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# Sun Belt Regional Short Line Rail Project Economic Impact Results

TIGER II Assessment

**HDR** | **Decision Economics**

HDR Corporation  
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Risk Analysis • Investment and Finance  
Economics and Policy

# **Sun Belt Regional Short Line Rail Project**

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August 18, 2010

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# 1: SUN BELT REGIONAL SHORT LINE RAIL PROJECT ECONOMIC IMPACT RESULTS – AUGUST 18, 2010 (FOR TIGER II ASSESSMENT)

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## 1.1 Project Description

The project consists of infrastructure improvements to the Dallas, Garland & Northeastern Railroad (DGNO), the Texas Northeastern Railroad (TNER), and the Kiamichi Railroad (KRR) (collectively referred to as “the Short Lines”) including upgrades to strategic side tracks and industrial leads to accommodate current and future traffic growth and allow for the use of heavier industry standard 286,000 pound railcars (“286K” railcars). The project eliminates rail joints, replaces crossties, adds new ballast, resurfaces over thirty miles of track, and replaces bridge components. Additional rail improvements will include upgrading curves in key segments to 115-pound rail, the minimum needed to safely handle 286K railcars. The project also upgrades key interchanges that connect the short line rail traffic to Class I railroads. Additionally, this project will upgrade over 380 passive rural highway-rail grade crossings to meet current Federal standards and provide additional safety protections for highway users.

The improvements made to the Short Lines covers over 700 miles of track, and span nine counties in the States of Arkansas, Oklahoma, and Texas. For this analysis, a project life of twenty years is considered.

## 1.2 Economic Impacts During Construction of the Facility

Table 1 shows the estimated cost of the proposed improvements (as of August 2010). As Table 1 shows, the total costs are estimated at \$21.58 million. Table 2 shows the quarterly distribution of project costs in percentage terms. The project could proceed as soon as funds are awarded, and the project schedule has been developed based on the anticipated construction schedule. As the table shows, the project is expected to be completed over a period of about 2 years from the first quarter of 2011 to the fourth quarter of 2012.

### 1.2.1 Impacts of Construction Activity

#### *Overall Impact on Economic Activity in the United States*

In order to estimate the impact of construction activity, the expenditures shown in Table 1 were simulated with the IMPLAN economic impact software using the 2007 data for the United States. The reported results represent thus estimates of impacts generated across all of the U.S.

Table 1 shows the classification of the project cost categories into IMPLAN industrial sectors. It can be seen in this table that all of the costs fall into the construction industry category.

Table 3 shows the quarterly employment impact of the project construction estimated by IMPLAN. As the table shows, the estimated employment impact, or the number of job-years created each quarter over the construction period amounts to 60 job-years for the cumulative

impact of 479.6 jobs-years of employment. This includes 180.5 direct job-years, 107.4 indirect job-years, and 191.7 induced job-years. During the nearly 2-year construction period, the project will thus support each year on average 239.8 jobs that would last the entire year.

Table 4 shows the employment impact estimated using the employment impact multiplier recommended by the Council of Economic Advisors (CEA), 1 job per \$92,000 of government expenditures, or 10.8 jobs per \$1 million of government expenditures. According to the CEA's recommendations, 64% of jobs created should be applied to Direct and Indirect jobs, while 36% should be applied to Induced jobs. As this table shows, according to these multipliers the cumulative impact of the project amounts to 234.6 job-years, including 150.1 direct and indirect job-years, and 84.5 induced job-years. During the construction period, the project will thus generate on average 117.3 jobs each year that would last the entire year.

Comparing the results reported in Table 3 and Table 4, it can be seen that the employment impacts estimated with IMPLAN are much higher than those based on the CEA-estimated multiplier. The difference may be due to certain methodological assumptions as well as the level of analysis. The CEA multiplier represents an industrial average, whereas the multipliers in IMPLAN are specific for the industries directly affected – construction and engineering and planning services – which tend to be relatively labor-intensive.

Table 5 shows the estimated effect on value added. As the table shows, the cumulative effect on GDP amounts to \$35.84 million, including \$10.33 million of direct GDP, \$10.18 million indirect GDP, and \$15.33 million of induced GDP. The quarterly impact over the period of analysis from Q1 2011 to Q3 2012 fluctuates in a pattern that corresponds to the patterns of employment impact. The average annual value added to the economy by the project during the construction amounts to \$17.92 million.

**Table 1: Project Costs, by Category with Classification into IMPLAN Industrial Sectors**

CATEGORY OF EXPENDITURE/ COST	Total	IMPLAN INDUSTRY NUMBER	IMPLAN INDUSTRY NAME
Construction; track improvements to the McKinney Sub	\$3.70	36	Construction of other nonresidential structures
Construction; track improvements on the Sherman/ Garland sub	\$6.92	36	Construction of other nonresidential structures
Construction; track improvements on the Ashdown sub	\$10.67	36	Construction of other nonresidential structures
Construction; grade crossing safety upgrades	\$0.43	36	Construction of other nonresidential structures
<b>Total</b>	<b>\$21.72</b>		

**Table 2: Distribution of Project Costs, by Quarter, in Percent of Category of Expenditures**

	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012
Construction and Construction Management	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%

**Table 3: IMPLAN-Estimated Employment Impact of Project Expenditures: Number of Jobs-Years Created, by Quarter, Total, and Annual Average**

Effect Type	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Total Job-Years	Average Number of Jobs per Year*
Direct	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	180.5	90.3
Indirect	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	107.4	53.7
Induced	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	191.7	95.9
<b>Total</b>	<b>60.0</b>	<b>479.7</b>	<b>239.8</b>							

NOTE: (\*) Number of jobs lasting the entire year during the construction period

**Table 4: Employment Impact of Project Expenditures Based on CEA Employment Multiplier, Number of Jobs-Years Created, by Quarter, Total, and Annual Average**

Effect Type	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Total Job-Years	Average Number of Jobs per Year*
Direct and Indirect	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	150.1	75.1
Induced	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	84.5	42.2
<b>Total</b>	<b>29.3</b>	<b>234.6</b>	<b>117.3</b>							

NOTE: (\*) Number of jobs lasting the entire year during the construction period

**Table 5: IMPLAN-Estimated Value Added Impact of Project Expenditures Generated, by Quarter, and Total, in Millions of \$**

Effect Type	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Total Value Added	Average Value Added per Year
Direct	\$1.29	\$1.29	\$1.29	\$1.29	\$1.29	\$1.29	\$1.29	\$1.29	\$10.33	\$5.16
Indirect	\$1.27	\$1.27	\$1.27	\$1.27	\$1.27	\$1.27	\$1.27	\$1.27	\$10.18	\$5.09
Induced	\$1.92	\$1.92	\$1.92	\$1.92	\$1.92	\$1.92	\$1.92	\$1.92	\$15.33	\$7.66
<b>Total</b>	<b>\$4.48</b>	<b>\$35.84</b>	<b>\$17.92</b>							

*Comments on the Type/ Quality of Jobs Created*

Table 6 shows the IMPLAN-estimated cumulative employment impacts by industry. As the table shows, the largest impact is in the construction industry and the architectural, engineering and related services.

Specifically, the project is estimated to create (or preserve) nearly 180.5 job-years of employment in the construction industry. The populations most likely to benefit from these expanded employment opportunities are local populations around the project area.

In addition, the project will create or preserve nearly 18.6 job-years of employment in the architectural, engineering and related services industry (17.8 indirect, and 0.8 induced). The jobs in this category can be considered high-quality with relatively high remuneration and experience, and high learning opportunities.

The project will also promote the creation and preservation of jobs for lower-income and lower-skill level workers. For example, as the table shows, the project will create or preserve 20 job-years in the food-services industry, 12.5 jobs in wholesale trade, and 5.6 jobs in the services to buildings industry. The project will also generate several jobs in various sectors of the retail industry, automotive repairs, truck transportation, and hotels.

The table also shows that the project will create or preserve several jobs in industries that provide support or inputs to the construction industry, for example, in ready-mix concrete manufacturing, in plate work and fabricated structural product manufacturing, and in ornamental and architectural metal products manufacturing.

**Table 6: IMPLAN-Estimated Employment Impact of Project Expenditures, Number of Jobs, by Industry (for Selected Industries), Cumulative over Project Construction Cycle**

IMPLAN Industry Number	Industry Description	Cumulative Employment Impact (Job-Years), by Type			
		Direct	Indirect	Induced	Total
36	Construction of other new nonresidential structures	180.5	0	0	180.5
413	Food services and drinking places	0	3	17	20
369	Architectural, engineering, and related services	0	17.8	0.8	18.6
319	Wholesale trade	0	5.5	6.9	12.5
360	Real estate	0	3.2	8.8	12
382	Employment services	0	5.5	4.7	10.2
329	Retail - General merchandise	0	0.9	5.2	6.1
324	Retail - Food and beverage	0	0.9	5.1	6
388	Services to buildings and dwellings	0	2.9	2.8	5.6
335	Truck transportation	0	3.3	2	5.3
414	Automotive repair and maintenance, except car washes	0	2.7	1.9	4.7
367	Legal services	0	2.1	2.2	4.4
320	Retail - Motor vehicle and parts	0	0.7	3.6	4.3
354	Monetary authorities and depository credit intermediation	0	1.7	2.6	4.3
356	Securities, commodity contracts, investments, and related activities	0	1	3.1	4.1
331	Retail - Nonstore	0	0.5	3.2	3.7
381	Management of companies and enterprises	0	1.9	1.8	3.7
368	Accounting, tax preparation, bookkeeping, and payroll services	0	1.9	1.6	3.5
327	Retail - Clothing and clothing accessories	0	0.4	2.8	3.2
357	Insurance carriers	0	0.5	2.6	3.1
330	Retail - Miscellaneous	0	0.5	2.5	3
39	Maintenance and repair construction of nonresidential maintenance and repair	0	1.5	1.4	2.9
323	Retail - Building material and garden supply	0	0.4	2.3	2.7
411	Hotels and motels, including casino hotels	0	0.9	1.6	2.5
355	Nondepository credit intermediation and related activities	0	0.7	1.7	2.4
325	Retail - Health and personal care	0	0.4	1.9	2.3
351	Telecommunications	0	0.8	1.4	2.3
358	Insurance agencies, brokerages, and related activities	0	0.4	1.9	2.3
374	Management, scientific, and technical consulting services	0	1.1	1.2	2.3
386	Business support services	0	1.2	1	2.2
417	Commercial and industrial machinery and equipment repair and maintenance	0	1.8	0.4	2.2

**Table 6: IMPLAN-Estimated Employment Impact of Project Expenditures, Number of Jobs, by Industry (for Selected Industries), Cumulative over Project Construction Cycle (Cont'd)**

IMPLAN Industry Number	Industry Description	Cumulative Employment Impact (Job-Years), by Type			
		Direct	Indirect	Induced	Total
186	Plate work and fabricated structural product manufacturing	0	2.1	0.1	2.1
187	Ornamental and architectural metal products manufacturing	0	1.3	0.1	1.4
161	Ready-mix concrete manufacturing	0	1.4	0	1.4
99	Wood windows and doors and millwork	0	0.9	0.1	1
95	Sawmills and wood preservation	0	0.6	0.1	0.7
	Other	0	35	95.3	130.2
	<b>Total</b>	<b>180.5</b>	<b>107.4</b>	<b>191.7</b>	<b>479.7</b>