U.S. Department of Transportation

National Infrastructure Investments Grant Program

"TIGER Discretionary"

GRANT APPLICATION

Project Name: **South Orient Rehabilitation – Sulphur Junction to Fort Stockton**

Project Type: **Rural Freight Rail Transportation Project**

Project Cost: **$14,183,055**

Funds Requested: **$ 9,553,630 (67.36%)**

Contact: **Gil Wilson**
Texas Department of Transportation
Rail Division
125 East 11th Street
Austin, Texas 78704
(512) 486-5103
Gil.Wilson@txdot.gov

DUNS #: **806782553**

EIN / TIN: **74 6000170**

Application ID: **Gil Wilson41437**

Website: **http://www.txdot.gov/business/rail/tiger3.htm**

Table of Contents

Supporting Documentation can be found at: http://www.txdot.gov/business/rail/tiger3.htm

List of Figures

List of Tables

I. Project Description

A. Introduction

The South Orient rail line (SORR) rehabilitation project from Sulphur Junction to Fort Stockton, Texas, is a rural freight rail project that will have a significant impact on the region as well as the nation. The project will improve an existing rail transportation facility that, if left unimproved, is expected to become inoperable within 5 to 10 years, threatening future transportation network efficiency, freight mobility, and economic growth in an Economically Distressed Area. The project will provide significant benefits to the region, state, and nation through the integration and better use of multimodal connections on the facility; avoid the diversion of existing freight from rail to truck, avoided heavy truck traffic and truck miles traveled, avoided truck emissions, avoided increased transportation costs, improved freight rail efficiency and capacity, and through job creation. The benefits from maintaining current traffic levels exceed $52.1 million over 20 years, with a benefit – cost ratio of 3.30 to 1. The benefits from forecasted traffic could potentially exceed $131 million over 20 years with a benefit – cost ratio of 8.36 to 1. [1]

The SORR, approximately 391 miles in length, is a state-owned facility that extends from San Angelo Junction (in Coleman County, 5 miles southwest of Coleman, Texas) through San Angelo to Presidio at the Texas/Mexico border. This is the only rail line providing service to the cities and businesses in the region, which includes agricultural interests, steel manufacturers, mining businesses, energy resources, and other miscellaneous customers.

TxDOT has leased operations on the line to Texas Pacifico Transportation, Ltd (TXPF). TxDOT and TXPF have worked together to rehabilitate the eastern portion of the line between San Angelo Junction (Milepost 0 [MP 0]) and Sulphur Junction (MP 869.4). The final phase of this rehabilitation is under construction and the line will be FRA Class 2 (25 mph) from MP 0 to MP 869.4 upon completion early in 2012.

The SORR is classified as Excepted Track from Sulphur Junction (MP 869.4) to Fort Stockton (MP 881.92) due to substandard rail, defective ties, and bridge deficiencies. The rehabilitation of this section of the line is necessary in order to continue operations and provide safe and efficient rail service to existing customers. Several mining businesses have requested rates for the transportation of petroleum products to/from the Fort Stockton region, and the rail line cannot support the movement of these hazmat cars in the volumes requested due to the operational impacts of the Excepted Track status. The freight moved to Fort Stockton has risen from 144 car loads in 2007 to 414 car loads in 2010, a 187% increase. In 2011, freight moved to Fort Stockton has already exceeded the 2010 volumes and is estimated at 972 car loads for the year – a 575% increase since 2007, despite a struggling economy. In addition, if the track is rehabilitated and all projected traffic

[1] See Section IV "Selection Criteria" and CBA attachment "Detailed Economic and Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm for details on how the project provides these benefits.

materializes, this section of the line would see a 2,544% increase in traffic from 2007 to 2014.

The project area is rural and encompasses a large oil and gas development region as well as a wind turbine development area. The project will facilitate the continued development of energy resources in west Texas, assisting in making the nation energy independent. Development of natural resources in the region has been hampered due to the lack of efficient and competitive rail service.

A map of the state location of the project is shown in Figure 1. The project area is shown in Figure 2 and at http://www.txdot.gov/business/rail/tiger3.htm.

.

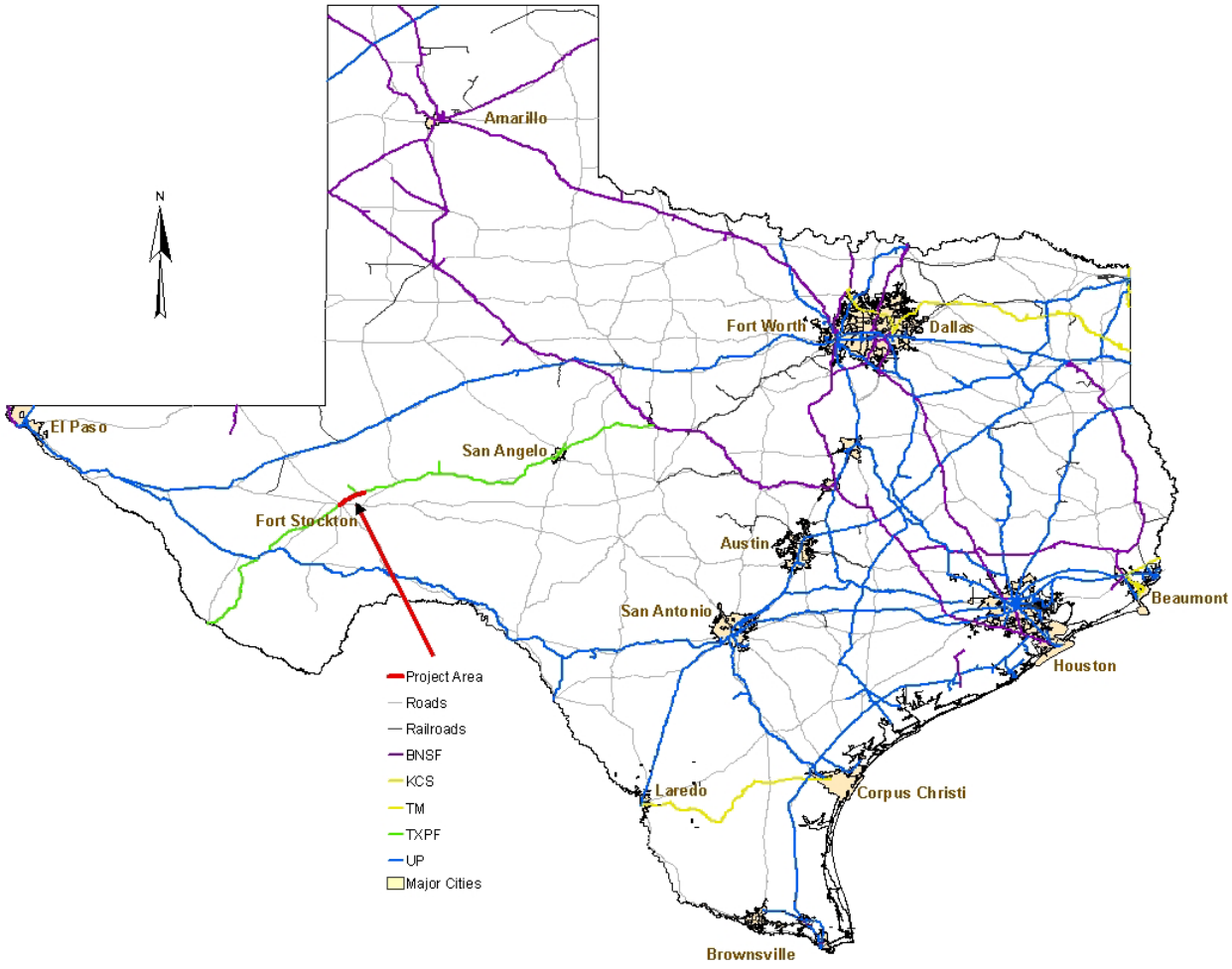

Figure 1: Project Location

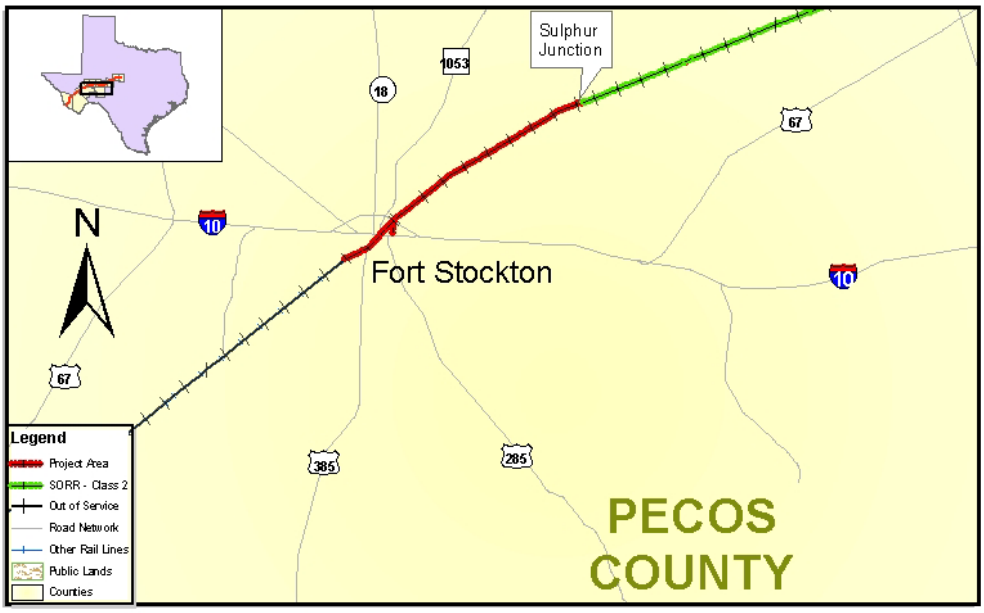

Figure 2: Project Area

B. Project Components

The project is wholly within Pecos County and is designed to rehabilitate a portion of the state-owned South Orient rail line from Sulphur Junction to Fort Stockton, Texas. The project limits are between Sulphur Junction (MP 869.4) and the west side of Fort Stockton (MP 881.92). This is a 12.52 mile section of the South Orient main line that is constructed of 70# jointed rail. This segment of the line is currently designated as Excepted Track due to this substandard rail and deteriorating tie conditions, which limits train speeds to 10 mph and restricts hazardous materials to five cars per train. This segment of the line is in need of significant rehabilitation in order to keep it operable and to raise the line to Class 2 status, which will improve freight mobility and enable the efficient movement of hazardous materials on the line. In this segment of the rail line (MP 869.4 – 881.92), the project will consist of:

1.	Replace 43,545 deficient crossties with new grade 5 ties	= $3,042,000
2.	Replace 141,926 linear feet of 70# rail with 112# (or heavier) CWR[2]	= $8,064,871
3.	Replace 4 turnouts (70#) with 112# (or heavier) turnouts	= $ 172,000
4.	Install and regulate 8,100 tons of ballast	= $ 405,000
5.	Surface and align 12.52 miles of track	= $ 75,120
6.	Reconstruct 3 roadway-rail at grade crossings (68 linear feet)	= $ 47,600
7.	Replace 1 deficient bridge, repair 2 other bridges & 3 culverts	= $ 526,500
	Construction Costs	= $12,333,091

[2] Continuously Welded Rail

Figures 3 and 4 show typical tie and rail conditions in the Segment 1 project area. Figure 5 shows a typical crossing surface that will be reconstructed. Figures 6 and 7 show some of the bridge conditions being addressed in the project.

Figure 3 – MP 870, Track Conditions

Figure 4 – MP 876.1, Track Conditions

Figure 5 – MP 882.45, Typical Crossing To Be Replaced

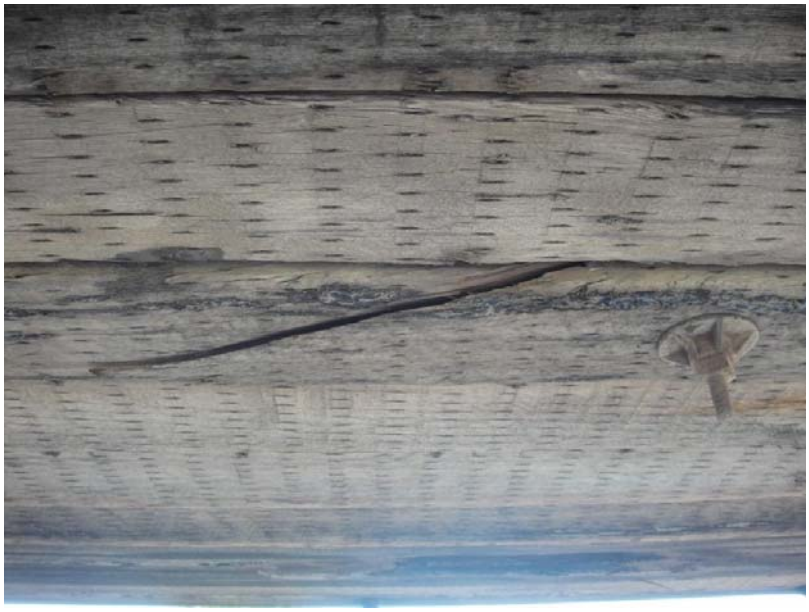

Figure 6 – BRG 875.7 – Broken Stringer To Be Replaced

Figure 7 – BRG 877.6 – Fire Damaged Bridge To Be Replaced

C. Geospatial Data

The geospatial data for the beginning and end of the rail and tie replacement project as well as the specific bridge and crossing locations where work will be performed is shown in Table 1. The table also gives a general description of the type of work to be performed.

Location	Latitude	Longitude	Description of Work
Project Begins	30.99379	-102.71336	MP 869.4 - Begin rail & tie replacement through end of project limits
MP 870.30	30.99031	-102.72282	Reconstruct 18' grade crossing DOT #18925R
MP 870.9	30.98657	-102.73252	Bridge - shim bent 2 piles 3 & 4; brace bents 3, 4, 5, 6, &7
MP 874.6	30.95781	-102.78528	Reconstruct 18' grade crossing DOT #18926X
MP 875.7	30.9502	-102.80000	Bridge – Shim bents 2 & 3, piles 3 & 4; brace bents 2 & 3; replace stringer 4 span 2; stringer 5 span 3
MP 877.6	30.93493	-102.82718	Bridge 70' – replace, fire damaged
MP 879.4	30.91777	-102.85011	Reconstruct 32' grade crossing DOT #18928L
Project Ends	30.89207	-102.88024	MP 882.84 – Nelson St. - End rail & tie replacements

Table 1: Project Geospatial Data

II. Project Parties

The SORR is owned by TxDOT on behalf of the state of Texas. TxDOT has a workforce of more than 12,000 employees and is headquartered in Austin, Texas, with 21 divisions and offices in the capital area. Four regional support centers provide operational and project delivery support for the agency's 25 geographical districts located around the state. TxDOT has vast experience managing federal and state infrastructure projects and rail rehabilitation/construction projects.

TxDOT leased operations on the SORR line to Texas Pacifico Transportation Company, Ltd. ("TXPF"). Under the terms of the agreement, TxDOT became the permanent owner of the right-of-way and infrastructure, and TXPF obtained a 40-year operating lease with renewal options. TXPF is a wholly owned subsidiary of Grupo Mexico, a large mining conglomerate headquartered in Mexico. TxDOT and TXPF have invested over $25 million in track rehabilitation in critical locations to keep the line operable and upgrade those sections to 25 mph. The ownership of the line by TxDOT, the lease to TXPF, and their joint efforts to rehabilitate the line makes this a true public-private partnership.

III. Grant Funds and Sources/Uses of Project Funds

TxDOT is prohibited by state statute from using fuel-tax revenues for non-highway projects. This severely restricts the funds available for rail projects as this is TxDOT's

primary source of revenue. TxDOT and TXPF have used their available resources to complete the rehabilitation of the line from San Angelo Junction to Sulphur Junction and do not have adequate revenue to invest in the proposed rehabilitation project. All remaining TxDOT and TXPF funding will be used for matching the TIGER grant if this application receives a TIGER award. The Fort Stockton Economic Development Corporation is also contributing $200,000 to this project if it is selected for grant funding.

The cost of developing plans, specifications, estimates, and environmental clearances for the project has been absorbed by TxDOT. The actual construction and project management costs would be funded by a 4.23% contribution in state funds from TxDOT, 1.41% in funds from Fort Stockton Economic Development Corporation, 27% in private contributions from TXPF, and 67.36% in TIGER Grant Funds.

The project estimate and uses of funds is shown in Table 2 and the source of funds is shown in Table 3.

Item	Unit	Quantity	Unit Cost	Total
Rail Replacement	Linear Foot	132,211	$61	$8,064,871
Turnouts - complete	Each	4	$43,000	$172,000
Tie Removal & Replacement	Each	40,560	$75	$3,042,000
Ballast Delivery & Regulating	Ton	8,100	$50	$405,000
Ballasted Track Surfacing & Alignment	Mile	12.52	$6,000	$75,120
Timber Road Crossings	Linear Foot	68	$700	$47,600
Bridges & Drainage	Lot		-	$526,500
Subtotal				$12,333,091
Mobilization		1	$986,647	$986,6470
Engineering & Contingencies		1	$863,316	$863,316
Total				**$ 14,183,055**

Table 2: Project Estimate and Uses of Funds

Funding Source	Participation	Total
TxDOT	4.23%	$ 600,000
Fort Stockton Economic Development Corp.	1.41%	$ 200,000
TXPF	27.00%	$3,829,425
TIGER	67.36%	$9,553,630
TOTAL	**100%**	**$14,183,055**

Table 3: Source of Funds

IV. Selection Criteria

A. Long-Term Outcomes

i State of Good Repair

The rehabilitation of the line using TIGER grant funds will improve the condition of an existing rail transportation system and minimize life-cycle costs by bringing the SORR into a state of good repair and maintaining it in that condition beyond the expected lifespan of the materials used in the rehabilitation project. The line will remain in the rehabilitated condition because TXPF is contractually obligated to maintain any segment of the SORR that is rehabilitated by TxDOT in the same or better condition as when the project is completed.

According to the Association of American Railroads[3], the average train speed of the Class 1 railroads is between 23 and 25 mph. The scope of work for this project and associated funding levels are appropriate for improving track speed on the SORR to 25 mph. This would allow increased, improved service and provide for the state of good repair and an efficient, effective, and safe rail service provider in the region. This level of investment is adequate for existing and projected needs without "over investment" in unnecessary higher speeds.

If this segment of the SORR becomes inoperable, there would be an immediate and dramatic increase in large trucks upon the local, regional, state, and national roadways as the existing shippers were forced to divert their rail freight to roadways.[4] The diversion of this freight from rail to truck would add 2,714,796 truck miles annually to the regions

[3] http://www.aar.org/

[4] See the "Sustainability" and "Economic Analysis" sections in this document and CBA attachment "Detailed Economic and Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm for a brief description of roadway impacts if this section of the line is not rehabilitated.

roadways. Other shippers, such as agricultural cooperatives and smaller businesses, could be forced to close due to the increase in transportation costs of truck over rail.

The project would be appropriately capitalized up-front via a public-private partnership between the federal government, TxDOT, the Fort Stockton Economic Development Corporation, and TXPF.

TxDOT has an effective asset management approach that optimizes the long-term cost structure and viability of the project, which includes:

- direct supervision of contractors during construction activities,
- random inspections of SORR infrastructure and TXPF maintenance practices,
- mandatory monthly maintenance and operating reports from TXPF,
- a Joint Operations and Marketing Committee that meets twice annually, and
- TXPF is contractually obligated to maintain any segment of the SORR that is rehabilitated by TxDOT in the same or better condition as when the project is completed.

The facility's current condition and performance and the projected condition and performance can be established and measured by the following quantifiable metrics:

1. Track Construction

   Current: The current condition of the existing track between MP 869.4 and 881.92 is substandard 70# rail on crossties that are generally in fair to bad condition. This segment is classified as Excepted Track, which inhibits performance by limiting hazardous materials shipments to 5 cars per train and prohibiting occupied passenger cars.

   Projected: The project will improve the facilities' condition by the replacement of the 70# substandard rail and defective crossties with 112# (or heavier) CWR, new crossties, and will remove the Excepted Track classification.

2. Track Conditions

   Current: The current tie conditions cause alignment and profile deviations which result in the infrastructure being classified as Excepted Track. This also restricts the track to 10 mph with no more than five hazardous materials cars per train.

   Projected: The project will replace the defective ties, install ballast as necessary, and address alignment and profile deviations to raise the Excepted Track to Class 2 (25 mph). The infrastructure will be maintained at that classification in perpetuity in accordance with TXPF's contractual maintenance obligations.

3. Continuation of Service

Current: The existing infrastructure is deteriorating and is expected to become inoperable within the next 5 to 10 years. This would cause the cessation of service to shippers located on this segment of the line.

Projected: The project will provide for the rehabilitation of this segment of the line and the continuation of service in accordance with TXPF's contractual maintenance obligations.

Maintenance costs of the rehabilitated section of the line are estimated at $5,000 per mile per year. These costs will be the sole responsibility of TXPF in accordance with their contractual maintenance obligations. TXPF and its parent company, Groupo Mexico, have adequate resources to meet this obligation. This will eliminate any future maintenance or rehabilitation requirements by the state for track infrastructure or the local communities for grade crossing surface conditions.

ii. Economic Competitiveness

The project will improve the long-term efficiency, reliability, and cost-competitiveness of freight movements to and from an Economically Disadvantaged Area by providing a safe, efficient, and truck-competitive rail line with national linkages. The rehabilitated SORR will increase the efficiency and effectiveness of the existing multi-modal transportation system as a whole by enabling increased freight rail volumes to the Fort Stockton region, where it can be trans-loaded to truck for delivery to local destinations. The Fort Stockton road system includes Interstate 10, U.S. Highways 67, 285, and 385, State Highway 18, and other regional and local roads such as FMs 1053 and 1776. These roadways provide an extensive distribution system for rail freight that is shipped to the region and trans-loaded at Fort Stockton.

The SORR is near capacity between Sulphur Junction and Fort Stockton due to the substandard infrastructure which restricts the efficient movement of rail freight in one of the nation's largest petroleum and natural gas production regions. In addition, this segment of the SORR may become inoperable within 5 to 10 years if it is not rehabilitated. This would greatly reduce the region and nation's economic competitiveness as a result of increased freight transportation costs. The closure of some businesses that are rail dependent would result in a reduction in local, state, and federal tax revenues and the associated loss of jobs. The economic stability and growth of the region relies on the continuation and improvement of rail service on the SORR.

The expenditure of $14,183,055 for freight rail infrastructure rehabilitation in the region will result in over $42.54 million in economic output for this region,[5] in a county where the per capita income is $15,939[6]. Pecos County is an economically distressed county as defined by the Federal Highway Administration.[7]

The Association of American Railroads (AAR) has determined that a freight train (on average) can carry one ton of cargo a distance of 480 miles on a single gallon of fuel. This high level of efficiency reduces the nation's dependence on foreign oil and helps shrink its carbon footprint. The AAR has also determined that railroads are four times more fuel efficient than trucks.[8] Moving freight by rail instead of truck therefore contributes to the region and nation's economic competitiveness.

An example of the long-term efficiency, reliability, and cost-competitiveness of moving freight by rail into the region involves the Tex-Sand Corporation, which located a sand unloading facility at the rail yard in Fort Stockton in 2009 and is receiving an average of 81 carloads per month. If the project is not completed, causing this freight to divert to trucks, there would be an immediate increase of 2,714,796 truck miles traveled annually on the regional roadways. The 20 year discounted impact of those trucks totals $48,502,425.[9] The rehabilitation of the line will allow these movements to continue by rail while effectively reducing the time spent operating trains in this area by more than half.[10]

iii. Livability

The rehabilitation of the SORR will benefit the livability of the region and have a positive impact on community life by improving vehicular mobility and safety at roadway-rail grade crossings and reducing truck traffic on roadways in the region. Five grade crossings that have deteriorated crossing surfaces and track structure will be reconstructed during the project. A typical crossing surface that will be reconstructed is shown on page 5 in Figure 5.

[5] AAR studies indicate that every dollar invested in freight-rail infrastructure created by investment tax incentives generates more than three dollars in total economic output due to investment, purchases and employment occurring among upstream suppliers. The same benefit can be expected from grant investments. http://www.aar.org/Home/AAR/IndustryInformation/InfrastructureTaxIncentive/~/media/AAR/PositionPapers/819.ashx.

[6] Source: US Census Quick Facts and Texas Association of Counties

[7] *See* U.S. DEP'T. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, ECONOMICALLY DISTRESSED AREAS PLANNING, ENVIRONMENT, REALTY (HEP), http://hepgis.fhwa.dot.gov/hepgis_v2/GeneralInfo/Map.aspx

[8] *See* ASSOCIATION OF AMERICAN RAILROADS, ENVIRONMENT, http://www.aar.org/~/media/aar/backgroundpapers/railroadsgreenfromthestart.ashx

[9] See CBA attachment "Detailed Economic and Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm

[10] Increasing train speeds from 10 mph to 25 mph reduces the operating times by more than half.

The project will enhance points of modal connectivity by rehabilitating a deteriorating transportation asset and increasing the amount and types of freight that can move over the SORR, which connects to an extensive highway system. The project will also enhance energy-related and support services, provide economic development opportunities, and bring additional jobs and businesses to the area as a result of an improved regional freight rail transportation system that connects to two Class 1 railroads (BNSF at San Angelo Junction and UP at Alpine).

The SORR runs through eleven counties in West Texas: Brewster, Coleman, Crane, Crockett, Irion, Pecos, Presidio, Reagan, Runnels, Tom Green, and Upton. For the purposes of this application the funding will be used for infrastructure rehabilitation in Pecos County.

The counties near the project area cover two of the Workforce Development Areas (WDA) set out by the Texas Workforce Commission. Crockett, Irion, Reagan, and Tom Green Counties fall in the Concho Valley WDA; while Crane, Pecos, and Upton Counties fall in the Permian Basin WDA. Aside from Tom Green County, all but one of these counties has small populations with attrition occurring over the past twenty years. Most of these counties are largely minority communities and earn less than the median average income that is seen in many other Texas regions. These can be classed as economically disadvantaged communities. Demographic information is shown in Table 4.

County	Population 2010	County Size (square miles)	Population Density per square mile (2010)	Income Per Capita $	% Ethnicity (Hispanic)	Persons Below Poverty % (2009)	Median Age
Crane	4,375	786	5.6	20,063	55.1	12.1	36.5
Crockett	3,719	2,808	1.3	22,719	63.2	14.1	40.8
Irion	1,599	1,052	1.5	26,328	25.5	10.9	40.1
Pecos	15,507	4,764	3.3	15,939	67.3	19.7	32.7
Reagan	3,367	1,175	2.9	23,369	60.9	9.5	37
Tom Green	110,224	1,522	72.4	21,483	35.7	16.2	34.4
Upton	3,355	3,031	2.47	18,972	49.0	16.0	42.3

Table 4: Demographic Data for Counties Along the SORR

Sources: US Census Quick Facts and Texas Association of Counties

Small cities (under 3000 population) located along the line that are within this area are Barnhart, Big Lake, McCamey, Metzon, and Rankin. Fort Stockton is the only medium city in the area (over 6,000 population). The populations of cities that are in the project area (from 2010 US Census) can be seen in Table 5.

Barnhart	105	**McCamey**	1,805
Big Lake	2,885	**Mertzon**	839
Rankin	800	**Fort Stockton**	7,846

Table 5: Populations of Towns in the Region Along the SORR

According to the US Census Bureau, the national per capita income was $27,041 in 2009. As Table 4 shows, the counties in this area have low per capita incomes, a large Hispanic population, a youthful population, and relatively high poverty rates; with Pecos County having a having a poverty rate of 19.7 % and the lowest per capita income at $15,939 per year. It is estimated that the project will create 239 construction related job positions over a period of 16 months, and will have a short-term employment impact of approximately $926,541.[11] It will also provide for the retention of 144 jobs at the TexSand facility[11].

This project will eliminate over 2.71 million[11] truck-miles annually from the national highway system by preventing the diversion of rail freight to roads, which will occur if this section of the line is not rehabilitated. The rehabilitation of the SORR will enhance the livability of the region and nation by the continued and increased diversion of freight from the roadways to rail. The project is part of a regionally focused effort to improve rail service on the SORR. It has broad, regional support from the eleven counties that the line passes through and the communities and citizens in those locations. The project also has the support of the connecting railroads, as well as state officials from other regions. International support also exists from the operator's parent company (Grupo Mexico) and the Martifer-Hirschfeld Energy Corporation. The project includes a potential NAFTA trade corridor through the connections with Ferromex at Presidio.

iv. Sustainability

The rehabilitation of the SORR from Sulphur Junction to Fort Stockton will improve energy efficiency by increasing capacity on the line, reduce dependence on foreign oil by transporting freight in the most energy efficient manner, and reduce greenhouse gas emissions by over 8.3 million tons over 20 years. The project will enable the existing shippers to continue using rail transportation and encourage the diversion of freight from the highway to rail. The project will also support the on-going development of new energy industries in west Texas that will have multiple benefits for many generations from air quality improvements, sustainability, economic growth, and reductions in the use of greenhouse gas hydrocarbons.

An example of one existing shipper's impact on sustainability involves the Tex-Sand Corporation, which located a sand unloading facility at the rail yard in Fort Stockton late in

[11] See "Job Creation & Near-Term Economic Activity" in this application and CBA attachment "Benefit-Cost and Economic Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm.

2009 and is receiving an average of 81 carloads per month. If the project is not completed, causing this freight to divert to trucks, there would be an immediate increase of 464,618 tons of carbon dioxide (CO_2) emissions annually[12].

Although there was a dramatic increase in sand shipments in 2011 over 2010 (138%), a conservative growth factor of 1.5% was used to project sand shipments for this single customer over the next 20 years, with 81 carloads per month (2011 rate) as the base line. The projections showed that shipping these materials by rail will reduce CO_2 emissions by 10,743,671 tons over the next 20 years – or conversely, emissions will increase by that amount if this freight is diverted to truck[13]. Some studies have valued the cost of CO_2 reduction at approximately $33 a ton per year. Using the 1.5% growth factor above over a 20 year period, the reduction in CO_2 emissions from this freight could be valued up to $276,542,409. However, the FHWA's Highway Cost Allocation Study calculates air pollution impacts at 0.038 cents per truck mile. Using this methodology, the air quality impacts over 20 years would total $2.73 million, a more conservative figure.

This example shows that there are substantial transporation-related costs related to energy consumption and greenhouse gas emissions. If the SORR is not rehabilitated, those costs and greenhouse gas emissions would increase dramatically as a result of the diversion of freight from rail to highway and would cause adverse effects to the environment.

v. Safety

The rehabilitation of the SORR will provide safety improvements for the traveling public as well as the operating railroad by diverting freight from highway to rail, enabling rail movements of hazardous materials, and improving highway-rail grade crossing surfaces.

A report entitled *"Potential Economic Impact of the South Orient Railroad"* was produced by Alliance Transportation Group for the Fort Stockton Economic Development Corporation in 2007, using data reported by the University of Texas' Center for Transportation Research and the Fort Stockton Economic Development Corporation[14]. The study projected that the rehabilitation of the line would increase the total number of rail cars moved to Fort Stockton to 3,808. According to the report, these goods would travel in a northeast/southwest direction between Fort Stockton and Fort Worth.

The information presented in the report was used to determine the impact on the highway system as a result of the 3,808 carloads being moved by truck. The analysis used the

[12] See supporting documentation CBA attachment "Benefit-Cost and Economic Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm

[13] See supporting documentation CBA attachment "Benefit-Cost and Economic Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm

[14] Report available for review at http://www.txdot.gov/business/rail/tiger3.htm

FHWA's Highway Cost Allocation Study (updated May 2008) methodology. A conservative diversion of 3.5 trucks per rail car was assumed, though sometimes a 4-to-1 ratio is used. Table 6 shows that the railcars that could be moved from Fort Worth to Fort Stockton represent over 10.63 million vehicle-miles-traveled by trucks on an annual basis. This freight would also impact sustainability from CO_2 emissions which would be 1089% higher if shipped by truck.

Estimated Additional VMT Due to Modal Shift from Rail To Highway												
South Orient Railroad from San Angelo to Fort Stockton												
		Total Loaded Railcars		Avg. Truckloads per Railcar		Total Trucks			Route Mileage*		Truck Mileage
Annual		**3,808**	**x**	**3.5**	**=**	**13,328**		**x**	**798**	**=**	**10,635,744**

Table 6: Estimated Avoided Truck VMT between Fort Stockton and Fort Worth

Improved grade crossings - The project area includes 5 roadway/rail at-grade crossings which are in "fair" or "poor" condition. These crossings have substandard rail with deteriorated ties, subgrade and drainage. This causes the track to pump under load, resulting in the possibility of derailments and vehicular accidents. These crossings present a hazard to vehicular traffic, which is susceptible to damage from the rough condition of the crossing surface. This also causes most drivers to cross the tracks at extremely low speed, which can contribute to vehicular-train accidents. The scope of the project includes removing the existing crossing, reconstructing the subgrade and track with new materials, and replacing the crossing with a new timber surface.

Hazardous materials movement - Rail is the safest way to transport hazardous materials, with 99.99% of shipments arriving at their destination safely. A major oil and natural gas distributer has presented plans to construct over 22,000 feet of new track in the area which will be used for outbound loading of crude oil. This company projects shipping between 15 and 40 carloads of crude oil outbound per day and receiving 15 carloads of sand inbound per day. It is essential that the SORR rehabilitation be completed from Sulphur Junction to Fort Stockton in order to support these developments and to prevent this freight from being diverted to trucks. The rehabilitation of the SORR would allow the transportation of these materials by the safest method available.

B. Job Creation & Near Term Economic Activity[15]

The project promotes both short and long-term job creation and preservation of jobs by providing for the rehabilitation of an existing, deteriorating rail line that is expected to

[15] See CBA attachment "Benefit-Cost and Economic Impact Analysis" or at http://www.txdot.gov/business/rail/tiger3.htm

become inoperable within 5 to 10 years. According to the project schedule and manning estimates, a total of 239 construction related job positions will be manned during the 16 month construction period. This includes skilled positions such as project supervisors, machine operators, welders, carpenters, and concrete workers. It is also estimated that at least five (5) of these jobs will be entry-level laborer positions that will manned from the local communities, creating employment and on-the-job training opportunities in an Economically Disadvantaged Area. An additional 54 construction management and inspection positions will be manned for 16 months[16].

The recently opened Tex-Sand trans-loading facility[17] created 144 permanent job positions, averaging $2,916 per month, that are staffed by Fort Stockton residents. Tex-Sand has projected that an additional 144 jobs would be created if train service can increase as a result of the track rehabilitation.

AAR studies indicate that every dollar invested in freight-rail infrastructure created by investment tax incentives[18] generates more than three dollars in total economic output due to investment, purchases and employment occurring among upstream suppliers. The expenditure of $14,183,055 for freight rail infrastructure rehabilitation in this segment of the SORR region will result in over $42.54 million in economic output from this region.[19]

Based on the employment impact multiplier recommended by the Council of Economic Advisors (CEA)[20], the project should create 151 jobs in addition to the 239 construction jobs referenced earlier. This would result in an additional $5,936,716 in employment earnings, assuming that those jobs meet the state average of $39,316. Job creation is shown in Table 7.

Impact	Category	Value
Construction Jobs	**Direct Benefit**	**$753,774**
Engineering & Construction Management Jobs	**Direct Benefit**	**$172,767**
Current job retention (trans-loading facility)	**Direct Benefit**	**$420,000**
Projected job creation (trans-loading facility)	**Direct Benefit**	**$420,000**
Indirect Job Creation	**Indirect Benefit**	**$5,936,716**
Economic Output	**Indirect Benefit**	**$42,549,165**
Total		**$ 50,252,422**

Table 7: Job Creation and Near Term Economic Output

[16] See Section V for the estimated project schedule and jobs in each task category.

[17] See additional information on Tex-Sand in sections “iii. Livability”, “iv Sustainability”, and CBA attachment “Detailed Economic and Impact Analysis” or at http://www.txdot.gov/business/rail/tiger3.htm

[18] The same level of impact can be assumed from the use of TIGER 3 federal grant investments in rail infrastructure projects.

[19] http://www.aar.org/Home/AAR/IndustryInformation/InfrastructureTaxIncentive/~/media/AAR/PositionP

[20] CEA estimates that 10.8 jobs are created for every $1,000,000 in government expenditures.

The project will be managed by TxDOT, which has a solid track record of complying with Federal labor laws regarding safety and equitable treatment of workers. The contractor will be required to comply with these regulations and equal opportunity laws in the hiring of workers.

C. Innovation

There are no definitive technological benefits from this project as described in the NOFA. However, from a practical standpoint, the preservation and continued operation of the SORR has required an innovative approach by TxDOT since the acquisition of the line was considered. The Texas Legislature appropriated $6 million toward the $9.5 million sale price for the line. TxDOT entered into an agreement with Grupo Mexico, a large mining conglomerate, to provide the remaining $3.5 million necessary to purchase the line. Grupo Mexico formed Texas Pacifico Transportation, Ltd. to operate and maintain the SORR. Grupo Mexico is also the majority owner (73%) of Ferromex, the railroad operating in Mexico that connects to the SORR in Presidio. TxDOT believes this corporate relationship can foster the use of the line for NAFTA traffic, providing an additional route for rail movements between the U.S. and Mexico.

The rehabilitation and maintenance of the line has also been innovative in securing additional funds from TXPF (of at least 25%) for each project using state or federal funds. The lease agreement has also been amended and requires TXPF to maintain each segment of the line in the same or better condition as it is when a TxDOT project is completed. This contractual requirement insures that the funds invested by TxDOT provide a long-term benefit by maintaining the line in perpetuity.

D. Partnership

TxDOT's ownership of the SORR and the lease agreement with TXPF constitute a true public-private partnership to provide essential transportation services to a large region in west Texas. TxDOT and TXPF have invested over $25 million in addressing critical deficiencies to keep the line operational and increase speeds in those sections to 25 mph. It is estimated that rehabilitating the project area to 25 mph speeds will require a $5,000 per mile annual maintenance program to keep the line in good condition. TXPF will be wholly responsible for that maintenance program.

The rehabilitation of the SORR is also part of a broader state and local partnership for economic development in the region. The city of San Angelo partnered with the state to provide economic incentives to the Martifer-Hirschfeld Energy Corporation, which resulted in the selection of San Angelo as the site for their new wind tower production facility. A key component of their site selection was the availability of rail service, which required TxDOT to rehabilitate the line from San Angelo Junction to San Angelo. The city of San Angelo has also partnered with TxDOT to rehabilitate road crossings during the project.

The rehabilitation of the line from Sulphur Junction to Fort Stockton is necessary to continue providing service to existing customers on the line, for further economic development in the region, and to allow the shipment of wind tower components from San Angelo south to Fort Stockton, which is located in a region of intense wind farm development. The rehabilitation of the line to Fort Stockton will also provide for the development of additional industries in support of energy production and other new industrial developments in an Economically Disadvantaged Area of the state. There are abundant petroleum and natural gas resources in the region which are in the process of development. Several companies have contacted TXPF and requested rates for the shipment of diesel fuels from refineries to Fort Stockton for use in their mining equipment. TXPF has not been able to provide this service due to hazardous materials movement restrictions that exist from the Excepted Track status of the rail line. Rehabilitation of the line would enable these materials to be diverted from truck to the SORR.

E. Results of Benefit-Cost Analysis

The project provides significant benefits for the region as well as the state and nation. The various categories of benefits have been detailed in the previous sections of this application. The estimated avoided costs for continuing to move existing traffic by rail total over $52.1 million for the 20 year period. The project has a Return-On-Investment (ROI) of 230% and a benefit cost ratio of 3.30 when considering only the existing traffic levels with a modest growth. The discounted project benefits are shown in Table 8. The detailed benefits and costs are shown in Table 9. The complete Benefit–Cost and Economic Impact Analysis are available at http://www.txdot.gov/business/rail/tiger3.htm

In addition, on July 28, 2011, Senate Bill 1436 was filed in the U.S. Congress. Sec. 2 (a)(8) states that every dollar invested in the Nation's infrastructure yields at least $5.70 in economic benefits from reduced delays, improved safety, and reduced vehicular operating costs. Using these figures, the rehabilitation of the SORR from Sulphur Junction to Fort Stockton would result in $107,060,364 in benefits. This document has taken a conservative approach and those calculations have not been included in this analysis.

Economic Indicators	Total	Discounted 7%	Discounted 3%
Total Costs	$ 15,774,127	$ 14,669,938	$ 15,300,903
Total Benefits	$ 52,153,145	$ 48,502,425	$ 50,588,551
NPV	$ 36,379,018	$ 33,832,487	$ 35,287,648
ROI	230%	230%	230%
B/C	3.30	3.30	3.30

Table 8: Discounted Project Benefit/Cost Summary for Existing Traffic

Description	Category	Effects	Benefit	Cost
Track Rehabilitation	State of Good Repair	Preservation of Service, increased track speed		$14,183,055
Track Maintenance[21]	State of Good Repair	Preservation of Service, increased track speed		$1,591,072
Highway Maintenance (current traffic)	Sustainability	Avoided 20 yr highway maintenance, current traffic	$9,134,447	
Air Pollution (current)	Sustainability	Avoided 20 yr pollution, current traffic	$2,733,142	
Congestion (current traffic)	Safety	Avoided 20 yr highway congestion, current traffic	$1,582,345	
Crashes (current traffic)	Safety	Avoided 20 yr highway crashes, current traffic	$564,984	
Noise (current traffic)	Sustainability	Avoided 20 yr noise impacts, current traffic	$125,552	
Fuel (current traffic)	Economic Competitiveness	Avoided 20 yr fuel usage, current traffic	$38,012,675	
Total Current		**Benefit/Cost = 2.50 / 1**	**$ 52,153,145**	**$15,774,127**

Table 9: Benefit – Cost Calculations Current Rail Traffic

The estimated avoided costs for moving the projected traffic by rail total over $131 million for the 20 year period. The project has a ROI of 534% and a benefit cost ration of 6.33 when considering all the projected traffic with a 1.5% growth factor. The discounted benefits from projected traffic are shown in Table 10. The detailed benefits and costs are shown in Table 11.

Economic Indicators	Total	Discounted 7%	Discounted 3%
Total Costs	$ 15,774,127	$ 14,669,938	$ 15,300,903
Total Benefits	$ 131,947,990	$ 122,711,631	$ 127,989,550
NPV	$ 116,173,863	$ 108,041,6931	$ 112,688,647
ROI	736%	736%	736%
B/C	8.36	8.36	8.36

Table 10: Discounted Project Benefit/Cost Summary for Projected Traffic

[21] 20 year annualized track maintenance at $5,000 per mile for 16 miles, with 1.5% growth. This cost will remain the responsibility of TXPF in accordance with their contractual obligations.

Description	Category	Effects	Benefit	Cost
Track Rehabilitation				$14,183,055
Track Maintenance				$1,591,072
Highway Maintenance (projected traffic)	Sustainability	Avoided 20 yr highway maintenance, projected traffic	$35,785,981	
Air Pollution (projected traffic)	Sustainability	Avoided 20 yr pollution, projected traffic	$10,707,616	
Congestion (projected traffic)	Safety	Avoided 20 yr highway congestion, projected traffic	$6,199,146	
Crashes (projected traffic)	Safety	Avoided 20 yr highway crashes, projected traffic	$2,213,437	
Noise (projected traffic)	Sustainability	Avoided 20 yr noise impacts, projected traffic	$491,875	
Fuel (projected traffic)	Economic Competitiveness	Avoided 20 yr fuel usage, projected traffic	$76,549,935	
Total Projected		**Benefit/Cost = 6.33 / 1**	**$131,947,990**	**$15,774,127**

Table 11: Benefit – Cost Calculations Projected Rail Traffic

V. Project Readiness and NEPA

A. Project Schedule

The project is ready to proceed rapidly upon receipt of a TIGER Grant as evidenced by the fact that TxDOT has completed the project development process for the project and the track rehabilitation plans and specifications for that portion of the project are complete. The plans and specifications for the bridge work are well underway and will be completed by December 31, 2011.

The project schedule is dependent upon the timing of the TIGER grant award. The project is virtually "shovel ready" and could go to letting and construction quickly after all agreements were finalized and the grant was approved. Assuming the TIGER grant is approved for $9,553,630 as requested and the agreement if finalized by the end of April 2012, the project would be completed within 20 months of letting, as shown in Table 12.

		2012											2013											
Task	D	J	F	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
PSE Completion																								
Env. Clearance																								
TIGER Agreement																								
Project Letting																								
Contract Execution																								
Mobilization								8	8															
Rail Replacement											5	5	5	5	5	5	5							
Turnout Construction															4	4	4	4	4					
Ballast Delivery												4	4	4	4	4	4	4	4	4	4			
Surfacing & Regulating												3	3	3	3	3	3	3	3	3	3	3	3	
Grade Crossings														6	6	6								
Bridge Construction										6	6	6	6	6	6	6	6	6						
Bridge Repairs											4	4	4	4	4									
Construction Management								2	2	3	4	4	4	4	4	4	4	4	4	4	2	2	2	1
Monthly Jobs								10	10	9	19	26	26	32	36	32	26	21	15	11	9	5	5	1

Table 12: Project Schedule & Construction Jobs Created

The project is in the State Transportation Improvement Plan[22] (STIP) and has tentatively been scheduled for letting in May 2012. That date may be set back based upon the time needed to complete the federal funding agreement. Any delays in the TIGER approval and appropriation process would result in similar delays in project implementation.

[22] April 3, 2009, STIP revision: ftp://ftp.dot.state.tx.us/pub/txdot-info/tpp/stip/rev/april3_09/highway/odessa_hwy_040309.pdf

B. Environmental Approvals – NEPA

This proposed project consists of various repairs to two bridges, one bridge replacement, rail replacement, tie replacement, crossing replacement, and ballast addition within the project limits. The bridge repairs work at 870.9 and 875.7 includes: shims between piles and caps, stringer replacement, pile repair/replacement, stringer repair/replacement, curb replacement, deck tie replacement, abutment retaining wall addition/replacement, and bent bracing. The bridge requiring replacement (877.6) would be replaced with a concrete spanning structure of approximately 70' in length. Depth of impacts will be up to 40-ft for drill shafts and < ~6-ft for any excavation. Access to these bridges will be from the railroad ROW and/or via county and private roads. The remaining two bridges require various repairs, as mentioned above.

The project site is located in the Trans Pecos Natural Region of Texas. The project is entirely located in Pecos County. The project area itself is primarily rural and contains vegetation associated with small ephemeral creeks and rangeland. The land use adjacent to the rail line in Pecos County consists almost entirely of ranching, but passes through the town of Fort Stockton. Within Fort Stockton the land use adjacent to the tracks is associated with farming, ranching, and manufacturing.

The engineering, social, economic, and environmental studies conducted thus far indicate that no significant environmental effects would occur; therefore, the proposed project qualifies as a Categorical Exclusion. In addition, the proposed action has no significant impacts as described in 23CFR771.117 (a) and (b).

The track rehabilitation was environmentally cleared in 2009, but no bridge work was anticipated at that time. The environmental clearance process for the entire project is nearing completion and TxDOT anticipates receiving State clearance by December 31, 2011. TxDOT has included a FRA Categorical Exclusion checklist for submittal with this application. The NEPA process should be complete upon receipt of a TIGER Grant Award. The environmental documentation is attached and also available for review at the web site at http://www.txdot.gov/business/rail/tiger3.htm

.

VI. Federal Wage Rate Certification

TxDOT follows federal wage rate requirements and the federal wage rate certification is provided as an attachment to the application.

VII. Changes from Pre-application

The project funding has changed from the pre-application. TxDOT had to divert $200,000 from this proposed project to a current rehabilitation project on the South Orient in order to cover a higher low-bid amount than that project's estimate. The Fort Stockton Economic

Development Corporation subsequently stated they would provide $200,000 in funding if the grant is secured.

VIII. Summary

The rehabilitation of the SORR from Sulphur Junction to Fort Stockton will provide for the continued development of energy resources in an Economically Disadvantaged Area with a low per-capita income and a high percentage of the population living below the poverty level. The "shovel ready" status of the project would cause the immediate creation of construction jobs while stimulating local economies and providing an incentive for businesses to begin planning for improved rail service in the region. The estimated impacts from avoided truck traffic show a savings of over $52.15 million over a 20 year period[23]. The project will have positive direct and indirect impacts on the economy, employment levels, tax revenues, and highway costs. The discounted economic indicators are shown in Table 13.

Economic Indicators	Total	Discounted 7%	Discounted 3%
Total Costs[24]	$ 15,774,127	$ 14,669,938	$ 15,300,903
Total Benefits	$ 52,153,145	$ 48,502,425	$ 50,588,551
NPV	$ 36,379,018	$ 33,832,487	$ 35,287,648
ROI	230%	230%	230%
B/C	3.30	3.30	3.30

Table 13: Discounted Project Benefit/Cost Summary

The project will maintain the rail line in a state of good repair through a contractual agreement that requires the lessee to keep the rail line in the improved condition once the project is completed. It will improve the long-term efficiency and reliability of this transportation resource and contribute to the economic competitiveness of the region and state. It will provide additional transportation choices for energy and other businesses in the region and avoid adverse environmental impacts by encouraging the diversion of freight from highway to rail and prevent the diversion of existing freight from highway to rail.

[23] See CBA attachment "Benefit-Cost and Economic Impact Analysis" attachment or at http://www.txdot.gov/business/rail/tiger3.htm

[24] Total Costs = $14,183,055 (project) + $1,591,072 (maintenance)