The Economic Impact of Rail Improvements to the Port of Corpus Christi, Texas

Prepared For:

PORT CORPUS CHRISTI

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Table of Contents

Executive Summary

Being a state with vast lengths of shoreline, Texas is in a prime location to capitalize on the transportation of commodities, components, and finished goods. Because of this prime location, the transportation industry in Texas is mature and well developed. Over time, international trade generally increases. As international trade continues to increase, port capacity naturally becomes constrained. The Port of Corpus Christi is no exception to this general trend. To capture a portion of the need to move additional goods in and outside of the United States, there exists a need to expand portions of the Port of Corpus Christi both in terms of capacity and efficiency.

In order to adequately expand the Port of Corpus Christi to handle anticipated near to mid-term capacity requirements, a project has been defined to address this need. The total value of the project is estimated to be $21.5 million and will be paid for with a combination of public and private funds. Because the project is of significant size and seeks public dollars, project sponsors have retained the services of Decision Innovation Solutions to estimate the total estimated economic impacts of proceeding with the project at both a regional and state level. By including these estimates, the resulting application for public funds will be more robust because the economic consequences will be quantified using a robust methodology.

As shown below, the economic impacts from the construction and operation of a rail improvement in the Port of Corpus Christi, Texas are significant.

At the ***Regional*** level:

- *Construction* impacts lead to an estimated additional: **81** jobs (temporary), **$3.9 million** in labor income, **$7.3 million** in value added, and **$16.5 million** in output.
- *Operations* impacts lead to an additional **90** jobs (permanent), **$7.5 million** in labor income, **$12.3 million** in value added, and **$23.1 million** in output.

At the ***State*** level:

- *Construction* impacts lead to an estimated additional: **181** jobs, **$10.1 million** in labor income, **$18.9 million** in value added, and **$43.8 million** in output.
- *Operations* impacts lead to an additional **142** jobs, **$9.3 million** in labor income, **$15.6 million** in value added, and **$30.9 million** in output.

Study Area	Employment (Jobs)	Labor Income	Value Added	Output
4-County Study Area				
Construction	81	$3,915,163	$7,307,471	$16,501,344
Operations	90	$7,462,213	$12,276,280	$23,094,777
State Study Area				
Construction	181	$10,068,192	$18,931,349	$43,759,963
Operations	142	$9,290,863	$15,646,923	$30,873,807

Background

In an effort to strengthen a rail improvement grant application to United States Department of Transportation (USDOT), the Port of Corpus Christi Authority (POCCA), has retained Decision Innovation Solutions to estimate the economic impacts of the project on behalf of their client. POCCA is specifically interested in understanding the economic impacts in terms of output (sales), jobs, labor income, and value-added associated with the project.

The rail improvements, defined herein as the POCCA project, will be located in the Port of Corpus Christi, Texas; it is anticipated that the rail improvements will significantly improve capacity and efficiency in the port. The improvements will consist of new track, landscape improvements and remediation, and other general improvements to the area.

The term "Economic Impact Study" implies a change has taken place within a local economy. The change in a local economy typically comes from one of the following sources:

- Entrance/departure of a *new* business or industry
- Expansion/contraction of an *existing* business or industry

In the case of the POCCA project, we are dealing with the expansion of an existing industry; therefore, we would expect a positive economic impact from the projects. The economic magnitude of these economic activities is largely related to the degree to which industries within the local area are able to supply needed inputs. To quantify the degree of impact from a particular project, we commonly use the following measures: output (sales), employment (jobs), labor income, and value added. The results section of this report show impacts in terms of these economic measures.

When estimating the total impact of improving rail infrastructure, we must understand the series of new economic activities (impacts) which will take place. The construction of new rail infrastructure requires several purchases such as steel, ties, and other materials and equipment. Once construction is complete, ongoing operations will continue to occur.

When quantifying the economic impact of improving rail infrastructure, the direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used during construction and operation of the improved rail infrastructure then must purchase their respective inputs to support the improvement of the rail infrastructure; these are known as *indirect effects*. Those who work in the construction of the improved rail infrastructure, as part of the operations of the improved rail infrastructure once complete, and for the operation of the rail infrastructure suppliers and vendors then use their additional income to make household purchases; these are known as *household, or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as *total effects* and accounts for the total multiplier effect present from the construction and operations of an improved rail infrastructure. The results section of this report will summarize direct, indirect, and induced effects.

Methodology

When conducting economic impact analyses, an analyst following industry practice typically relies on primary sources of data, such as the project sponsor and others with first-hand knowledge of the project, and pertinent information obtained from independent sources. Additionally, an analyst typically makes use of any number of software packages to understand the linkages among industries present in the study area. These software packages rely heavily upon periodically reported government statistics and surveys and other secondary source data. The purpose of these data sources is to identify and quantify the inputs a particular industry must obtain in order to produce its specific good(s) and/or service(s). The methodology we have used for completing this analysis can be summarized in the following steps. Information regarding how these steps were specifically applied to the POCCA project ensues.

- Definition of study area(s)
- Estimation of impacts directly associated with the project
- Independently identify other important information related to project
- Determine appropriate software package(s), as necessary, for estimating total impacts
- Create model specifications for each defined study area
- Report model results

We assume the project represents improvements to the flow of goods (volume and efficiency) and requires new construction of additional rail. We further assume the construction of other infrastructure components would be necessary to optimize the use and efficiency of the project.

Definition of Study Area(s)

We have defined two distinct and separate study areas:

- Regional
    - Nueces County (location of project)
    - Kleberg County (peripheral county)
    - Jim Wells County (peripheral county)
    - San Patricio County (peripheral county)
- State of Texas

Estimation of Direct Impacts

As the term implies, *Direct Impacts* are those impacts which are directly associated with the actual POCCA project. To quantify the direct impacts of the POCCA project in economic terms, we have broken the project into two distinct phases: 1) Construction, and 2) Operations. The reason for this is because the types of activity associated with constructing versus operating new project such as these is quite different, especially in that construction is only done once and is temporary while annual operation of the improvements will continue beyond a defined period.

Construction

We have aggregated, where appropriate, similar costs for the purpose of estimating the total effects of the project using information provided from POCCA related to the construction estimates for the project in its entirety. Doing this allowed us to reduce the quantity of data entries while still maintaining a robust system for analysis. The direct impacts associated with the POCCA project amount to approximately $21.5 million and are detailed in Figures 1 & 2.

8000' UNIT TRAIN TRACK WITH SERVICE ROAD AND 54" PIPELINE					
ITEM	DESCRIPTION	UNIT	UNIT PRICE	QUANT	COST
1	EXCAVATION	CY	$8	18000	$144,000
2	SUBGRADE PREPARATION	SY	$5	19000	$95,000
3	EMBANKMENT (SELECT FILL)	CY	$18	5000	$90,000
4	GEOGRID	SY	$7	14000	$98,000
5	SUB-BALLAST (LIMESTONE)	CY	$55	7000	$385,000
6	GEOTEXTILE (8 OZ/SY)	SY	$4	11500	$46,000
7	BALLAST (# 4 LIMESTONE)	CY	$50	7500	$375,000
8	RAIL,TIES, & HARDWARE	TF	$155	8115	$1,257,825
9	No. 10 TURNOUT (INDUSTRIAL)	EA	$60,000	2	$120,000
10	8" HDPE PIPE (FRENCH DRAIN)	LF	$50	7500	$375,000
11	12" HDPE PIPE (FRENCH DRAIN)	LF	$60	1600	$96,000
12	24" RCP CULVERT	LF	$100	400	$40,000
13	30" RCP CULVERT	LF	$130	100	$13,000
14	3' x 4' CONC BOX CULVERT	LF	$140	7300	$1,022,000
15	CATCH BASIN	EA	$7,500	6	$45,000
16	CONC DITCHES AND APRONS	CY	$400	1300	$520,000
17	TIMBER OR COMP GRADE XING	TF	$20	400	$8,000
18	HIGHWAY GUARD RAIL	LF	$21	8500	$178,500
19	BULKHEAD ANCHOR WALL	LF	$1,800	950	$1,710,000
20	ASPHALT ROAD W/ 8" BASE	SY	$50	19000	$950,000
21	54" RAW WATER PIPELINE	LF	$200	8500	$1,700,000
22	MOB, MISC, TCP, SW3P (10%)	LS	10%	1	$757,000
			SUBTOTAL		$10,025,000
			CONSTRUCTION CONTINGENCY & ENGINEERING (15%)		$1,504,000
			TOTAL ESTIMATED COST=		$11,529,000

Figure 1, Construction Budget A

NUECES RIVER RAIL INTERCHANGE YARD
ENGINEER'S OPINION OF CONSTRUCTION QUANTITIES AND COSTS (2011)

				BASE BID Tracks A, B, C & F		ADD BID ITEM 1 Track D		ADD BID ITEM 2 Track E		TOTAL All Tracks	
ITEM	DESCRIPTION	UNIT	UNIT PRICE	QUANT	COST	QUANT	COST	QUANT	COST	QUANT	COST
1	SITE PREPARATION	AC	$1,000	24.0	$24,000	0	$0	0	$0	24.0	$24,000
2	CONCRETE STRUCTURE DEMOLITION	CY	$250	40	$10,000	0	$0	0	$0	40	$10,000
3	CULVERT DEMOLITION	LF	$15	200	$3,000	0	$0	0	$0	200	$3,000
4	SUBGRADE COMPACTION	AC	$5,000	18.5	$92,500	0	$0	0	$0	18.5	$92,500
5	EXCAVATION	CY	$8	35000	$280,000	0	$0	0	$0	35000	$280,000
6	GENERAL FILL	CY	$9	15535	$139,815	0	$0	0	$0	15535	$139,815
7	SELECT FILL	CY	$18	26510	$477,180	0	$0	0	$0	26510	$477,180
8	SOIL DISPOSAL AREA FILL	CY	$8	25360	$202,880	0	$0	0	$0	25360	$202,880
9	TRIAXIAL GEOGRID	SY	$7	35620	$249,340	0	$0	0	$0	35620	$249,340
10	8 OZ/SY GEOTEXTILE	SY	$4	30600	$122,400	6100	$24,400	7500	$30,000	44200	$176,800
11	SUB-BALLAST AND ROAD BASE	CY	$55	19000	$1,045,000	0	$0	0	$0	19000	$1,045,000
12	TOP BALLAST	CY	$50	15330	$766,500	3790	$189,500	3450	$172,500	22570	$1,128,500
13	TRACK (BEYOND TURNOUT LIMITS)	TF	$155	15495	$2,401,725	3670	$568,850	3195	$495,225	22360	$3,465,800
14	#10 TURNOUT (INDUSTRIAL)	EA	$60,000	8	$480,000	2	$120,000	2	$120,000	12	$720,000
15	8" HDPE FRENCH DRAIN SYSTEM	LF	$50	13370	$668,500	0	$0	0	$0	13370	$668,500
16	12" HDPE FRENCH DRAIN OUTFALL	LF	$60	1330	$79,800	0	$0	0	$0	1330	$79,800
17	24" RCP CULVERT CLASS III	LF	$90	88	$7,920	0	$0	0	$0	88	$7,920
18	24" RCP CULVERT CLASS V	LF	$100	80	$8,000	0	$0	0	$0	80	$8,000
19	30" RCP CULVERT CLASS V	LF	$130	256	$33,280	0	$0	0	$0	256	$33,280
20	CONCRETE DRAINAGE STRUCTURES	CY	$850	45	$38,250	0	$0	0	$0	45	$38,250
21	CONCRETE LINED DITCH	CY	$400	1200	$480,000	0	$0	0	$0	1200	$480,000
22	RAILROAD GRADE CROSSING	SF	$20	1600	$32,000	0	$0	0	$0	1600	$32,000
23	2-COURSE SURFACE TREATMENT	SY	$8	4400	$35,200	0	$0	0	$0	4400	$35,200
24	4" TOPSOIL AND GRASS SEEDING	SY	$5	25000	$125,000	0	$0	0	$0	25000	$125,000
25	TEMP ROCK FILTER DAM (TYPE 2)	LF	$50	40	$2,000	0	$0	0	$0	40	$2,000
26	TEMP HAY BALES (EROSION CONTROL)	LF	$5	350	$1,750	0	$0	0	$0	350	$1,750
27	RELOCATE EXIST CABLE GATE & SIGN	LS	$1,700	1	$1,700	0	$0	0	$0	1	$1,700
28	MOBILIZATION & MISCELLANEOUS (10%)	LS			$780,774		$90,275		$81,773		$952,822
			SUBTOTAL		$7,807,740		$902,750		$817,725		$9,528,215
			CONTINGENCY (5%)		$390,387		$45,138		$40,886		$476,411
			TOTAL		$8,198,127		$947,888		$858,611		$10,004,626

Figure 2, Construction Budget B

Operations

To estimate the economic impacts derived from operations, we used two sources of data:

- The results form an economic impact study completed in 2009 by Martin Associates which dealt with the economic impact of the Port of Corpus Christi.
- POCCA estimates dealing with the anticipated level of increased movement of freight by rail once the rail improvements are completed.

Using the Martin Associates impact summary for total revenue (output) impacts, we calculated the estimated revenue which would be associated with the additional movement of freight by rail. Impact estimates from the Martin study are for *total* output impacts. In order to arrive at other measures of economic impact (jobs, value added, and labor income), we first must derive what the *direct* output impacts were. We have utilized IMPLAN software to derive the direct effects associated with the additional revenue. Of note, by using the total impacts for output from the Martin study to derive direct output impacts, we are assuming the same model specifications exist in the Martin model as in our model. This is a potential weakness in our methodology, especially if model specifications differ significantly. We were unable to ascertain exact model specification used in the Martin study.

To estimate the actual direct operations figures to enter into the IMPLAN models, we relied heavily on POCCA estimates of additional freight which could be moved by rail as a result of the POCCA project. Using a ten-year projection of growth in freight movement as a result of the POCCA project, we calculate what the annual change in freight capacity would be versus current capacity (baseline). We then average the change (see Figure 3) in freight capacity to get a single figure for use in the IMPLAN model.

Tonnages are growth over 2011 which is enabled with additional rail capacity provided by the TIGER III Grant											
	Short Tons	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bulk Dock Terminal	BD-2	2,150,000	2,650,000	3,200,000	4,200,000	5,200,000	5,200,000	5,200,000	5,200,000	5,200,000	5,200,000
CO, WY, MT	Coal	2,000,000	2,500,000	3,000,000	4,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
KS	Pet Coke	150,000	150,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Soybeans, wheat, IA, MN, IL,	Grain Products	250,000	500,000	1,000,000	1,500,000	1,750,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
											Avg Change
CO, WY, MT	Coal		500,000	1,000,000	2,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	2,388,889
KS	Pet Coke		-	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	44,444
Soybeans, wheat, IA, MN, IL,	Grain Products		250,000	750,000	1,250,000	1,500,000	1,750,000	1,750,000	1,750,000	1,750,000	1,750,000	1,388,889
												3,822,222

Figure 3, Freight Growth Projections

We used the average of change in annual freight capacity because it is inappropriate to conduct a multi-year analysis for a typical economic impact study such as this. Said differently, once the project is completed, it has attained its potential and does not re-hire its entire work force on an annual basis to complete the operations associated with hauling the additional freight.

After we calculated the average of change in annual freight capacity, we utilize the Revenue (Output)/Ton figure in column three of Figure 4 (From Martin study) to arrive at the total effects of the additional movement of freight[1].

Exhibit III-2
Revenue Impacts by Commodity*

Cargo	Revenue(1,000)	Revenue/Ton
Petroleum	$946,887	$13.52
Machinery	$3,547	$415.00
Chemicals	$54,527	$33.45
Ore	$9,199	$2.23
Alumina	$3,214	$2.23
Other Dry Bulk	$67,433	$29.08
Bulk Grain	$67,015	$12.36
Military	$3,667	$41.18
Refrigerated Break Bulk	$7,741	$300.97
Fertilizer	$3,300	$10.96
Break Bulk	$25,393	$82.58
Steel	$2,515	$21.57
Containerized Cargo	$425	$83.33
Not Allocated	$386,014	
Total	**$1,580,877**	

Figure 4, Revenue Impact Estimates from Martin Study

[1] Please note that revenue (output)/ton is product-specific (see Figure 2).

After applying the product-specific revenue (output)/ton figure from Figure 4, we arrive at the estimated *total* output impacts from the additional freight movement. To derive the *direct* effects of this additional movement of freight, we divide by the correction factor to obtain the Adjusted Revenue (Output). The Adjusted Revenue (Output) figure is what is entered into the IMPLAN models for both study regions. Figure 5 illustrates the calculation and resulting data entered into the models.

HR Green Classification	Martin Study Classification	Rev (Output)/Ton	Tons	Total Rev (Output)	Correction Factor	Adj Rev (Output)
Coal	Ore	$ 2.23	2,388,889	$ 5,327,222	1.718316	$ 3,100,258
Pet Coke	Peteroleum	$ 13.52	44,444	$ 600,889	1.718316	$ 349,696
Grain Products	Bulk Grain	$ 12.36	1,388,889	$ 17,166,667	1.718316	$ 9,990,401
			3,822,222	$ 23,094,778		$ 13,440,355

Figure 5, Adjusted Revenue (Output) Calculation

Identify Other Important Information Related to Project

If the POCCA project proceeds according to plan, this POCCA project will be funded with both private (53%) and public (47%) funds. It could be argued that the public funds were used at the expense of another use which may have been a better investment of those particular funds. While this same criticism could be said of private funds, it differs in that the investors (taxpayers) underwriting the investment did not have direct influence pertaining to how their investment (taxes) were utilized. To determine whether the public funds are put to their best use in supporting this project would be very difficult and subjective in nature. To actually make this assessment, it would be necessary to determine the economic impacts of the public dollars in this project versus what would be considered the best use. The difference, if any, would then be the "cost" of directing dollars to a less than ideal use of the funds. Because of this subjective nature, we assume that these funds are in fact used in their best use.

Determine Appropriate Software Package(s)

For this analysis, we have utilized the IMPLAN modeling system for estimating the economic impacts associated with the project. Please visit www.implan.com for more information on this software.

Create Model Specifications

Using construction budgets provided by POCCA, we have achieved a sufficient comfort level in categorizing each of the budget items. By categorizing each of the budget items we are able to align these items with the industrial sectors present in the IMPLAN modeling system. In the absence of information proving otherwise, we assume the IMPLAN default data is representative of the study areas.

Model Results

In this section we report the results of the economic impact estimates for both the regional and state level study areas. The results show what the impact of the original $21.5 million from the POCCA project means in terms of jobs, output, labor income, and value added for the construction and operations components of the project. As mentioned earlier, the magnitude of the economic impacts of these activities is largely related to the degree to which industries within the local area are able to supply needed inputs. As expected, the state study area results are larger than those estimated at the regional level. A later section in this report provides additional insight into why this is the case.

Additional Clarification on the results of the economic impact estimates:

- Impact figures from both study areas and impact type (construction and operations) are not additive and should be presented and analyzed independently.
- Labor income is a component of value added and should not be summed.
- Value added is a component of output and should not be summed.

Regional Study Area Results

Tables 1 and 2 show the economic impact estimates for construction and operations, respectively, for the POCCA project at the *regional* level.

Construction Economic Impact Estimates

Table 1 shows the economic impacts from the direct amounts listed on the construction budgets for the regional analysis. As shown in the direct effects of the output column, the number is substantially different from what appeared on for the total on the construction budgets. This is because several categories of expenses were not able to be met within the local study area (4-county region). As a result, all the required inputs in these categories of expenses were imported from outside the study area. This is addressed in a later section of this report. Aside from this, the categories of expenses which were sourced locally lead to an estimated additional **81** jobs, **$3.9 million** in labor income, **$7.3 million** in value added, and **$16.5 million** in output. Please note that construction jobs are considered to temporary jobs which will conclude with the completion of the POCCA project.

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	46	$2,398,488	$4,647,934	$11,187,892
Indirect Effect	16	$796,432	$1,396,857	$3,147,876
Induced Effect	20	$720,243	$1,262,680	$2,165,576
Total Effect	81	$3,915,163	$7,307,471	$16,501,344

Table 1, Estimated Economic Impacts - Construction (Regional)

Operations Economic Impact Estimates

Table 2 shows the impacts from the average of change in annual freight capacity (operations) which are estimated by POCCA to be traced to the POCCA project. As shown in the table, the original $13.5 million in added direct output leads to an additional **90** jobs, **$7.5 million** in labor income, **$12.3 million** in value added, and **$23.1 million** in output. Please note that operations jobs are considered to permanent jobs which will not conclude with the completion of the construction of the POCCA project.

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	25	$4,635,213	$7,525,935	$13,544,037
Indirect Effect	29	$1,473,063	$2,380,238	$5,481,792
Induced Effect	37	$1,353,938	$2,370,107	$4,068,948
Total Effect	90	$7,462,213	$12,276,280	$23,094,777

Table 2, Estimated Economic Impacts - Operations (Regional)

State Study Area Results

Tables 3 and 4 show the economic impact estimates for construction and operations, respectively, for the POCCA project at the *state* level.

Construction Economic Impact Estimates

Table 3 shows the economic impacts from the direct amounts listed on the construction budgets. As shown in the direct effect of the output column, the number is essentially the same as what appears for the total on the construction budgets. This is because all categories of expenses were met within the local study area (state). As a result, at least a portion of the required inputs in all categories of expenses were supplied from within the study area. As a result, the categories of expenses which were sourced locally lead to an estimated additional **181** jobs, **$10.1 million** in labor income, **$18.9 million** in value added, and **$43.8 million** in output. The state level estimates are significantly higher because of the local availability of required inputs. Please note that construction jobs are considered to temporary jobs which will conclude with the completion of the POCCA project.

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	62	$3,977,094	$7,874,761	$21,502,150
Indirect Effect	60	$3,577,298	$6,423,199	$14,456,661
Induced Effect	59	$2,513,800	$4,633,389	$7,801,151
Total Effect	181	$10,068,192	$18,931,349	$43,759,963

Table 3, Estimated Economic Impacts - Construction (State)

Operations Economic Impact Estimates

Table 4 shows the impacts from the average of change in annual freight capacity (operations) which are estimated by POCCA to the POCCA project. As shown in the table, the original $13.5 million in added direct output leads to an additional **142** jobs, **$9.3 million** in labor income, **$15.6 million** in value added, and **$30.9 million** in output. Please note that operations jobs are considered to permanent jobs which will not conclude with the completion of the construction of the POCCA project.

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	32	$3,839,329	$6,234,439	$13,544,037
Indirect Effect	55	$3,131,104	$5,136,450	$10,128,461
Induced Effect	55	$2,320,430	$4,276,034	$7,201,308
Total Effect	142	$9,290,863	$15,646,923	$30,873,807

Table 4, Estimated Economic Impacts - Operations (State)

Industries Most Affected

Tables 5-8 illustrate which industries, in terms of jobs, are most affected by the POCCA project for both construction and operations.

Regional Study Area

Tables 5 and 6 below show which industries within the regional study area are impacted the most in terms of jobs. **Table 5** shows that, for *construction* impacts, "Other Concrete Product Manufacturing" is impacted the most followed by "Mining and Quarrying Other Nonmetallic Minerals". Primary reasons for this include: 1) the levels of required inputs are large and 2) a large share of the required inputs is sourced locally within the region (region).

Description	Employment
Other concrete product manufacturing	14
Mining and quarrying other nonmetallic minerals	10
Plate work and fabricated structural product manufacturing	8
Construction of new nonresidential manufacturing structures	7
Food services and drinking places	3
Laminated plastics plate, sheet (except packaging), and shape manufacturing	2
Wholesale trade businesses	2
Asphalt paving mixture and block manufacturing	2
Private hospitals	1
Employment services	1

Table 5, Top 10 Industries Affected - Construction (Regional)

Table 6 shows that, for *operations* impacts, "Transport by Rail" is impacted the most followed by "Food Services and Drinking Places". The primary reason for this is because a large share of the required inputs is sourced locally within the region (4-county region).

Description	Employment
Transport by rail	25
Food services and drinking places	6
Maintenance and repair construction of nonresidential structures	5
Commercial and industrial machinery and equipment rental and leasing	3
Private hospitals	3
Wholesale trade businesses	2
Offices of physicians, dentists, and other health practitioners	2
Services to buildings and dwellings	2
Accounting, tax preparation, bookkeeping, and payroll services	2
Nondepository credit intermediation and related activities	2

Table 6, Top 10 Industries Affected - Operations (Regional)

State Study Area

Tables 7 and 8 below show which industries within the state study area are impacted the most in terms of jobs. **Table 7** shows that, for *construction* impacts, "Other Concrete Product Manufacturing" is impacted the most followed by "Mining and Quarrying Other Nonmetallic Minerals". Primary reasons for this include: 1) the levels of required inputs are large and 2) a large share of the required inputs is sourced locally within the region (state).

Description	Employment
Other concrete product manufacturing	12
Mining and quarrying other nonmetallic minerals	10
Wholesale trade businesses	8
Food services and drinking places	8
Plate work and fabricated structural product manufacturing	7
Plastics pipe and pipe fitting manufacturing	7
Construction of new nonresidential manufacturing structures	7
Sawmills and wood preservation	7
Transport by truck	6
Iron and steel mills and ferroalloy manufacturing	5

Table 7, Top 10 Industries Affected - Construction (State)

Table 8 shows that, for *operations* impacts, "Transport by Rail" is impacted the most followed by "Food Services and Drinking Places". The primary reason for this is because a large share of the required inputs is sourced locally within the region (state).

Description	Employment
Transport by rail	32
Food services and drinking places	7
Maintenance and repair construction of nonresidential structures	6
Securities, commodity contracts, investments, and related activities	4
Wholesale trade businesses	4
Real estate establishments	4
Nondepository credit intermediation and related activities	4
Performing arts companies	3
Accounting, tax preparation, bookkeeping, and payroll services	3
Services to buildings and dwellings	3

Table 8, Top 10 Industries Affected - Operations (State)

Industry Gaps

As mentioned above in the "Regional Study Area Results" section, there were several industries which were not present in the 4-county region for the *construction* analysis. Table 9 lists these industries.

Budget Category	Budget Amount
Hay Bales/Seeding	$133,088
Railroad Ties	$1,570,810
Plastic Piping	$3,486,329
Ballast (#4 Limestone)	$466,481
Rails and Hardware	$4,581,776
Total	$10,238,483

Table 9, Industries Not Present in Regional Study Area

Because such a large share of the required inputs are not produced and purchased locally for the POCCA project, there are implications for the total economic impact associated with the construction portion of the project. This is illustrated in differences in impacts summarized in Tables 1 and 3. If these particular industries were present within the study area, the results would have been impacted commensurately.