

The Net Economic Benefits of the TRANS TEXAS CORRIDOR



*Prepared
by*

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Introduction

The Trans Texas Corridor, a massive statewide transportation infrastructure project developed by Texas Governor Rick Perry, will provide substantial economic benefits to the Lone Star State. The project involves a unique public-private partnership to create a notable competitive advantage for the state.

Sources of Benefits

The benefits of the program will essentially stem from three sources:

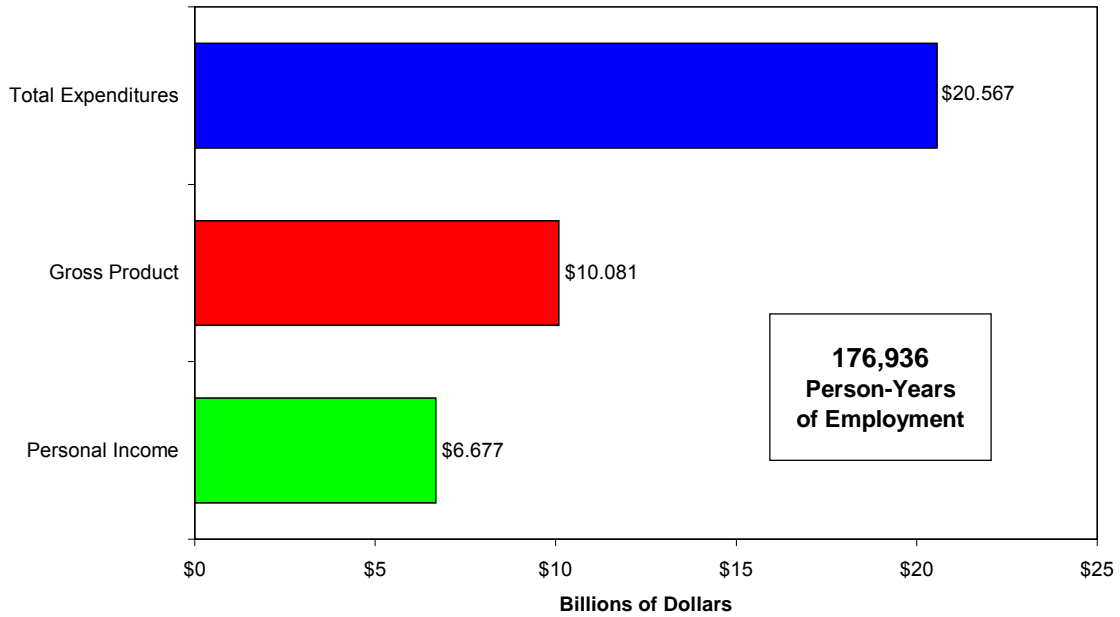
1. The construction of various forms of infrastructure (highway, rail, electric facilities, pipelines, etc).
2. The enhanced efficiencies for existing firms and consumers of improvements in mobility and access to infrastructure.
3. The economic development gains associated with attracting or retaining business activity as a result of becoming relatively more competitive.

Benefits to the State

An extensive study by The Perryman Group indicates that the average benefit per year from the construction activity over the first 25 years of the project will be (in constant 2001 dollars):

- √ \$20.6 billion in annual total expenditures;
- √ \$10.1 billion in annual gross state product;
- √ \$6.7 billion in annual personal income; and
- √ 176,936 person-years of employment.

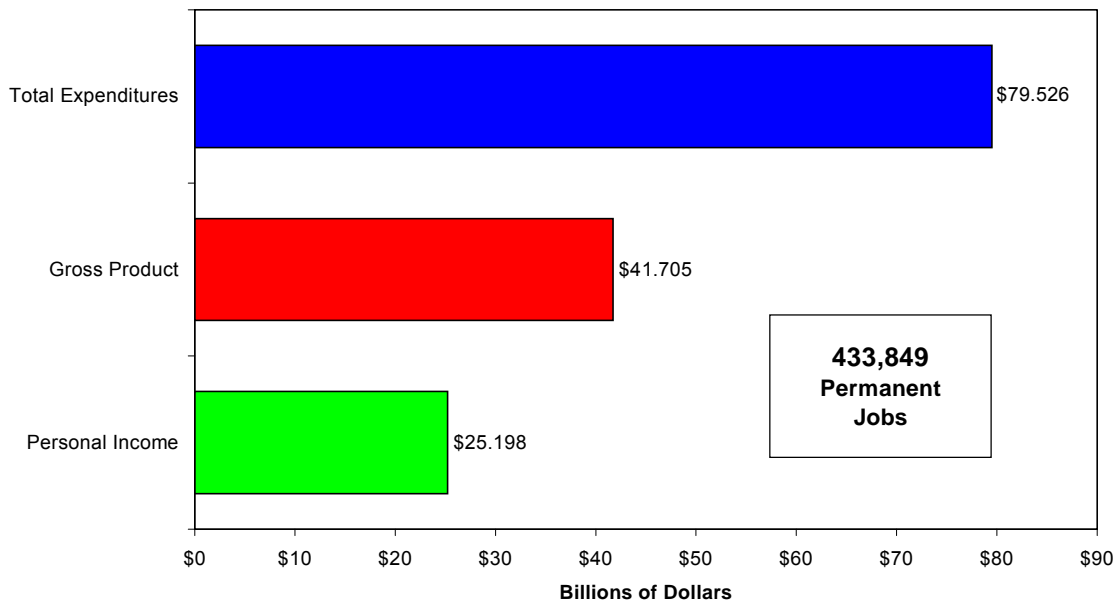
**FIGURE 1
THE AVERAGE ANNUAL IMPACT OF CONSTRUCTION ACTIVITY ASSOCIATED
WITH THE TRANS TEXAS CORRIDOR (YEARS 1-25)**



The enhanced efficiency associated with the notable infrastructure impacts will, at project maturity, yield permanent net gains of:

- √ \$79.5 billion in annual total expenditures;
- √ \$41.7 billion in annual gross state product;
- √ \$25.2 billion in annual personal income; and
- √ 433,849 permanent jobs.

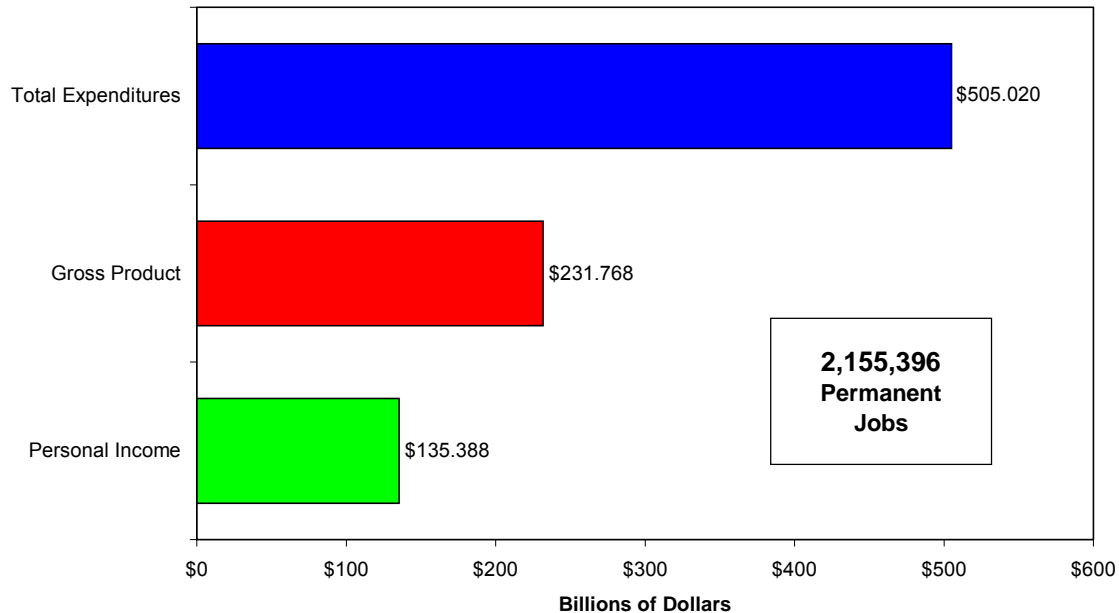
**FIGURE 2
THE ANNUAL IMPACT OF THE ENHANCED ECONOMIC EFFICIENCY
ASSOCIATED WITH THE TRANS TEXAS CORRIDOR AT PROJECT MATURITY**



The potential economic development gains accruing at project maturity include:

- √ \$505.0 billion in annual total expenditures;
- √ \$231.7 billion in annual gross state product;
- √ \$135.3 billion in annual personal income; and
- √ 2,155,396 permanent jobs.

FIGURE 3
THE POTENTIAL ANNUAL IMPACT OF THE ECONOMIC DEVELOPMENT
STIMULUS OF THE TRANS TEXAS CORRIDOR AT PROJECT MATURITY



The Trans Texas Corridor project will generate in excess of \$13 billion per year (upon complete implementation) in state revenues on an inflation-adjusted (constant 2001 dollars) basis.

Methodology

Construction:

A specific cost per mile for each type of infrastructure was used as a direct input to the modeling process, and a time span corresponding to current projections was established for the build-out of the projects. The process allocates spending patterns based on construction efforts of substantial scope and is calibrated to the total magnitude of the current initiative (in constant dollars).

Once the direct outlays were quantified, the indirect and induced effects were estimated using The Perryman Group's Texas Multi Regional Impact Assessment System, a model that was developed more than 20 years ago and which is updated continually.

The model (1) adjusts for out-of-state spending leakages and (2) fully accounts for the different requirements for building the various types of facilities. The average annual impact over the initial 25 years of the construction period summarized by industry (using the 35-sector breakdown adopted by the US Department of Transportation) is provided in Table 1.

Efficiency Gains:

Recent US Department of Transportation studies measuring the efficiency gains by industry for new highway markets were reproduced and the models were extended to account for (1) the specific sectoral composition of Texas, (2) the benefits to consumers (which are excluded from the national studies), and (3) the fact that the Trans Texas Corridor is designed as a multi-lane, divided highway system. Results from early years (when the Interstate Highway System was initially being developed) were also used to account for the fundamental nature of these projects.

A similar model for rail was developed using the relative importance of the two transportation modes as derived from the input-output model (with an adjustment to account for the productivity gains from high speed transport). Similar coefficients were then derived for the other categories of infrastructure in an analogous manner.

In these sectors, it was assumed that only 25% of the measured effects would be realized, since the areas already have basic utility service. Overall effects were then derived based on the calculated costs and benefits of each infrastructure component. Estimates were also derived for output, income, and jobs through simulations of the input-output system. An assumption was then made that benefits from each year of spending would be observed with a 3-year lag to account for segment completions, awareness, and acceptance, etc. The resulting evaluation by industry based on project maturity is exhibited in Table 2.

Economic Development Potential:

To measure the economic development potential (which is by far the largest potential gain), a detailed long-range baseline forecast for Texas and the US was created using The Perryman Group econometric models. This forecast includes two years to begin, the full build-out period by phase, and a 3-year lag in benefits.

A basic assumption is that the state's share of US output would increase by 1% over the next several decades as a result of the enhanced infrastructure. This assumption is fairly conservative, given the nature of the investment, and is consistent with numerous tests for reasonableness in that:

- (1) It concludes an overall "capture rate" of US activity only 80% as great as the level experienced over the past decade.
- (2) It only increases projected long-term Texas output growth rates from 3.8% to 4.2%, which is well below the rates of the past 10 years and well within the bounds of high growth scenarios.

- (3) Even if all this gain is a net diversion from other states (unlikely since additional national activity should be stimulated), the growth rate in other states is only reduced by 0.04%.
- (4) It produces a 13.5% increment to Texas growth over the development period. National studies indicate that the Interstate Highway system contributed 25-30% to national growth over a comparable period.

It was further assumed that the impacts would occur over time proportionally to the current construction spending and with a 3-year lag. This assumption is particularly conservative since even the announcement of the Trans Texas Corridor project is likely to stimulate new activity. Detailed industrial findings are in Table 3.

Beneficial Impacts, Offsets, and Fiscal Impacts:

Two offsets to the beneficial impact were incorporated in the study. Since there are no new taxes anticipated and the model has already accounted for diversions in the private sector, the only significant deductions are (1) foregone alternative road construction from any potential State contributions and (2) the resulting efficiency effects in various industries. While such "toll equity" funding may or may not be a part of the ultimate funding mechanism, an offset was evaluated in the interest of conservatism.

Construction losses using the impact system were simulated, and the economic efficiency losses were computed based on the allocations of recent highway spending. A net average diversion of \$300 million was assumed. Even if a larger amount is committed to the effort, the overall reductions in necessary maintenance requirements in future years will likely reduce the net outlay to around this amount. Even if the amount is doubled to the maximum statutory level of \$600 million, there will be little effect on the net aggregate benefits.

The final step in the process involved the simulation of the results of the fiscal model to estimate the impact on State revenues. This analysis was performed with detailed industrial impacts and all major revenue sources with the assumption that the current tax structure remained in place.

Conclusion

The proposed Trans Texas Corridor will provide significant benefits to the state through the construction of various forms of infrastructure, the enhanced efficiencies in mobility and access to infrastructure, and the economic gains associated with attracting or retaining business activity. Overall, nearly \$585 billion will be generated in annual expenditures at full implementation with approximately 2.6 million permanent jobs created.

TABLE 1
THE AVERAGE ANNUAL IMPACT OF CONSTRUCTION ACTIVITY
ASSOCIATED WITH THE TRANS TEXAS CORRIDOR (YEARS 1-25)

Sector	Total Expenditures	Gross Product	Personal Income	Employment (Person-Years)
Agriculture, Forestry and Fisheries	\$293,472,061	\$96,198,875	\$57,480,255	1,623
Metal Mining	\$4,755,443	\$1,843,984	\$1,376,448	28
Coal Mining	\$32,353,225	\$10,164,319	\$9,937,574	131
Crude Petroleum and Natural Gas	\$260,266,407	\$52,653,788	\$26,325,387	226
Nonmetallic Mineral Mining	\$63,327,362	\$24,555,993	\$18,329,904	372
Construction	\$5,454,410,121	\$2,635,566,541	\$2,109,747,296	44,907
Food and Kindred Products	\$596,831,028	\$172,265,815	\$78,934,736	2,220
Tobacco Manufactures	\$736,372	\$212,542	\$97,390	3
Textile Mill products	\$8,642,177	\$2,233,001	\$1,696,249	54
Apparel and Other Textile Products	\$138,664,228	\$60,706,926	\$38,926,952	1,622
Lumber and Wood Products	\$102,618,289	\$31,182,874	\$20,015,690	595
Furniture and Fixtures	\$35,664,114	\$10,837,343	\$6,956,283	207
Paper and Allied Products	\$99,516,463	\$34,139,932	\$19,805,058	455
Printing and Publishing	\$135,973,056	\$60,551,400	\$43,886,697	1,126
Chemicals and Allied Products	\$580,556,732	\$72,143,394	\$42,613,414	524
Petroleum Refining	\$230,020,319	\$28,583,678	\$16,883,709	208
Rubber and Plastic Products	\$82,649,282	\$36,837,915	\$21,003,541	621
Leather and Leather Products	\$9,642,060	\$4,297,598	\$2,450,322	72
Stone, Clay and Glass Products	\$365,827,315	\$188,208,865	\$92,149,643	2,355
Primary Metals	\$266,043,747	\$87,350,171	\$59,959,605	1,307
Fabricated Metal Products	\$575,943,724	\$220,185,354	\$143,681,034	3,484
Machinery, Except Electrical	\$87,983,410	\$46,966,436	\$25,761,795	422
Electrical Machinery	\$126,709,466	\$91,327,435	\$43,846,310	696
Motor Vehicles	\$49,442,649	\$9,100,252	\$6,796,983	152
Other Transportation Equipment	\$25,178,388	\$7,577,350	\$7,137,805	129
Instruments	\$19,750,050	\$6,885,742	\$6,381,297	128
Miscellaneous Manufacturing	\$48,255,744	\$20,596,525	\$13,618,395	346
Transportation and Warehousing	\$692,635,250	\$473,729,480	\$303,627,758	6,225
Communication	\$373,144,790	\$265,264,666	\$98,317,972	1,362
Electric Utilities	\$461,588,386	\$120,879,020	\$45,454,719	392
Gas Utilities	\$301,574,531	\$78,975,197	\$29,697,423	256
Trade	\$2,479,749,107	\$1,987,246,082	\$1,151,817,644	40,080
Finance, Insurance, and Real Estate	\$2,471,520,436	\$663,929,041	\$241,736,571	4,358
Other Services	\$4,091,122,386	\$2,477,725,082	\$1,890,673,172	60,247
Government Enterprises	\$0	\$0	\$0	0
TOTAL	\$20,566,568,119	\$10,080,922,616	\$6,677,125,033	176,936

*All monetary values for all years are given in constant 2001 dollars

Source: The Perryman Group

TABLE 2
THE ANNUAL IMPACT OF THE ENHANCED ECONOMIC EFFICIENCY
ASSOCIATED WITH THE TRANS TEXAS CORRIDOR AT PROJECT MATURITY

Sector	Total Expenditures	Gross Product	Personal Income	Employment (Permanent Jobs)
Agriculture, Forestry and Fisheries	\$2,636,702,469	\$749,153,703	\$558,630,636	22,876
Metal Mining	\$1,768,458,290	\$2,675,943,062	\$617,505,433	11,182
Coal Mining	\$2,297,616,189	\$610,533,930	\$617,902,991	4,410
Crude Petroleum and Natural Gas	\$4,009,536,113	\$868,058,916	\$394,298,620	1,116
Nonmetallic Mineral Mining	\$1,608,582,830	\$562,924,387	\$414,492,713	6,546
Construction	\$6,565,043,814	\$2,830,925,746	\$2,303,890,153	43,582
Food and Kindred Products	\$2,901,650,836	\$756,189,349	\$315,331,118	7,759
Tobacco Manufactures	\$81,853	\$23,406	\$13,615	0
Textile Mill products	\$33,819,263	\$9,086,957	\$6,829,807	271
Apparel and Other Textile Products	\$401,953,995	\$203,703,518	\$106,043,248	2,697
Lumber and Wood Products	\$239,403,881	\$83,098,020	\$57,850,600	1,809
Furniture and Fixtures	\$543,920	\$201,638	\$147,515	4
Paper and Allied Products	\$263,375,939	\$106,266,488	\$52,092,648	764
Printing and Publishing	\$340,140,064	\$162,433,014	\$109,137,404	2,831
Chemicals and Allied Products	\$1,193,229,142	\$337,139,081	\$185,338,474	1,827
Petroleum Refining	\$1,991,386,768	\$192,854,206	\$69,044,224	304
Rubber and Plastic Products	\$307,392,293	\$95,008,142	\$55,208,755	1,103
Leather and Leather Products	\$1,271,555	\$768,256	\$340,017	9
Stone, Clay and Glass Products	\$191,823,229	\$92,049,962	\$50,887,912	842
Primary Metals	\$728,367,499	\$220,649,240	\$161,706,534	3,420
Fabricated Metal Products	\$603,218,202	\$267,708,839	\$162,750,057	2,584
Machinery, Except Electrical	\$1,298,230,582	\$554,093,538	\$378,596,036	5,891
Electrical Machinery	\$1,088,458,730	\$756,726,574	\$369,066,492	4,266
Motor Vehicles	\$245,324,355	\$66,677,693	\$42,369,613	846
Other Transportation Equipment	\$830,627,948	\$331,930,721	\$263,942,904	4,741
Instruments	\$8,909,686	\$4,319,408	\$2,968,197	26
Miscellaneous Manufacturing	\$6,603,711	\$2,178,635	\$1,572,620	37
Transportation and Warehousing	\$2,883,297,895	\$1,510,892,940	\$917,107,143	15,345
Communication	\$1,367,776,301	\$944,478,503	\$404,483,930	3,480
Electric Utilities	\$1,713,313,409	\$374,253,580	\$156,287,266	634
Gas Utilities	\$1,004,977,175	\$150,025,188	\$62,650,106	260
Trade	\$18,812,045,322	\$13,712,082,702	\$7,837,659,539	149,233
Finance, Insurance, and Real Estate	\$7,647,225,660	\$3,351,738,330	\$1,174,005,013	14,552
Other Services	\$14,262,623,852	\$8,963,041,064	\$7,222,468,526	116,195
Government Enterprises	\$272,500,423	\$158,148,054	\$125,402,252	2,407
TOTAL	\$79,525,513,191	\$41,705,306,788	\$25,198,022,111	433,849

*All monetary values for all years are given in constant 2001 dollars
Source: The Perryman Group

TABLE 3
THE POTENTIAL ANNUAL IMPACT OF THE ECONOMIC DEVELOPMENT
STIMULUS OF THE TRANS TEXAS CORRIDOR AT PROJECT MATURITY

Sector	Total Expenditures	Gross Product	Personal Income	Employment (Permanent Jobs)
Agriculture, Forestry and Fisheries	\$6,715,922,995	\$1,852,420,886	\$1,525,234,267	62,459
Metal Mining	\$6,050,930	\$9,271,276	\$1,215,598	22
Coal Mining	\$231,785,120	\$61,491,074	\$47,743,423	341
Crude Petroleum and Natural Gas	\$53,443,151,700	\$11,350,764,957	\$6,320,857,754	17,886
Nonmetallic Mineral Mining	\$233,868,431	\$86,028,920	\$58,343,451	921
Construction	\$14,801,075,951	\$6,250,155,692	\$6,203,430,268	117,348
Food and Kindred Products	\$5,924,438,071	\$1,488,727,218	\$637,258,879	15,680
Tobacco Manufactures	\$4,663,250	\$1,304,286	\$1,307,220	10
Textile Mill products	\$54,672,860	\$14,661,489	\$13,150,901	521
Apparel and Other Textile Products	\$839,863,565	\$412,713,653	\$225,804,886	5,742
Lumber and Wood Products	\$955,136,059	\$331,834,065	\$256,766,540	8,031
Furniture and Fixtures	\$404,531,260	\$146,381,989	\$133,389,818	3,435
Paper and Allied Products	\$1,843,219,684	\$738,633,094	\$334,789,952	4,910
Printing and Publishing	\$1,319,172,910	\$625,772,864	\$471,317,816	12,226
Chemicals and Allied Products	\$7,230,085,571	\$2,021,668,005	\$1,062,823,037	10,475
Petroleum Refining	\$21,893,732,739	\$2,110,231,905	\$909,126,075	4,001
Rubber and Plastic Products	\$3,773,272,357	\$1,175,025,488	\$613,776,854	12,258
Leather and Leather Products	\$126,203,086	\$73,882,722	\$25,251,136	687
Stone, Clay and Glass Products	\$1,847,268,146	\$877,920,121	\$492,471,742	8,150
Primary Metals	\$1,477,494,979	\$450,221,567	\$210,495,197	4,451
Fabricated Metal Products	\$3,346,383,644	\$1,477,251,963	\$1,051,160,841	16,691
Machinery, Except Electrical	\$9,985,602,388	\$4,271,532,839	\$1,423,893,673	22,155
Electrical Machinery	\$9,655,039,736	\$6,569,225,413	\$1,817,306,892	21,008
Motor Vehicles	\$1,017,915,784	\$276,323,445	\$166,404,957	3,323
Other Transportation Equipment	\$1,991,680,535	\$779,243,558	\$642,040,573	11,534
Instruments	\$1,652,867,289	\$799,490,911	\$692,107,169	6,121
Miscellaneous Manufacturing	\$801,461,762	\$266,580,146	\$149,931,705	3,558
Transportation and Warehousing	\$18,420,417,031	\$9,866,930,588	\$5,630,726,817	94,214
Communication	\$23,753,932,215	\$16,561,824,403	\$4,671,538,583	40,187
Electric Utilities	\$41,799,084,965	\$9,526,826,890	\$2,746,357,305	11,134
Gas Utilities	\$27,309,048,087	\$4,253,700,349	\$1,226,240,506	5,087
Trade	\$80,864,557,836	\$59,517,887,286	\$28,002,580,544	533,184
Finance, Insurance, and Real Estate	\$61,241,810,669	\$26,755,885,684	\$9,033,287,716	111,972
Other Services	\$71,924,126,076	\$44,443,516,033	\$44,737,446,024	719,734
Government Enterprises	\$28,129,981,693	\$16,322,851,143	\$13,852,494,616	265,941
TOTAL	\$505,019,519,374	\$231,768,181,921	\$135,388,072,736	2,155,396

*All monetary values for all years are given in constant 2001 dollars

Source: The Perryman Group