Potential Economic Impacts of an Improved South Orient Railroad

December 30, 2007

Prepared by

POTENTIAL ECONOMIC IMPACTS OF AN IMPROVED SOUTH ORIENT RAILROAD

Prepared for:
Fort Stockton Economic Development Corporation
P.O. Box C
1000 Railroad Avenue
Austin, Texas 79735

Prepared by:
Alliance Transportation Group, Inc.
11500 Metric Boulevard, Bldg. M-1, Ste. 150
Austin, Texas 78758
Tel. 512-821-2081
www.alliance-transportation.com

December 30, 2007

TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

INTRODUCTION

Originally conceived to form the shortest connection between the central United States and Asia, the South Orient Railroad (SORR) has always been an idea that has generated interest and promise. Traversing through West Texas and northwestern Mexico to the Port of Topolobampo, construction on the SORR began in 1904 but its connection to the Pacific was not completed until 1961. Chronically low traffic volumes throughout much of its existence have challenged the SORR's profitability and its attractiveness as a transportation corridor. This condition has been primarily due to its servicing remote locations of West Texas and Northwestern Mexico, while avoiding major gateway cities along the U.S.-Mexico border where economic activity is most concentrated. However, as the transportation infrastructure at these gateway corridors has become more congested, logistics planners have begun to consider alternate routes that would permit the faster movement of goods. Additionally, high levels of congestion at Pacific coast ports in the United States are leading carriers to consider new transportation corridors that will allow Asian trade to move relatively unhindered into the United States. Under such circumstances, the underutilized status of the SORR has become a growing asset rather than a detriment, but its aged infrastructure does not allow it to operate at desirable levels. The purpose of this study is to furnish evidence of the potential economic benefits that could accrue to the State of Texas, if infrastructure improvements were made to the SORR.

This report has been prepared by Alliance Transportation Group, Inc. (ATG) under the sponsorship and direction of the Fort Stockton Economic Development Corporation (FSEDC). With the FSEDC's understanding and support, ATG has prepared the analysis in this report using conservative assumptions, so as not to inflate the project's economic impacts. A sensitivity analysis was also performed to clarify the effect of certain assumptions on the baseline models' results. In short, the FSEDC believes that an economic impact analysis based upon conservative assumptions will be a far more useful tool to policymakers than one with overly optimistic assumptions, which may exaggerate the project's benefits.

METHODOLOGY

The economic impact analysis for this study consisted of four components. The first component was to identify the impact area of the proposed improvements to the South Orient Railroad. Second, identify which commodities might become cargo on the railroad and estimate the number of cars per year. Third, develop estimates of the direct economic impact of the various rail-related activities that the South Orient is expected to generate. Finally, enter these estimates into the economic impact analysis software called IMPLAN to generate estimates of the proposed project's impacts. The following paragraphs describe the execution of each of these efforts.

Defining the Impact Areas

Two impact areas were defined for this study; a regional project impact area consisting of the 34 counties shown in Table 1 and a statewide impact area. IMPLAN databases were acquired for both impacts areas and models were constructed and estimated over five annual forecast periods starting in 2009 and ending in 2013. The estimates of direct output entered into the model were those activities which physically occurred in either the regional project impact area

or within the state of Texas. The economic impact forecast did not account for economic activity related to the South Orient Railroad that might occur in other U.S. states or in Mexico.

Table 1: Counties Included in the Regional Project Impact Area

Andrews	Irion	Runnels
Brewster	Jeff Davis	Schleicher
Brown	Johnson	Somervell
Coleman	Lipscomb	Sutton
Comanche	Martin	Tarrant
Concho	McLennan	Terrell
Crane	Midland	Tom Green
Crockett	Ochiltree	Upton
Ector	Pecos	Ward
Erath	Presidio	Winkler
Hansford	Reagan	
Hood	Reeves	

Identifying Future Cargoes

The future cargoes used for the impact analysis were identified from a variety of sources, but primarily from a 2005 report produced by the Center for Transportation Research (CTR) at the University of Texas at Austin (see Table 2). During this study, CTR researchers collected data on shippers who had enquired about shipping freight on the SORR and were provided a rate quote by the staff at the Texas Pacifico Railroad. Information on other possible cargoes was collected from FSEDC staff and its advisors. These data were updated once more during October 2007. Although the Texas Pacifico Railroad is moving cargo on the SORR, the absence of track improvements has meant there is no sure means to know exactly how much cargo would move, if improvements were made. Therefore, the estimates of future rail car activity were based upon these prior requests for price quotes. This snapshot view of the potential market for the railroad, along with additional traffic later identified by staff from the FSEDC, was used to create a proxy for future traffic volumes. Obviously, some of these cargoes will materialize and some will not, but there will also be future inquiries and users that are not captured by the current analysis. Thus, while the estimates of future use are speculative, they are assumed to reflect the likely rail volume on the South Orient, once improvements to the rail are made for it to operate at sufficient speeds and tonnage.

Cargo Volumes

As the cargo types were identified, estimates were also collected for the anticipated number of rail cars, which is expected to grow from 7,233 rail cars during Year 1 to 64,712 rail cars during Year 5. Table 3 shows the rail car traffic anticipated for the SORR by commodity by year. Grain from the Texas Grain railroad and automobile-related traffic were expected to become major components of the total commodity flow starting in Year 3, accounting for roughly 75 percent of the SORR's total rail traffic. Other important contributors to the total rail car volume are expected to be hot house tomatoes and vegetables grown in Mexico, scrap metal, limestone aggregate, cottonseed, drilling fluids, and wind turbines.

Table 2: Projected Commodities on the SORR

Commodity Transported	Direction	Description of Activity
Limestone Aggregate	Northbound	Mined in Pecos County and railed to Fort Worth
Gravel	Northbound	Mined in Pecos County and railed to Fort Worth
Alfalfa Hay	Southbound	50% grown in Texas-50% grown outside of Texas railed to Mexico
Phosphorus	Northbound	Mined in Mexico and railed to San Angelo
Processed Livestock Feed	Southbound	Produced in Fort Worth and railed to Fort Stockton
Diesel Fuel	Southbound	Produced in Texas and railed to Fort Stockton
Bentonite/Humite	Northbound	Mined in Brewster County and railed to Houston for transhipment to barge
Whole Corn & Milo	Southbound	100% grown in Texas and railed to Mexico
Cottonseed	Southbound	100% grown in Texas and railed to Mexico
Hot House Tomatos	Northbound	Grown in Mexico and railed to Fort Worth
Rubber	Southbound	Railed from Ohio to Chihuahua
Ceramic Tile	Northbound	Produced in Chihuahua and railed to Fort Stockton (50%) and Fort Worth (50%)
Masa	Northbound	Produced in Mexico and railed to Fort Worth
Feed Grains	Southbound	100% grown in Texas and railed to Mexico
Scrap Metal	Southbound	Consolidated in Fort Stockton and railed to Mexico
Drilling Fluids	Southbound	Produced in Fort Worth and railed to Fort Stockton
Clay	Southbound	Mined in East Texas and railed to Mexico
Calcium Carbonate	Northbound	Mined in Torreon and railed to Fort Worth
Assorted Vegetables	Northbound	Grown in Sinola, Mexico and railed to Fort Worth
Cement	Northbound	Sent from Mexico to Fort Worth for distribution
Food Products - South	Southbound	Consolidated in Fort Stockton (50%) and Fort Worth (50%) and sent to Mexico
Food Products - North	Northbound	Sent from Mexico to Fort Worth for distribution
Automobile Parts	Northbound	Landed at Topolobampo, Mexico and railed to San Antonio, Texas
Automobile Parts	Southbound	Origins unknown, sent to maquiladoras in Mexico
Automobiles	Northbound	Landed in Mexico and sent to distribution centers in the United States
Modular Homes	Southbound	Modular home components shipped for assembly in Fort Stockton
Solar Panels	Southbound	Solar panels shipped to Fort Stockton for installation
Windmill Blades and Towers	Southbound	Windmill blades and towers shipped to Pecos County for installation
Oilfield Pipe	Southbound	Shipped for oilfield use
Texas Grain Railroad	Southbound	Grain exported to Mexico from Texas and the Midwestern United States

Source: Derived from data reported by CTR, 2005 and FSEDC, 2005 and 2007.

Table 3: Projected Annual Rail Car Volumes on the SORR by Commodity - Year 1 through Year 5

Commodity Transported	Rail Cars Year 1	Rail Cars Year 2	Rail Cars Year 3	Rail Cars Year 4	Rail Cars Year 5
Limestone Aggregate	650	650	650	650	650
Gravel	650	650	650	650	650
Alfalfa Hay	120	240	480	960	960
Phosphorus	3	6	6	6	12
Processed Livestock Feed	150	175	200	225	250
Diesel Fuel	260	260	260	390	390
Bentonite/Humite	200	250	300	350	400
Whole Corn & Milo	750	800	850	900	950
Cottonseed	500	700	900	1,100	1,300
Hot House Tomatos	150	150	1,500	1,500	1,500
Rubber	20	100	200	200	200
Ceramic Tile	0	200	200	200	200
Masa	0	0	50	100	100
Feed Grains	500	600	700	800	900
Scrap Metal	200	275	350	425	500
Drilling Fluids	200	800	1,600	1,600	1,600
Clay	0	0	50	50	50
Calcium Carbonate	400	400	400	400	400
Assorted Vegetables	600	1,110	1,520	1,520	1,520
Cement	400	400	400	400	400
Food Products - South	400	400	625	625	625
Food Products - North	400	400	625	625	625
Automobile Parts	0	0	5,000	5,000	5,000
Automobile Parts	0	0	5,000	5,000	5,000
Automobiles	0	0	5,000	5,000	5,000
Modular Homes	80	80	80	80	80
Solar Panels	0	300	350	400	450
Windmill Blades and Towers	200	400	600	800	800
Oilfield Pipe	400	400	400	400	400
Texas Grain Railroad	0	0	33,800	33,800	33,800
TOTAL	**7,233**	**9,746**	**62,746**	**64,156**	**64,712**

Source: Derived from data reported by CTR, 2005 and FSEDC, 2005 and 2007.

Commodity Prices

The commodity prices used in the economic impact analysis were derived from a variety of sources, which included: documents from the U.S. Geological Survey (USGS), the U.S. Department of Agriculture (USDA), the *Wall Street Journal*, the Mineral PriceWatch newsletter, and generalized estimates by the FSEDC and ATG staff. Table 4 provides the assumed value of each commodity in the study, as well as its unit of measurement. Commodity prices were kept constant throughout the forecast period, because of unpredictable fluctuations that normally occur due to supply and demand.

Table 4: Assumed Values of Commodities Transported on the SORR

Commodity Transported	Unit of Measurement	Assumed Value
Limestone Aggregate	Ton	$7.75
Gravel	Ton	$6.15
Alfalfa Hay	Bale – 4'x8'x4'	$160.00
Phosphorus	Ton	$27.78
Processed Livestock Feed	Ton	$104.00
Diesel Fuel	Gallon	$2.27
Bentonite/Humite	Ton	$47.00
Whole Corn & Milo	Bushel	$3.05
Cottonseed	Ton	$187.00
Hot House Tomatos	Pound	$0.43
Rubber	n/a	n/a
Ceramic Tile	Pound	$0.50
Masa	Pound	$0.22
Feed Grains	Ton	$97.56
Scrap Metal	Ton	$275.00
Drilling Fluids	Barrel	$336.20
Clay	Ton	$31.00
Calcium Carbonate	Ton	$135.00
Assorted Vegetables	Pound	$0.35
Cement	Ton	$98.00
Food Products - South	Pound	$.50
Food Products - North	Pound	$.50
Automobile Parts	n/a	n/a
Automobile Parts	n/a	n/a
Automobiles	n/a	n/a
Modular Homes	Dwelling Unit	$90,000.00
Solar Panels	n/a	n/a
Windmill Blades and Towers	Windmill	$350,000.00
Oilfield Pipe	n/a	n/a
Texas Grain Railroad - Corn	Bushel	$3.05

Note: Commodities that are denoted with an "n/a" are only transshipped through Texas.

Estimating the Direct Economic Impacts

The estimation of the SORR's future economic impacts required the consideration of various factors that produce direct impacts on economic growth. Because the IMPLAN model only accounts for a project's backward linkages to the economy and not its forward linkages, it is the responsibility of the analyst to identify and predict these forward linkages so that they can be entered into the IMPLAN model. In the case of the SORR, the activities forecasted to produce

forward linkages were commodity production stimulated by new demand, the storage and distribution of goods, rail transportation, truck transportation, and new facility construction. Given the difficult and seemingly infinite assertions that could be made about forward linkages, this study chose not to extend these linkages any further than the immediate activities prior to or after a shipment. The sections below provide a brief explanation of how the direct impacts were measured.

New Production

New production was defined as economic activity directly stimulated by the improvements to the SORR, but which would not exist without it. The analysis assumed that only a portion of the commodities carried on the SORR would be stimulated by the railroad's improvement, with the remainder being a redirection of existing supply. In the case of limestone aggregate, gravel, bentonite, and scrap metal commodities, their production is almost entirely dependent upon the railroad being improved, so the entire value was included. However, the new output for goods already in production, namely agricultural products, was assumed at a rate of 20 percent of the total amount shipped.

Consolidation, Distribution, and Storage

Many of the commodities imported from Mexico or shipped to and from Fort Stockton will require consolidation, storage, and distribution. These activities require physical infrastructure, namely warehouses or yards and equipment, as well as staff to operate and maintain the facilities. The study assumed between 1 and 5 percent of the commodities' total estimated value would account for this expense and this figure was entered into the model as an additional direct economic impact.

Rail Transportation

Rail transportation costs were entered into the IMPLAN model as a direct economic impact and as a single figure for each forecast year. The cost of rail transport for the individual commodities obviously depends upon the distance they must travel. For rail cars traversing the SORR trackage, the cost of doing so is relatively straight forward. During 2007, the Texas Pacifico Railroad's tariff divided the track into the three zones: San Angelo Junction to San Angelo, San Angelo to Alpine Junction, and Alpine Junction to Presidio. The charge for moving between zones varies with the distance and the type of cargoes moved. The cost for moving general cargoes within or between zones ranged from $612 to $859 per rail car. The cost for moving grain cars was slightly lower, $550 to $773. Rail car movements along any segment of the Fort Worth & Western Railroad (FWWR) between San Angelo Junction and Fort Worth were $1,000 during its 2007 tariff. Shipments moved between Presidio and Fort Worth (the entire distance) had a discounted rate of $1,404. For points beyond, estimates were gathered from the Union Pacific Railroad's online rate finder, with the assumption that cars would be transferred at Alpine Junction (although this currently does not happen). The Union Pacific Railroad's rates for short hauls within Texas tended to be very high, which is not surprising since railroads are generally not competitive with trucks for distances less than 500 miles. However, given the difficulties of parsing out which economic impacts of these fees belong in Texas and which in other states, this analysis only considered rail expenditures on the SORR and FWWR. Finally, the estimates of rail transportation costs did include fuel surcharges ($0.16 per mile per car), but did not include switching charges or any other fees that a shipper might typically accrue during rail transport.

Truck Transportation

The complete movement of a good from producer to customer frequently requires that it be transferred several times between modes. Many goods moved by railroad must be carried short distances by truck to and from the railhead. Firms specializing in local drayage frequently serve this need, but short haul trucking tends to be expensive. This is especially true when compared to long haul trucking, because there are fewer miles to spread out the operators' fixed costs. This analysis assumed that short haul truckers would charge $5.00 per mile for deliveries to and from the railhead. Much higher rates were assumed for the movement of solar arrays and wind turbines, because of their size and the complexities of moving them. Estimates of the distance were made according to the type of commodity being moved, with finished products being transported to warehouses assumed to travel short distance, while raw materials or products being delivered directly to customers were often assumed to travel longer distances.

New Facilities

Some of the cargoes that were assumed to be carried on the South Orient Railroad will require the construction of new facilities for the distribution and consolidation of goods and the purchasing of new equipment to handle them. There are also plans to construct a solar panel manufacturing facility in Ft. Stockton, if adequate rail service can be obtained. Table 5 shows which commodities were assumed to need facilities and equipment for consolidation or distribution and the estimated cost of these facilities. The direct impact of $22,000,000 was applied to the first year of analysis. The cost of improving the railroad, which is estimated at to be at least $100.0 million, was also applied to the first year model although these expenditures would actually occur during an earlier period.

Table 5: Assumed Consolidation and Distribution Facilities Required for the SORR's Traffic

Commodity	Facility	Estimated Cost
Limestone Aggregate/Gravel	Equipment and Consolidation Yard	$500,000
Diesel Fuel	Fuel Distribution Facility	$250,000
Ceramic Tile	Regional Distribution Center	$375,000
Scrap Metal	Equipment and Consolidation Yard	$500,000
Food Products-Southbound	Regional Distribution Center	$375,000
Solar Panels	Manufacturing Facility	$20,000,000
Total		**$22,000,000**

Estimating Total Economic Impact using the IMPLAN Model

The IMPLAN software is a frequently used tool for estimating the economic impacts of projects by government agencies, academic institutions, and the private sector. The software was originally developed for the U.S. Forest Service but has since become proprietary and is now distributed by the Minnesota IMPLAN Group, Inc. The IMPLAN software is a computerized input-output model, which predicts the impacts of new economic activity on the remainder of a study area's economy.

To perform the economic impact analysis, the direct economic impacts identified above were entered into the IMPLAN software. Additional adjustments were made to deflate the figures to 2006 prices, to assume IMPLAN's estimates of local consumption, and to assume that all direct

impacts were categorized as commodities. Once entered, the model produced estimates of direct, indirect, induced, and total output, employment, and tax revenue.

STUDY FINDINGS

Compared to the $100 million construction cost of upgrading the South Orient Railroad, the IMPLAN model predicted that the proposed investment would quickly pay for itself in terms of economic output and jobs. The sections below show the results of the IMPLAN model for the 34-county region and the State of Texas.

Regional Impact

The direct economic impact of the project on the 34-county region was predicted to be $153.7 million during Year 1 (see Table 6). This impact includes all the expenditures related to upgrading the SORR and constructing the facilities described in Table 5, in addition to rail and truck expenditures and stimulated economic activity. During Year 2, prior to the anticipated automobile-related rail traffic and the Texas Grain Railroad's operations, the direct impact of the SORR dips to $48.1 million. However, starting in Year 3, the direct output jumps to $105.8 million and then grows modestly to $113.0 million during Year 5. Total regional output was expected to be $233.7 million during Year 1, falling to $67.3 million in Year 2. By Year 5, the total regional output of the SORR is expected to be $158.8 million.

Table 6: Estimated Regional Economic Impact of the Improved South Orient Railroad – Direct, Indirect, Induced, and Total Output

	BASELINE SCENARIO			
Year	**Direct Output**	**Indirect Output**	**Induced Output**	**Total Output**
1	$153,774,368	$29,540,551	$50,474,483	$233,789,403
2	48,152,169	7,737,545	11,417,036	67,306,750
3	105,823,506	17,710,433	25,920,585	149,454,523
4	111,871,411	18,632,615	27,367,140	157,871,166
5	113,082,835	18,582,560	27,168,035	158,833,429

The proposed rail improvements are expected to create more than 1,100 jobs within the region during Year 1; falling to approximately 218 jobs during Year 2 (see Table 7). Year 5 direct employment is anticipated to be almost 440 jobs. Total regional employment, including direct, indirect, and induced employment, is predicted to be approximately 1,800 jobs during Year 1, falling to roughly 370 jobs during Year 2. During Year 5, total employment is anticipated to increase to more than 800 jobs. Readers should note that after Year 3, the number of jobs generated by the project is relatively constant and represents more or less permanent employment.

Table 7: Estimated Economic Impact of the Improved South Orient Railroad on the Study Area – Direct, Indirect, Induced, and Total Employment

BASELINE SCENARIO				
Year	Direct Employment	Indirect Employment	Induced Employment	Total Employment
1	1,146.8	213.7	443.0	1,803.4
2	218.7	54.5	100.2	373.4
3	406.3	124.4	227.5	758.2
4	440.8	131.0	240.2	812.0
5	438.6	130.6	238.4	807.6

Improvements to the South Orient Railroad are also expected to create positive impacts to the local, state, and national tax base. The model anticipates that the total local, state, and federal tax revenue generated within the region will be $23,901,457 during Year 1, falling to $6,009,626 in Year 2 and increasing to $15,125,017 by Year 5 (see Table 8).

Table 8: Estimated Economic Impact of the Improved South Orient Railroad on the Study Area – Federal, State, and Local Taxes

BASELINE SCENARIO						
Year	Employee Compensation	Proprietary Income	Household Expenditures	Corporations	Indirect Business Tax	Total
1	$7,425,823	$808,197	$8,101,205	$2,197,927	$5,368,305	$23,901,457
2	1,820,079	131,960	1,831,758	759,699	1,466,130	6,009,626
3	4,336,662	225,546	4,157,720	2,176,196	3,656,062	14,552,186
4	4,546,646	249,734	4,389,907	2,233,587	3,811,987	15,231,862
5	4,513,185	248,056	4,357,971	2,215,940	3,789,864	15,125,017

State of Texas

Table 9 shows the results of the proposed project's impacts on the state of Texas. Based upon the methodology and assumptions described above, the IMPLAN model predicts that improvements to the SORR will produce a direct output of $170.9 million during Year 1, falling to $78.3 million during Year 2, and then rising to $186.1 million in Year 5. The total output figures for the state of Texas are also strong, starting at $272.2 million during the first year, falling to $120.0 million during Year 2, and then growing to $281.0 million by Year 5.

Table 9: Estimated Economic Impact of the Improved South Orient Railroad on the State of Texas – Direct, Indirect, Induced, and Total Output

Year	Direct Output	Indirect Output	Induced Output	Total Output
1	$170,945,856	$39,493,665	$61,857,217	$272,296,738
2	78,334,957	17,722,663	23,985,759	120,043,379
3	166,606,261	37,520,516	47,769,643	251,896,421
4	184,965,351	41,496,156	53,969,444	280,430,950
5	186,165,793	41,384,416	53,511,897	281,062,103

The IMPLAN model predicted approximately 1,234 jobs created statewide during the first year as a result of direct expenditures and 720 additional jobs created due to indirect and induced employment (see Table 10). Following the dip in Year 2, direct employment is expected to rise from 900 jobs in Year 3 to 1,020 jobs in Year 5. Total employment between Year 3 and Year 5, is expected to grow from approximately 1,480 jobs to 1,669 jobs.

Table 10: Estimated Economic Impact of the Improved South Orient Railroad on the State of Texas – Direct, Indirect, Induced, and Total Employment

Year	Direct Employment	Indirect Employment	Induced Employment	Total Employment
1	1,234.4	229.6	490.8	1,954.7
2	466.1	98.7	190.3	755.1
3	899.0	202.4	379.0	1,480.4
4	1,026.1	225.9	428.2	1,680.1
5	1,020.0	225.4	424.6	1,669.9

The effects of the improved South Orient on the State's tax base will also be strong. Total local, state, and federal tax contributions from the project are predicted to be $27.0 million during Year 1, falling to $11.0 million during Year 2, and then rising to $25.7 million by Year 5 (see Table 11). Indirect business taxes and employee compensation taxes will contribute the greatest share of the total.

Table 11: Estimated Economic Impact of the Improved South Orient Railroad on the State of Texas – Federal, State, and Local Taxes

Year	Employee Compensation	Proprietary Income	Household Expenditures	Corporations	Indirect Business Tax	Total
1	$8,170,997	$963,199	$8,911,339	$2,652,151	$6,324,345	$27,022,032
2	3,243,064	346,238	3,455,495	1,291,042	2,728,465	11,064,304
3	6,603,788	636,665	6,881,980	3,155,266	5,977,761	23,255,461
4	7,407,128	738,904	7,775,134	3,401,624	6,598,453	25,921,243
5	7,340,054	734,200	7,709,215	3,379,040	6,555,543	25,718,051

Sensitivity Analysis

To assess the credibility of the IMPLAN model results and to account for potential contingencies, one sensitivity exercise was performed, which assumed no automobile-related or Texas Grain Railroad traffic within the forecast horizon. Because this traffic is not expected to materialize until Year 3, the impacts on output, employment and taxes do not begin until that period. The elimination of the automobile-related and Texas Grain Railroad traffic reduced economic output by roughly one-third at the regional level and roughly one-quarter at the State level (see Table 12 and Table 13). One might expect the decline to have been greater, since these cargoes account for 75 percent of the forecasted rail cars. However, because the automobile-related rail cars simply pass through Texas or to a factory in San Antonio, there are no opportunities for additional warehousing, short haul trucking, or value-added production. Likewise, much of the grain traffic was assumed to be pass-through freight and most of this volume was assumed to be existing supply that was redirected to new markets rather than new production.

Table 12: Comparison of Forecasted Output in the Study Region – Baseline Scenario vs. Scenario 1 Impacts

	DIRECT OUTPUT			INDIRECT OUPUT		
Year	Baseline	Scenario 1	Difference	Baseline	Scenario 1	Difference
1	$153,774,368	$153,774,368	--	$29,540,551	$29,540,551	--
2	48,152,169	48,152,169	--	7,737,545	7,737,545	--
3	105,823,506	65,690,753	-40,132,753	17,710,433	10,335,392	-7,375,041
4	111,871,411	72,772,827	-39,098,584	18,632,615	11,445,245	-7,187,370
5	113,082,835	74,903,061	-38,179,774	18,582,560	11,562,111	-7,020,449
	INDUCED OUTPUT			**TOTAL OUTPUT**		
Year	Baseline	Scenario 1	Difference	Baseline	Scenario 1	Difference
1	$50,474,483	$50,474,483	--	$233,789,403	$233,789,403	--
2	11,417,036	11,417,036	--	67,306,750	67,306,750	--
3	25,920,585	15,590,140	-10,330,445	149,454,523	91,616,285	-57,838,238
4	27,367,140	17,304,901	-10,062,239	157,871,166	101,522,973	-56,348,193
5	27,168,035	17,344,012	-9,824,023	158,833,429	103,809,183	-55,024,246

Table 13: Comparison of Forecasted Output in the State of Texas – Baseline Scenario vs. Scenario 1 Impacts

	DIRECT OUTPUT			INDIRECT OUPUT		
Year	Baseline	Scenario 1	Difference	Baseline	Scenario 1	Difference
1	$170,945,856	$170,945,856	--	$39,493,665	$39,493,665	--
2	78,334,957	78,334,957	--	17,722,663	17,722,663	--
3	166,606,261	103,884,221	-62,722,040	37,520,516	23,570,879	-13,949,637
4	184,965,351	128,283,989	-56,681,362	41,496,156	29,119,368	-12,376,788
5	186,165,793	130,605,077	-55,560,716	41,384,416	29,275,556	-12,108,860
	INDUCED OUTPUT			**TOTAL OUTPUT**		
Year	Baseline	Scenario 1	Difference	Baseline	Scenario 1	Difference
1	$61,857,217	$61,857,217	--	$272,296,738	$272,296,738	--
2	23,985,759	23,985,759	--	120,043,379	120,043,379	--
3	47,769,643	33,028,849	-14,740,794	251,896,421	160,443,950	-91,452,471
4	53,969,444	41,017,584	-12,951,860	280,430,950	198,420,940	-82,010,010
5	53,511,897	40,851,377	-12,660,520	281,062,103	200,732,010	-80,330,093

Table 14 and Table 15 show a comparable effect on employment during the sensitivity test. Regional employment growth stimulated by the SORR drops by approximately one-third regionally and statewide employment increases are roughly 30 percent lower.

Table 14: Comparison of Forecasted Employment in the Study Region – Baseline Scenario vs. Scenario 1 Impacts

	DIRECT EMPLOYMENT			INDIRECT EMPLOYMENT		
Year	**Baseline**	**Scenario 1**	**Difference**	**Baseline**	**Scenario 1**	**Difference**
1	1,146.8	1,146.8	--	213.7	213.7	--
2	218.7	218.7	--	54.5	54.5	--
3	406.3	299.2	-107.1	124.4	72.9	-51.5
4	440.8	336.3	-104.5	131.0	80.8	-50.2
5	438.6	336.4	-102.2	130.6	81.5	-49.1
	INDUCED EMPLOYMENT			**TOTAL EMPLOYMENT**		
Year	**Baseline**	**Scenario 1**	**Difference**	**Baseline**	**Scenario 1**	**Difference**
1	443.0	443.0	--	1,803.4	1,803.4	--
2	100.2	100.2	--	373.4	373.4	--
3	227.5	136.8	-90.7	758.2	508.9	-249.3
4	240.2	151.9	-88.3	812.0	568.9	-243.1
5	238.4	152.2	-86.2	807.6	570.1	-237.5

Table 15: Comparison of Forecasted Employment in the State of Texas – Baseline Scenario vs. Scenario 1 Impacts

	DIRECT EMPLOYMENT			INDIRECT EMPLOYMENT		
Year	**Baseline**	**Scenario 1**	**Difference**	**Baseline**	**Scenario 1**	**Difference**
1	1,234.4	1,234.4	--	229.6	229.6	--
2	466.1	466.1	--	98.7	98.7	--
3	899.0	664.3	-234.7	202.4	132.0	-70.4
4	1,026.1	808.1	-218.0	225.9	163.4	-62.5
5	1,020.0	805.8	-214.2	225.4	164.2	-61.2
	INDUCED EMPLOYMENT			**TOTAL EMPLOYMENT**		
Year	**Baseline**	**Scenario 1**	**Difference**	**Baseline**	**Scenario 1**	**Difference**
1	490.8	490.8	--	1,954.7	1,954.7	--
2	190.3	190.3	--	755.1	755.1	--
3	379.0	262.0	-117.0	1,480.4	1,058.3	-422.1
4	428.2	325.4	-102.8	1,680.1	1,297.0	-383.1
5	424.6	324.1	-100.5	1,669.9	1,294.2	-375.7

CONCLUSIONS

The economic impact analysis performed for this study demonstrates that improvements to the SORR will produce benefits that will significantly exceed the costs. These benefits will accrue to all segments of the economy, from workers to companies to government. The fairly consistent output after Year 3 at the regional and state level also means that the job creation and the expanded output is more or less permanent and is not simply the product of the initial investment. The sensitivity analysis also confirms that job creation and output will occur at desirable levels, even if important assumptions do not materialize. Thus, given the positive benefits that could accrue as a result of improvements to the SORR, funding the project now will

capitalize on existing prospects before potential users lose interest and this opportunity to promote economic growth in rural West Texas disappears.

REFERENCES

BNSF Railroad. Equipment Guide. Accessed 5 October 2007. www.bnsf.com.

CSX Railroad. Car Type Details. Accessed 18 November 2005. www.csx.com.

Harrison, R., Bomba, M., and Resor, R. *Rail Capacity and Market Demand on the South Orient Railway*. Center for Transportation Research, University of Texas at Austin. 2005.

Fort Stockton Economic Development Corporation. 2005. Developing the South Orient Railroad: An Opportunity to Promote Economic Growth in Rural West Texas.

Fort Worth & Western Railroad. Freight Tariff FWWR 8001-J – Supplement 1. December 6, 2006.

Helsley, John. Personal Communication. 25 September 2007.

Industrial Minerals. *Mineral PriceWatch News*. February 2005. http://www.indmin.com/index.html.

Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 www.implan.com

Texas Department of Transportation. *Texas Rail System Plan*. Texas Department of Transportation: Austin, 2005.

Texas Pacifíco Railroad. Freight Tariff TXPF 8000-C. 8 December 2006.

Union Pacific. Price and Transit Time Inquiry. Accessed 20 October 2007. http://www.uprr.com/customers/price_inquiry.shtml.

U.S. Department of Agriculture – Economic Research Service. Vegetables and Melons Situation and Outlook Yearbook. 26 July 2007. http://www.ers.usda.gov.

U.S. Department of Agriculture – Market News. Texas Hay Report. 5 October 2007.

U.S. Geological Survey. Mineral Commodities Summary - 2006. Accessed 5 October 2007. http://minerals.usgs.gov/minerals/pubs/mcs/.

Wall Street Journal. Cash Prices. 5 October 2007. www.wsj.com .

Webb Research Corporation, et al. 2005. Feasibility Study of Wind Turbine Installation at Falmouth Technology Park.

Williams, Roy. Personal communication. 18 November 2005.

Figure 1: Map of the South Orient Railroad and its Connection to the Pacific Ocean