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Economic Analysis in Support of TIGER II Application

NETEX Rail Line – Economic Impact of
Project Construction

HDR | Decision Economics

August 17, 2010

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1: NETEX RAIL LINE IMPROVEMENT PROJECT ECONOMIC IMPACT RESULTS – AUGUST 13, 2010 (FOR TIGER II ASSESSMENT)

1.1 Project Description

The project limits begin near Winfield, Texas (MP 489.4) and ends at the west side of Greenville (MP 555). The NETEX line is constructed of predominantly 112# jointed rail on ties that date from the 1940's to the 1980's. Most of the ties have exceeded their expected service life and are severely deteriorated. This causes the alignment and profile of the track to be substandard and does not provide adequate support of the rail. These tie, alignment, and profile conditions cause the NETEX line to be classified as "Excepted Track" according to Federal Railroad Administration (FRA) regulations, which limits BLR's operating speeds to 10 mph, restricts the movement of hazardous materials to no more than five (5) hazardous cars per train, and prohibits the movement of occupied passenger cars. The Excepted Track status affects the efficiency and capacity of the NETEX/BLR line and operations, and may lead to the eventual cessation of service if the track continues to deteriorate. The line is in need of rehabilitation to address tie, alignment, and profile deficiencies to achieve and maintain FRA Class 2 (25 mph) status. The project will consist of:

1. Replace 85,800 main line crossties (40%)
2. Replace 3,499 siding/spur track crossties
3. Replace 350 switch ties
4. Install and regulate 39,600 tons of ballast
5. Surface and align 69.6 miles of track (including siding/spurs)
6. Repairs to 51 bridges
7. Vegetation removal and controls

1.2 ECONOMIC IMPACTS DURING CONSTRUCTION OF THE FACILITY

Table 1 shows the estimated cost of the proposed facility (as of August 2010). As Table 1 shows, the total costs including the costs of construction, engineering and contingencies are estimated at \$14.3 million. Table 2 shows the quarterly distribution of project costs in percentage terms. The project is expected to start in the first quarter of 2011 and be completed over a period of about 1.5 years in the second quarter of 2012.

1.3 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 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 based on information and data available as of mid-August 2010. As the table shows, all costs have been combined and classified into the construction industry.

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 47.5 job-years for the cumulative impact of nearly 285.2 jobs-years of employment. This includes 107.3 direct job-years, 63.9 indirect job-years, and 114 induced job-years. During the nearly 1.5-year construction period, the project will thus support each year on average 190.1 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 155.5 job-years, including 99.5 direct and indirect job-years, and 56 induced job-years. During the construction period, the project will thus generate on average 103.7 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 \$21.3 million, including \$6.14 million of direct GDP, \$6.05 million indirect GDP, and \$9.11 million of induced GDP. The quarterly impact over the period of analysis from Q1 2011 to Q2 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 \$14.2 million.

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

CATEGORY OF EXPENDITURE/COST	Total	IMPLAN INDUSTRY NUMBER	IMPLAN INDUSTRY NAME
Engineering and Contingencies	\$2.08		
Construction Total	\$12.23		
Total	\$14.30	36	Construction of other nonresidential structures

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

	1Q-2011	2Q-2011	3Q-2011	4Q-2011	1Q-2012	2Q-2012



Construction and Construction Management	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
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Table 3: IMPLAN-Estimated Employment Impact of Project Expenditures: Number of Jobs-Years Created, by Quarter, Total, and Annual Average

Effect Type	1Q-2011	2Q-2011	3Q-2011	4Q-2011	1Q-2012	2Q-2012	Total Job-Years	Average Number of Jobs per Year*
Direct	17.9	17.9	17.9	17.9	17.9	17.9	107.3	71.5
Indirect	10.7	10.7	10.7	10.7	10.7	10.7	63.9	42.6
Induced	19.0	19.0	19.0	19.0	19.0	19.0	114.0	76.0
Total	47.5	47.5	47.5	47.5	47.5	47.5	285.2	190.1

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	1Q-2011	2Q-2011	3Q-2011	4Q-2011	1Q-2012	2Q-2012	Total Job-Years	Average Number of Jobs per Year*
Direct and Indirect	16.6	16.6	16.6	16.6	16.6	16.6	99.5	66.3
Induced	9.3	9.3	9.3	9.3	9.3	9.3	56.0	37.3
Total	25.9	25.9	25.9	25.9	25.9	25.9	155.5	103.7

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	1Q-2011	2Q-2011	3Q-2011	4Q-2011	1Q-2012	2Q-2012	Total Value Added	Average Value Added per Year
Direct	\$1.02	\$1.02	\$1.02	\$1.02	\$1.02	\$1.02	\$6.14	\$4.09
Indirect	\$1.01	\$1.01	\$1.01	\$1.01	\$1.01	\$1.01	\$6.05	\$4.04
Induced	\$1.52	\$1.52	\$1.52	\$1.52	\$1.52	\$1.52	\$9.11	\$6.07
Total	\$3.55	\$3.55	\$3.55	\$3.55	\$3.55	\$3.55	\$21.30	\$14.20

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 107.3 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 11.1 job-years of employment in the architectural, engineering and related services industry (10.6 indirect, and 0.5 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 11.9 job-years in the food-services industry, 7.4 jobs in wholesale trade, and 3.3 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, 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	107.3	0	0	107.3
413	Food services and drinking places	0	1.8	10.1	11.9
369	Architectural, engineering, and related services	0	10.6	0.5	11.1
319	Wholesale trade	0	3.3	4.1	7.4
360	Real estate	0	1.9	5.2	7.1
382	Employment services	0	3.3	2.8	6.1
329	Retail - General merchandise	0	0.5	3.1	3.6
324	Retail - Food and beverage	0	0.5	3	3.5
388	Services to buildings and dwellings	0	1.7	1.6	3.3
335	Truck transportation	0	2	1.2	3.2
398	Nursing and residential care facilities	0	0	3.1	3.1
414	Automotive repair and maintenance, except car washes	0	1.6	1.2	2.8
320	Retail - Motor vehicle and parts	0	0.4	2.1	2.6
354	Monetary authorities and depository credit intermediation	0	1	1.6	2.6
367	Legal services	0	1.3	1.3	2.6
425	Civic, social, professional, and similar organizations	0	0.8	1.7	2.5
426	Private households	0	0	2.5	2.5
356	Securities, commodity contracts, investments, and related activities	0	0.6	1.8	2.4
331	Retail - Nonstore	0	0.3	1.9	2.2
381	Management of companies and enterprises	0	1.1	1.1	2.2
368	Accounting, tax preparation, bookkeeping, and payroll services	0	1.1	0.9	2.1
327	Retail - Clothing and clothing accessories	0	0.2	1.7	1.9
357	Insurance carriers	0	0.3	1.6	1.9
330	Retail - Miscellaneous	0	0.3	1.5	1.8
39	Maintenance and repair construction of nonresidential maintenance and repair	0	0.9	0.8	1.7
323	Retail - Building material and garden supply	0	0.2	1.4	1.6
411	Hotels and motels, including casino hotels	0	0.5	1	1.5
161	Ready-mix concrete manufacturing	0	0.8	0	0.8
187	Ornamental and architectural metal products manufacturing	0	0.8	0	0.8
99	Wood windows and doors and millwork	0	0.5	0.1	0.6
95	Sawmills and wood preservation	0	0.3	0	0.4
	Other	0	25.3	55.1	80
	Total	107.3	63.9	114	285.1

