and Salaries

Beyond their direct employment contribution to the state's economy and their role as intermediaries in the market place, short line railroads also contribute to the state by spending on related goods and services, as well as paying state and local taxes. While business spending is quite diverse in terms of form and function, one of the primary spending areas for short line railroads is rail maintenance. It is estimated that, on average, railroads spend approximately \$3,800 per mile annually in contractor services [8]. When applied to the approximately 513 miles of track currently operated by short line railroads in the state, this

represents approximately \$1,949,400 in annual spending. Using regional input-output multipliers provided by the U.S. Department of Commerce, this represents approximately \$4 million per year in direct and indirect spending by short line railroads.

In terms of state and local tax revenue generated from short line rail spending, it is estimated that, on average, railroads can expect to earn approximately \$89,000 annually per mile of functioning track [9]. For short line railroads in the state of Louisiana, this represents approximately \$44,500,000 in annual revenues. The estimated annual revenues of \$44.5 million less estimated wages paid of \$22.2 million and maintenance expenses of \$1.95 million leaves approximately \$20.35 million to be used for other expenses which may range from insurance, capital expenditures, utilities, benefits for employees, and other expenses associated with running a business.

Impact – All Spending Including Wages and Salaries, Maintenance, and All Other

The overall economic impact of the direct spending by the short line railroads, including the dollars spent on employees, the dollars spent on track maintenance, and the dollars spent on other expenses (and assuming that one half of these other expenses will be spent out of state) will yield overall approximately 2,100 jobs in the state with approximately 1,200 being in the central and northern parishes and about 745 jobs being in the Acadian, Coastal, and Southwestern parishes.

These jobs annually account for personal earnings of approximately \$54.7 million, state revenues of almost \$4 million, and local revenues of approximately \$3.5 million. The personal earnings will be geographically distributed as follows: approximately \$31.3 million being earned in the Central and Northern Parishes; about \$19.4 million being in the Acadian, Coastal, and Southwestern Parishes; and about \$4 million being earned in the New Orleans and Baton Rouge regions. The local revenues will be distributed in the same fashion. It should be noted that these tax projections include personal and business taxes so sales and personal income taxes are included, along with corporate taxes and property taxes.

The impact upon local tax revenues, as well as employment, is even more significant when one considers that many of the state's short line railroads are based in rural parishes and communities with limited employment opportunities and that the projected impact of the short line railroads are predominantly in many of the state's poorest parishes. Table 2 provides a brief socioeconomic snapshot of the 28 parishes currently serviced by short line railroads [10].

Approximately 19 percent of the state’s population and about 15 percent of all the state’s jobs are located in the central and northern parishes of the state. The short line railroads provide about 1 percent of the total jobs in these parishes, but this does not include the core industries that depend upon the services of short line railroads. This compares to the Acadian, Coastal, and Southwestern parishes that have 32 percent of the state’s population and about 30 percent of its employment, while the New Orleans/Baton Rouge region has 49 percent of the state’s population and 56 percent of the state’s employment.

Table 2
2011-2012 Socioeconomic characteristics of parishes serviced by short line rail

Parish	Population	Employment	Land Area Sq. Mls	Per Capita Income	Median Household Income	Poverty Rate
Acadia	61,912	14,926	655	\$19,027	\$37,970	20%
Assumption	23,026	4,541	339	\$21,752	\$46,699	18%
Avoyelles	41,632	11,152	832	\$17,497	\$32,321	24%
Beauregard	36,281	8,305	1,157	\$21,808	\$45,113	14%
Bienville	14,076	4,449	811	\$18,691	\$30,594	26%
Claiborne	16,828	4,240	755	\$17,654	\$32,972	28%
East Baton Rouge	444,526	258,011	455	\$26,714	\$46,838	18%
East Carroll	7,526	1,708	421	\$20,767	\$25,267	41%
Evangeline	33,710	8,152	662	\$18,171	\$34,848	22%
Grant	22,068	3,232	643	\$18,427	\$39,988	16%
Iberia	73,999	33,110	574	\$21,316	\$42,989	20%
Jackson	16,216	3,550	569	\$20,057	\$39,809	16%
Jefferson	433,676	192,096	296	\$26,528	\$48,374	15%
Lafayette	227,055	137,564	269	\$27,808	\$48,591	16%
Lafourche	97,029	37,782	1,068	\$24,324	\$49,262	16%
Madison	12,154	3,225	624	\$14,255	\$26,178	33%
Morehouse	27,559	7,147	795	\$15,842	\$31,269	28%
Orleans	369,250	177,038	169	\$25,668	\$37,325	26%
Ouachita	155,363	69,080	610	\$22,470	\$39,724	22%
Plaquemines	23,921	14,658	780	\$25,015	\$55,301	9%
Rapides	132,373	58,036	1,318	\$21,959	\$40,470	19%
St. Landry	83,662	24,031	924	\$18,789	\$34,350	27%
St. Martin	52,726	12,366	738	\$21,116	\$40,358	18%
St. Mary	53,697	27,181	555	\$20,411	\$40,171	20%
Union	22,419	4,852	877	\$20,273	\$37,426	23%
Vermilion	58,723	13,944	1,173	\$22,193	\$43,349	18%
Webster	40,940	12,358	593	\$20,132	\$36,225	21%
Winn	15,000	5,197	951	\$15,662	\$30,938	23%
Louisiana	4,601,893	1,871,220	43,204	\$23,853	\$44,086	18%

As seen in the table, many of the parishes serviced by short line railroads are also some of the poorest and most economically disadvantaged parishes in the state. For example, 22 of the 28 parishes serviced by short line rail operations have per capita incomes below the state-wide average of \$23,853, and 10 of these parishes have per capita income levels more than 20 percent below the state-wide average. Similar to per capita income, the majority, 75 percent, of parishes serviced by short line railroads have median household income levels below the

state-wide average of \$44,086. In terms of poverty, 17 parishes serviced by short line railroads have poverty rates above the state-wide average of 18 percent, and 5 parishes have poverty rates more than 50 percent greater than the state-wide average. Taken together, this socioeconomic snapshot of parishes serviced by short line railroads highlights the fact that while short line employment may not be as large as other employment sectors in the state, their overall economic contribution to local economies is much more substantial when considering the limited resources in their local communities.

To further highlight this point, use the hypothetical case of the Delta Southern Railroad closing in the northeastern portion of the state. If this particular railroad were to close, the absence of its services could trigger economic effects well beyond an immediate loss in short line rail employment. With 44 total miles of track in Louisiana (Figure 2), Delta Southern operates two separate lines, one which runs from Tallulah, LA, to southern Arkansas and a second between Monroe and Sterlington, LA. These lines are located in three of the poorest parishes in Louisiana. East Carroll Parish has the state's highest poverty rate at 44 percent and the poverty rates for Madison and Ouachita Parishes are significantly above the state average at 33 and 22 percent, respectively.

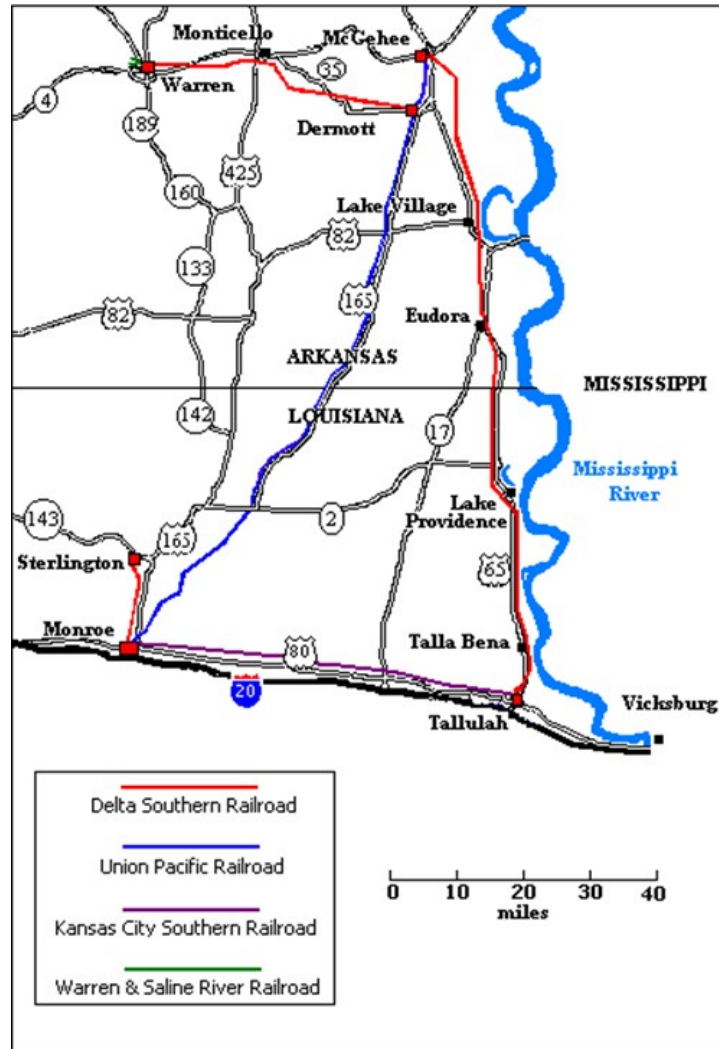


Figure 2
Delta Southern railroad map [11]

While the direct employment impact of Delta Southern may be minimal in the region, the railroad supports the presence of a number of major corporations that rely on access to Class I railroad networks. On its Tallulah line, the railroad ships products such as grain, cotton and chemicals to transfer points on the Class I, Kansas City Southern railroad. This portion of the railroad also connects to barge transfer ports on the Mississippi River, which makes it strategically located for commercial interests which desire both barge and rail access. Two corporations directly served by this line include the Complex Chemical Company and Terral River Service. Complex Chemical produces such products as antifreeze, brake fluids, and glycols and is located on a 20-acre industrial site in Madison Parish due to its proximity to the Kansas City Southern railroad [12]. Terra River Service is headquartered in Lake Providence, LA, and provides material transportation services for products shipped via barge,

truck, or rail. Combined, both of these corporations contribute greatly to the local economies in Madison and East Carroll Parishes.

On the Sterlington line, Delta Southern supports such major corporations as Angus Chemical Company, a subsidiary of the Dow Chemical Company. Angus Chemical is located on an 80-acre facility in Sterlington, LA, and produces over 40 different specialty products. The Delta Southern Railroad directly supports this facility by providing rail access to Union Pacific line. The Sterlington facility employs roughly 275 individuals alone and the corporation has been a major economic development force in Ouachita Parish. Over the past 8 years, Angus Chemical has donated \$56,000 in grants to local nonprofit organizations in the Parish and has donated \$750,000 to the Process Technology Lab at Louisiana Delta Community College in Monroe, LA [13]. Taken together, it is evident that the economic impact of the Delta Southern Railroad is much more expansive than its immediate employment and geographic presence would indicate, and this is true for the other short line railroads operating in the state as well.

Impact – Statewide Industry Support

As discussed in the preceding sections, short line railroads create an economic impact through their direct spending and economic activities. However, the true economic impact of short line railroads lies in the assistance that they provide to other major industries in the state. Table 3 lists the commodities currently transported to and from Class I railroad networks via short line railroads in the state. As can be seen, the mix of commodities shipped via short line rail is quite diverse and represents the agricultural, manufacturing, and petrochemical industries across Louisiana. Combined, these industries can be viewed as the backbone of the state's economy.

Table 3
Commodities shipped via short line rail in Louisiana [14]

Aggregates	Cross Ties	Paper Products	Scrap
Bauxite	Feed	Petroleum Oil	Soda Ash
Billets and Steel	Fertilizer	Petroleum Products	Sodium Bromide
Brake Fluid	Fracturing Sand	Plastic Pellets	Speciality Oils
Bromine	Fuel Additives	Plastics	Steel
Calcinated Coke	Grain	Plywood	Steel Pipe
Carbon Black	Lubricating Oil	Pulpboard	Sulfur Trioxide
Chemicals	Lumber	Raw Coke	Tall Oil
Chlorine	Oils - Nut seed	Rice	Vegetable Oil
Compressed Gas	Paper	Salt	

Table 4 highlights the economic impact of the industries represented by the commodities listed in Table 3. While not every business interest within each core industry may be serviced by a short line railroad, it is safe to assume that each of these industries are likely serviced or could potentially be serviced by short line railroads. Combined, these industries support, either directly or indirectly, over 260,000 jobs in the state of Louisiana. Short line railroads facilitate shipments within each of these industries and this role represents the economic impact that truly affects the parishes relying on an adequate transportation infrastructure.

Table 4
Core industries and impact in Louisiana economy [15]

Core Industry	Estimated Direct Spending (billions)	Estimated Jobs Supported, Direct and Indirect
Agricultural	\$1.06	17,285
Oil and Gas	\$10.28	58,222
Food Manufacturing	\$4.63	50,487
Wood Products	\$1.76	27,943
Paper Products	\$3.48	29,760
Chemicals	\$10.45	77,695
Total	\$31.66	261,392

Looking solely at the role of food, wood, paper, and chemical manufacturing in the state, all serviced by short line railroads, Figure 3 shows that these industries support over 40 percent of total manufacturing payroll, over 35 percent of total manufacturing employment, and just under a quarter of total manufacturing establishments.

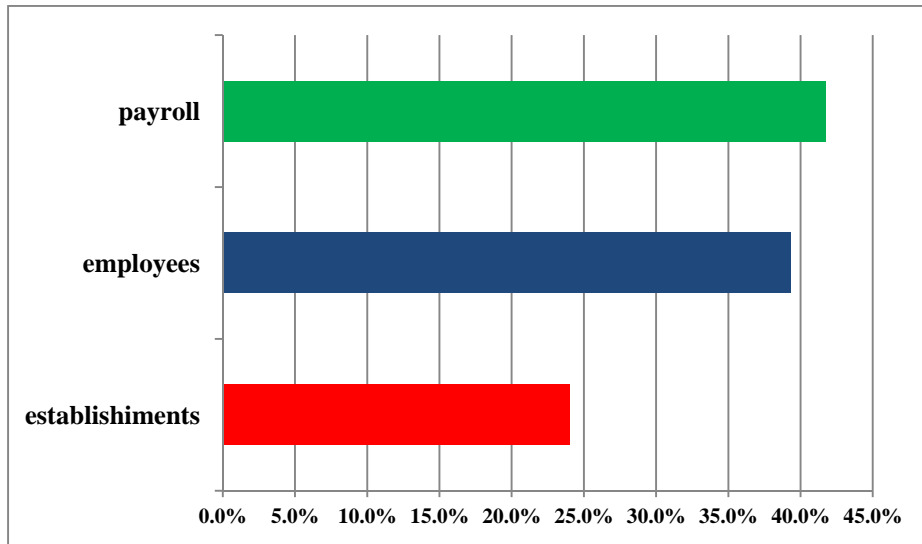


Figure 3
2012 Percent of manufacturing in Louisiana (food, wood, paper, & chemical) [16]

Last, Figure 4 highlights the geographical location of the state's leading industries.

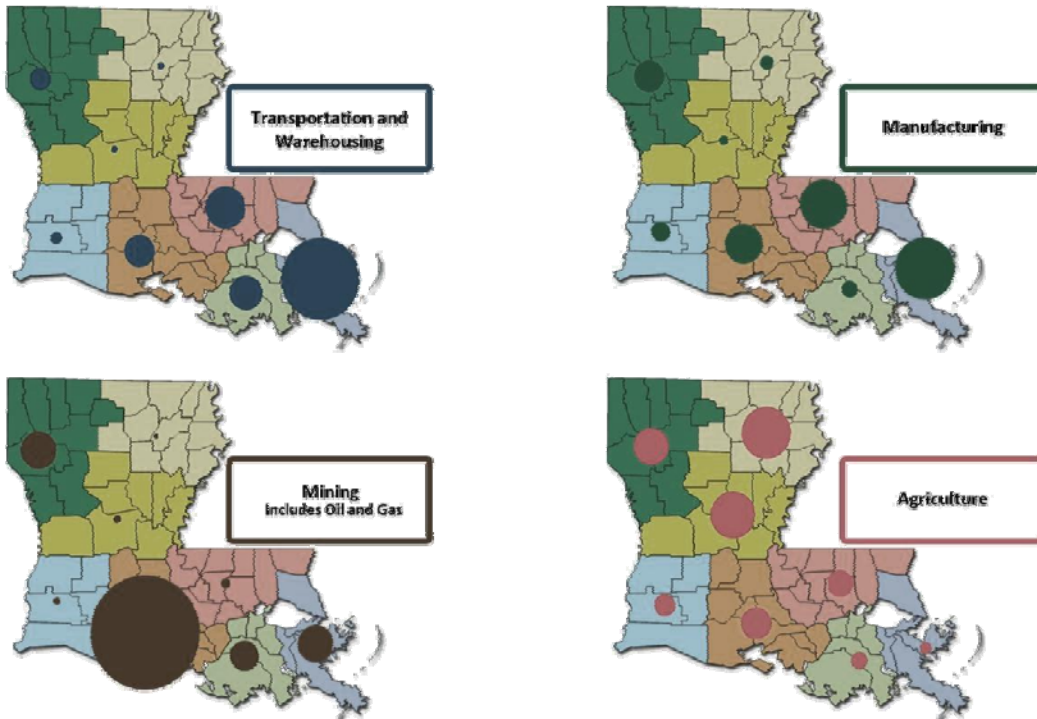


Figure 4
Geography of major industries in Louisiana as measured by employment [17]

Manufacturing and chemical industries are concentrated in the southern part of the state; agriculture activities, including timber production, are more concentrated in the northern part of the state; and oil and gas production is concentrated in the coastal parishes. These are the industries that export their final product to national and international markets and rely upon a vibrant statewide rail network. Simply stated, the industries served by short line rail operations represent essential drivers in the state economy.

Impact – Environmental

While not as explicit as their impact on wages and public tax revenues, short line railroads also serve a major role in supporting the broader use of rail transportation, which compared to other forms of freight transportation, is much more environmentally friendly and less taxing on the Louisiana's road infrastructure.

Research published by both the U.S. Federal Railroad Administration and the Association of American Railroads has found freight transport by rail to be much more efficient than transport by truck, with only water transportation being more efficient on a ton miles per gallon basis. Figure 5 illustrates the comparable fuel efficiency of the three primary transportation alternatives available to industries. As can be seen, on a ton mile per gallon basis, rail transportation is more than twice as efficient as truck transportation, and as early reports have highlighted, more than nine times as safe in terms of traffic fatalities per billion ton miles [18].

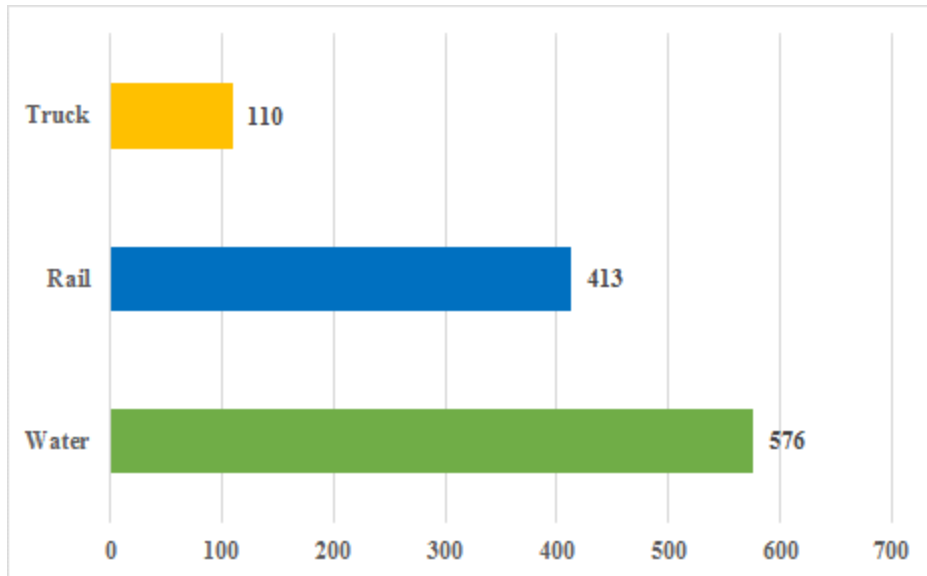


Figure 5
Transportation mode – ton miles per gallon

The use of rail over truck transportation to move goods to and from Louisiana’s leading industries also has an immediate impact on the state’s existing road infrastructure. For 2011, the AAR estimates that in order to transport the approximately 123.2 million tons of freight that moved to and from Louisiana, it would have required the equivalent of approximately 6.8 million truckloads [19]. While substantially reducing potential truck transportation on the state’s highways results in fewer traffic fatalities, it also significantly reduces the wear and tear on the state’s local roads and highways. In 2010, the American Short Line and Regional Railroad Association estimated that short line railroads in Louisiana facilitated the transportation of approximately 472,000 truckloads of freight which prevented approximately \$21 million in pavement damage that would have been responsibility of state and local governments to repair [20].

CONCLUSIONS

For this research project, the authors were tasked with assessing the economic impact of short line rail operations in the state of Louisiana. Based upon a thorough analysis of primary and secondary data sources, the summary conclusion is that short line railroads play a vital role in supporting some of Louisiana's leading industries. Precisely estimating the economic impact of short line operations, however, is quite challenging due to the diverse customer base of short line rail operations, as well as their direct and indirect impact on key industries.

In terms of the employment impact of short line operations on the state economy, the authors estimate that the short line railroads directly employ approximately 331 individuals on an annual basis in positions that average approximately \$67,000 in wages and benefits. Given that Louisiana's mean annual wage across all occupations is only \$39,230, positions in the short line rail industry represent relatively high paying jobs that serve a significant role in boosting local economies. Indirectly, short line rail employment supports an additional 1,490 jobs in the state economy, many of which are located in the Louisiana's poorest and most economically depressed parishes.

In terms of state and local tax revenue, short line rail operations also provide a substantial contribution to the state economy. The authors estimate that, on average, short line railroads in the state of Louisiana bring in approximately \$44.5 million in annual revenues that generate approximately \$3.5 million in state tax revenues and \$2.86 million annually in local revenues. Additionally, the presence of short line rail operations reduces the need for freight transportation by truck which results in approximately \$21 million in annual pavement damage savings according to outside research groups.

While the direct employment and revenue impact of short line rail operations may be relatively small when compared to economic contributions of the agricultural or petrochemical industries, the critical role that short line railroads play in linking industries to national transportation networks via Class I rail represents what is perhaps their most significant impact upon the state economy. At the end of the day, the presence of short line railroads allows major corporations such as the Albemarle Corporation or Ventura Foods to locate and expand their facilities in the state and, more importantly, in areas of the state that have typically experienced limited employment options. While metropolitan areas such as Baton Rouge and New Orleans may provide a multitude of employment options to state residents within their respective parishes, short line railroads support employment in some of the poorest parishes in the state, such as Acadiana Railroad in Avoyelles Parish or the Delta

Southern Railroad in East Carroll Parish. In this respect, short line railroads can be viewed as playing a critical role in the Louisiana economy beyond what their immediate impact might indicate.

Given the economic importance of short line rail operations in the state economy, the authors believe that it is prudent for state policymakers to explore alternatives for ensuring the continued presence of short line rail operations in the state. Previous studies at both the national and local levels have highlighted the need for public support of short line rail operations and in the following section, we recommend potential alternatives for the state of Louisiana.

RECOMMENDATIONS

Economic Concerns

Due to the fact that all short line railroads in the state of Louisiana, with the exception of the New Orleans Public Belt, are privately owned, it is difficult to make assessments concerning the overall financial health of individual railroads in the state. Despite this limitation, however, there are well documented economic concerns facing short line railroads nationwide that apply to railroads in Louisiana as well. In this section, some of the key concerns facing short line railroads are addressed and policy alternatives that should be considered by policymakers in the state are outlined. While short line concerns range from safety issues to broader challenges related to the national economy, two connected areas of immediate concern are the ability of short line railroads to accommodate the growing use of heavier, 286,000-lb. rail cars and their ability to obtain funding for major capital improvement projects [21][22].

Over the past decade, Class I railroads have increasingly shifted from 263,000-lb. to 286,000-lb. rail cars. Although the weight increase with these newer rail cars may not appear substantial to those outside of the transportation industry, these heavier rail cars promise a number of significant benefits for Class I railroads. First, the use of these heavier cars immediately increases the shipping capacity of Class I railroads. This, in turn, reduces related fuel, labor, and maintenance costs; also, prior research has shown that overall operating costs can be reduced by nearly 9 percent as a result of component cost reductions related to the use of these larger capacity cars [23].

While increasing the weight carried by freight cars allows for more efficient transportation operations, their use also impacts short line railroads, whose presence is key in moving these heavier rail cars from shippers to Class I rail lines. Ultimately, the use of 286K cars increases the rate of track degradation for short line railroads and, subsequently, requires costly capital improvements to ensure the safe transportation of goods to Class I rail lines. As a result, short line railroads with older rail lines have increasingly been pushed to invest significant resources in updating their rail lines in order to meet the continued needs of Class I railroads. While it is beyond the scope of this study, past research on the ability of short line railroads to afford these costly capital upgrades has found that many railroads simply do not have access to credit for rail upgrades or do not enjoy rates of return that would justify the costs associated with upgrading their track to accommodate 286K rail cars [24]. In the state of Louisiana, recent estimates have shown that 86 percent of the state's short line rail track is not capable of handling 286K rail cars [25]. For short line railroads incapable of funding

capital improvements related to increased use of 286K pound rail cars, there are essentially two alternatives. Railroads can either (1) choose to abandon their rail lines when the cost of maintenance exceeds potential revenue from the line or (2) seek out funding sources for capital improvements.

Policy Alternatives & Recommendations

Recognizing the predicament faced by many short line railroads and the public benefit that they provide, approximately 16 states, 3 in the Southeastern portion of the U.S., have established publicly sponsored funding programs for short line railroads in further acknowledgement of the role that these rail lines play in supporting business and industry [26]. While the details of state supported programs vary considerably, most short line support plans take on one of three forms:

- State rehabilitation grants,
- State loan programs, and
- State loan/grant hybrid programs.

Rehabilitation grants typically award state funds to short line railroads on a competitive basis for capital improvements that directly benefit economic development interests. For example, the state of Florida's *Strategic Intermodal System* provides approximately \$40 million in state funding to short line railroads in the state. Grants are awarded for specific capital projects based upon a 75/25 match where short line railroads are expected to contribute 25 percent towards the cost of the project. Approved project areas include such items laying new rail line, existing track upgrades and the construction of rail yards [27].

In contrast to state grant programs, **state loan programs** are intended to provide financing alternatives for short line railroads where there may not be viable financing for capital improvements. For example, the State of Idaho operates the *Idaho Rural Economic Development and Integrated Freight Transportation Program* which is a revolving loan program that makes approximately \$50 million available to both short line and Class II (regional) railroads. Operating as a basic loan program with a railroad's capital assets serving as collateral, projects eligible for funding include rail upgrades and rehabilitation, as well as "purchasing or rehabilitating railroad equipment necessary to maintain essential rail service [28]."

Last, **loan/grant hybrid programs** combine elements of both grants and traditional loans. The state of Iowa's *Railroad Revolving Loan and Grant Program* operates in this manner and provides a combination of zero percent interest loans and grants to “any entity with an interest in rail transportation,” including short line railroads. The state awards approximately \$2 million annually and recipients must provide a 20 percent match for loans and a 50 percent match for grants. While the state does not designate specific projects eligible for funding, projects related to rail networks are evaluated based upon “public and private benefits [29].”

While each of these three funding programs is unique in form and function, all support the goal of maintaining a viable short line rail network within their state. Given both the importance of short line railroads in the state of Louisiana and their current vulnerability with regards to handling heavier, 286K rail cars, the authors believe it is prudent for state policymakers and transportation administrators to begin the process of designing and implementing a short line railroad support program that could provide needed support to short line railroads in the state of Louisiana. In addition to strengthening the state's existing rail network, potential direct and indirect benefits also include increased economic development opportunities for regions with short line railroads and reduced freight traffic congestion on the state's highways.

In conclusion, grant programs or grant/loan programs—that is, direct investments by a governmental body—have been suggested. This is equivalent to infrastructure enhancement of the state's existing transportation system. However, many states, including Louisiana, have become increasingly focused on tax credits or some form of tax encouragement as a means of encouraging and enticing private investment of a particular nature. It is the author's judgment that tax credits will not be as effective in promoting the necessary improvement in short line infrastructure as a direct expenditure program. If improving the transportation infrastructure is a legitimate public responsibility, then it is much more efficient and timely to focus expenditures on this responsibility rather than persuade private investors to undertake the investment with an expectation of government repayment.

Further, any selected direct investment program must identify a specific short line that is to be improved or rebuilt. Indirect investments such as tax credits will also apply to short rails that the private sector has already decided to fund—sometimes the choice of the public sector will be comparable to the dollars that the private investors may be investing in. Last, the decision to provide direct investments into targeted short line railroads must also take into account environmental considerations such as the location of jobs within the state and the relationship of specific short railroads to the rest of the state's transportation system.

ACRONYMS, ABBREVIATIONS, AND SYMBOLS

AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ASLRRA	American Short Line and Regional Rail Association
BLS	Bureau of Labor Statistics
BNSF	Burlington Northern Santa Fe Corporation
CN	Canadian National Railway Company
CSX	CSX Corporation
DOC	Department of Commerce
DOTD	Louisiana Department of Transportation and Development
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
KCS	Kansas City Southern Railway
KDOT	Kansas Department of Transportation
LADOTD	Louisiana Department of Transportation and Development\
NOPB	New Orleans Public Belt
NS	Norfolk Southern Railway
UP	Union Pacific Corporation

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APPENDIX

Survey Instrument

Economic Impact Assessment: Short Line Rail Operations in Louisiana
Short-line Rail Economic Impact Assessment
<p>Project Description:</p> <p>In 2012, the Louisiana Transportation Research Center and the National Center for Intermodal Transportation commissioned a study to assess the economic impact of short-line railroads in the state of LA [Project 13-8SS]. The study is being led by Dr. Jared J. Llorens, a faculty member in Louisiana State University's Public Administration Institute. The following survey is intended to contribute to the study's assessment of the state of short-line rail operations in Louisiana by providing up-to-date information on the size, scope, and issues facing short-line rail operators.</p> <p>**Please note that the information collected will remain confidential and will only be used to provide aggregated assessments of the Louisiana's short-line rail operations**</p>
Part I. Employment & Compensation
<p>1. How many employees does your short-line rail operation employ on a full-time basis?</p> <input type="text"/>
<p>2. How many employees does your short-line rail operation employ on a part-time basis?</p> <input type="text"/>
Part I. Employment & Compensation
<p>Prior survey data have shown that, on average, rail employees in the United States earn approximately \$102,940 per year in wages and benefits.</p> <p>3. For your short-line rail operation, what is the average wage and benefit level for full-time employees?</p> <input type="text"/>
<p>4. For your short-line rail operation, what is the average wage and benefit level for part-time employees?</p> <input type="text"/>
Part II. Spending (Annual Basis)
<p>5. Approximately how much does your organization spend annually on construction related expenses?</p> <input type="text"/>

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6. Approximately how much does your organization spend annually on equipment related expenses?

7. Approximately how much does your organization spend annually on professional services?

8. Approximately how much does your organization spend annually on non-personnel insurance coverage?

9. Approximately how much does your organization spend annually on land or equipment rentals?

Part III. Industries Served

10. Approximately how many businesses are directly served by your short-line rail operation?

11. What are the primary industries served?

- Agriculture
- Chemical
- Refinery
- Construction
- Automotive
- Other

Other (please specify)

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12. What are the alternative transportation options for the businesses served by your rail line?

- Air
- Pipeline
- Truck
- Water
- No other alternative

Other (please specify)

Part IV. Major Challenges

13. How important to your rail operations are the following concerns?

	Unimportant	Somewhat Important	Neutral	Somewhat Important	Important
Capacity to handle 286,000 pound rail cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rail maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to solicit adequate fees from Class I rail operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe passage through high density populations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to weather economic downturns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding for capital improvement projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. What do you consider as the major challenges of maintaining your rail line?