

Appendix J
2005 Economic Report

Appendix J
Evaluating Economic Impacts of I-69 in the Mississippi Delta
Region



Evaluating the Local Economic Development of I-69 in the Mississippi Delta Region

I. Introduction

Transportation investments have long been linked to economic development. There are numerous avenues by which such investments can serve as catalysts for economic growth and development including:

- ◆ Linking key economic centers in a region to national markets thus making the area competitive for growth;
- ◆ Providing for more efficient flows of commerce through the region to enhance the development potential of areas traversed by the improvement;
- ◆ Facilitating the movement of people to new jobs and public services
- ◆ Opening up new sites for commercial and industrial development;
- ◆ Providing local access roads to stimulate retail development;
- ◆ Enhancing the flow of goods and services within a sub-regional trade area to increase induced economic benefits;
- ◆ Facilitating the diversification of the local economy;
- ◆ Supporting new business initiatives; and
- ◆ Enhancing economic development by lowering the cost of doing business through lower transportation cost

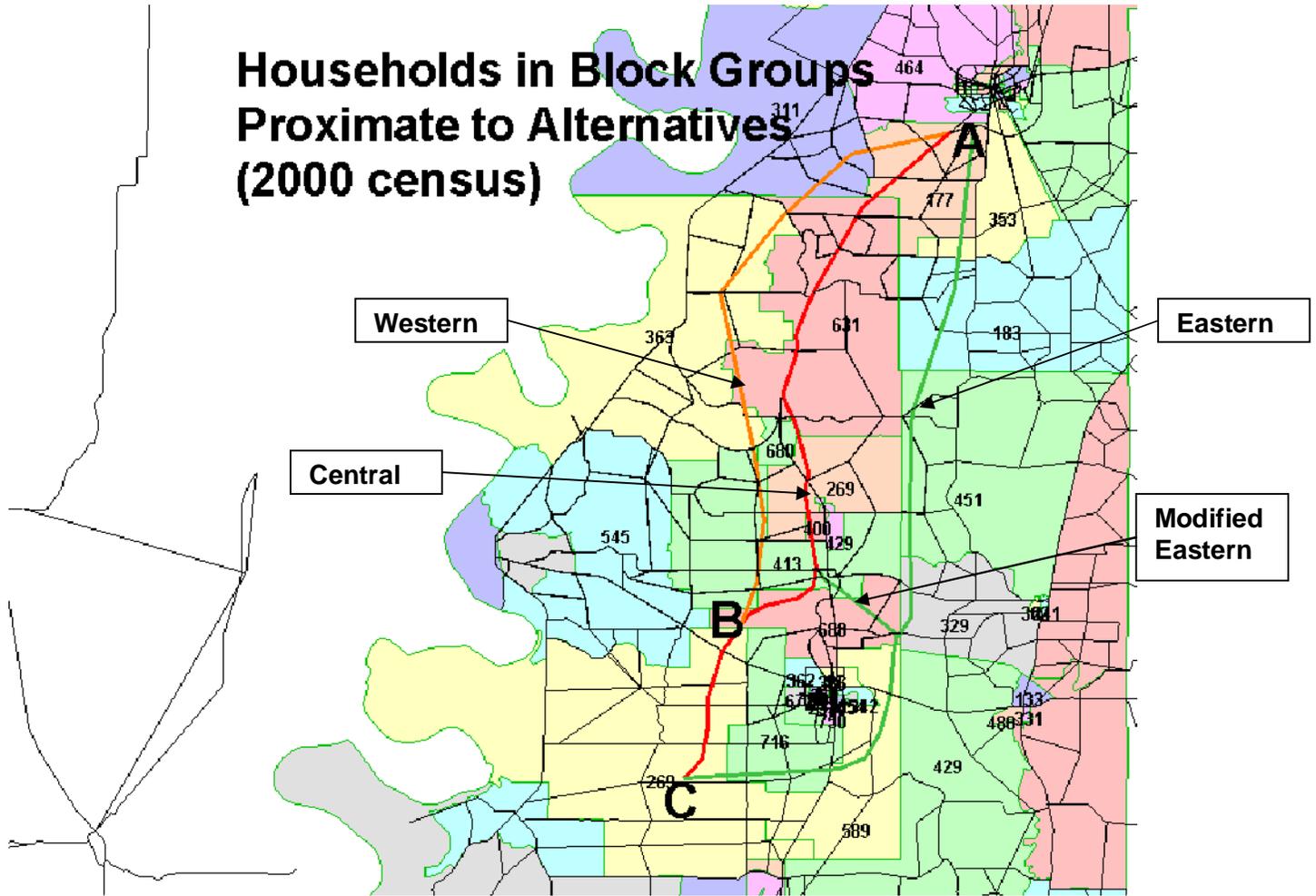
Investments as significant as a new interstate can potentially have substantial impacts on a region and given the rarity of investments of this magnitude, these “mega-projects” warrant a closer examination into the potential for economic growth.

The purpose of the current study is to conduct such an examination. The EIS statement completed in 2004 identified the Central Alternative as the preferred alternative out of four potential alternatives. However, recognition that the development of a new interstate in this economically disadvantaged region is the most significant infrastructure investment in region to date led the Mississippi Department of Transportation to commission an analysis to examine the potential for local economic development for each of the four alternatives- the western, central, eastern and modified eastern. The following summarizes the findings of this study and is organized as follows. Section two provides an overview of the alternatives and Section three discusses the methodology for estimating the impacts. Section four summarizes the results of the modeling, followed by a conclusion in Section five.

II. Overview of Alternatives and Study Area

The portion of the proposed corridor considered in the current study consists of the alternatives between Cleveland and Clarksdale. These include the Western, Central, Eastern, and Modified Eastern Alternatives. Exhibit 1 displays the alternatives with the orange representing the Western Alternative, the red representing the Central Alternative, and the green representing the Eastern and Modified Eastern Alternatives.

Exhibit 1: I-69 Alternatives between Cleveland and Clarksdale



The study consisted of four counties in the Mississippi Delta including Bolivar, Coahoma, Sunflower, and Tunica. Exhibit 2 displays general socio-demographic information for each of the counties in the study region as well as the state as a whole. Notable is the fact that the counties comprising the study region have sustained population losses in recent years while the state has posted modest population growth. In addition, the study region is overwhelmingly minority, with nearly double the percentage of minorities relative to the state as a whole.



Exhibit 2: Socio-Demographic Profile of Study Region

People QuickFacts	Mississippi	Bolivar County	Coahoma County	Sunflower County	Tunica County
Population, 2003 estimate	2,881,281	39,235	29,546	33,374	9,917
Population, percent change, April 1, 2000 to July 1, 2003	1.3%	-3.4%	-3.5%	-2.9%	7.5%
Population, percent change, 1990 to 2000	10.5%	-3.0%	-3.3%	-2.2%	13.0%
White persons, percent, 2000 (a)	61.4%	33.2%	29.3%	28.9%	27.5%
Black or African American persons, percent, 2000 (a)	36.3%	65.1%	69.2%	69.9%	70.2%
Persons of Hispanic or Latino origin, percent, 2000 (b)	1.4%	1.2%	0.9%	1.3%	2.5%
Language other than English spoken at home, pct age 5+, 2000	3.6%	2.7%	2.7%	3.4%	2.4%
High school graduates, percent of persons age 25+, 2000	72.9%	65.3%	62.2%	59.3%	60.5%
Bachelor's degree or higher, pct of persons age 25+, 2000	16.9%	18.8%	16.2%	12.0%	9.1%
Mean travel time to work (minutes), workers age 16+, 2000	24.6	19.7	24	20.6	19.7

(a) Includes persons reporting only one race.

(b) Hispanics may be of any race, so also are included in applicable race categories.

Exhibit 3 provides comparisons of key economic indicators for the study region. The study region lags the state in all of the key indicators including home ownership rates, median home value, median household income, and per capita income. Not surprisingly, the percent of the population living in poverty is about one-third higher in the study region relative to the state as a whole.

Exhibit 3 – Key Economic Indicators for the Study Region

Economic QuickFacts	Mississippi	Bolivar County	Coahoma County	Sunflower County	Tunica County
Housing units, 2002	1,195,133	15,146	11,546	10,448	4,171
Homeownership rate, 2000	72.3%	61.1%	57.3%	61.8%	51.7%
Housing units in multi-unit structures, percent, 2000	13.3%	17.3%	18.7%	12.3%	21.1%
Median value of owner-occupied housing units, 2000	\$71,400	\$57,200	\$51,200	\$50,000	\$56,800
Households, 2000	1,046,434	13,776	10,553	9,637	3,258
Persons per household, 2000	2.63	2.79	2.83	3.01	2.8
Median household income, 1999	\$31,330	\$23,428	\$22,338	\$24,970	\$23,270
Per capita money income, 1999	\$15,853	\$12,088	\$12,558	\$11,365	\$11,978
Persons below poverty, percent, 1999	19.9%	33.3%	35.9%	30.0%	33.1%

Exhibit 4 displays business activity indicators for the region in terms of employment, manufacturing shipments and retail sales. The region has sustained significant job loss in recent years, as has the state as a whole. Tunica County has been the hardest hit despite the growing gaming industry. Notable is the fact that Bolivar County has escaped much of the employment loss experienced by the other counties and recorded losses below the statewide average. Another interesting point is that despite the economic depression in the region, per capita retail sales remains on par with statewide averages. This is partially attributable the significant gaming and resulting tourism industries.



Exhibit 4- Business Activity Indicators for the Study Region

Business QuickFacts	Mississippi	Bolivar County	Coahoma County	Sunflower County	Tunica County
Private nonfarm establishments with paid employees, 2001	59,056	764	636	488	192
Private nonfarm employment, 2001	926,868	10,226	8,419	6,989	16,826
Private nonfarm employment, percent change 2000-2001	-3.1%	-1.5%	-4.1%	-5.6%	-9.4%
Manufacturers shipments, 1997 (\$1000)	39,658,260	417,762	236,575	508,277	NA
Retail sales, 1997 (\$1000)	20,774,508	296,293	250,400	212,326	61,773
Retail sales per capita, 1997	\$7,605	\$7,305	\$7,957	\$6,181	\$7,659

As the previous exhibits illustrate, the four counties comprising the study region represent an economically challenged region of the state. Therefore, an investment as significant as an interstate highway could potentially serve as a catalyst for economic development. The purpose of the current study is to examine the magnitude of this potential.

III. Methodology

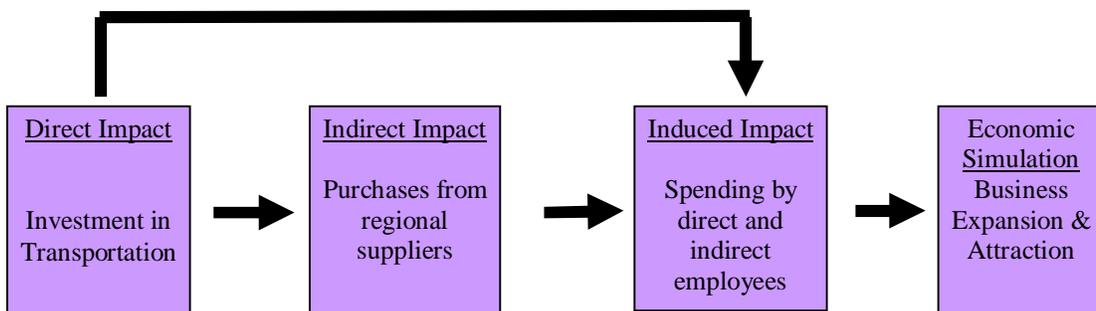
Potential Economic Effects

The estimation of economic impacts quantifies the direct, indirect, and induced economic effects of different corridor alignments on the costs and savings associated with changes in travel time, emissions, safety, and vehicle operations. The direct economic effects reflect user benefits that accrue to the individuals and industries directly benefiting from I-69 once it is constructed. The indirect economic impacts arise as a result of the changes in inter-industry purchases, as local businesses respond to the change in output of major industries due to, for instance, changes in cost of doing business.

Specifically, if the building of I-69 lowers the cost of transportation and gives local businesses a competitive advantage, they will demand more intermediate goods and services from other local businesses; thus increasing purchases between local industries and leading to increased economic benefits for the region. The induced effects represent the broader implications of the proposed I-69 for households' income and spending patterns. Specifically, they are intended to capture the purchasing impacts as the dollars are spent repeatedly in the regional and statewide economy. The results of indirect and induced economic changes created by the direct effects are generally referred as multiplier effect (see Exhibit 5).

Exhibit 5

The Economic Impacts Associated with Transportation Infrastructure Investments



The current study examines three categories of impacts including:

- Travel efficiencies
- Agricultural transportation costs
- Strategic development impacts

Travel Efficiency Benefits

The travel efficiencies are represented by vehicle operating costs (VOC). It should be noted that traditionally other user benefits such as travel time savings, accident savings and emission savings are included as travel efficiencies. However, modeling such impacts requires a detailed travel demand model which is beyond the scope of the current study. To the extent that such benefits would arise, travel efficiency benefits are understated.

Vehicle operating costs savings are calculated based on the number of additional miles traveled for local trips multiplied by \$0.405 per mile (this represents the IRS allowable mileage charge for vehicle operation). The resulting direct user benefits are then entered into an economic impact model utilizing RIMS II multipliers developed by the U.S. Bureau of Economic Analysis to derive the total estimated economic benefits arising from travel efficiencies.

The direct user benefits are calculated based on the number of households preferring each alternative relative to the others based on distance. This is then combined with the number of trips, travel distance, and \$0.405 per mile to derive the dollar value of vehicle operating costs savings accruing to specific alternatives. Exhibit 6 displays the household counts relative to the alternatives. A more detailed view of the Cleveland is presented in Exhibit 7.

Exhibit 6 – Household Counts in Proximity to Alternatives

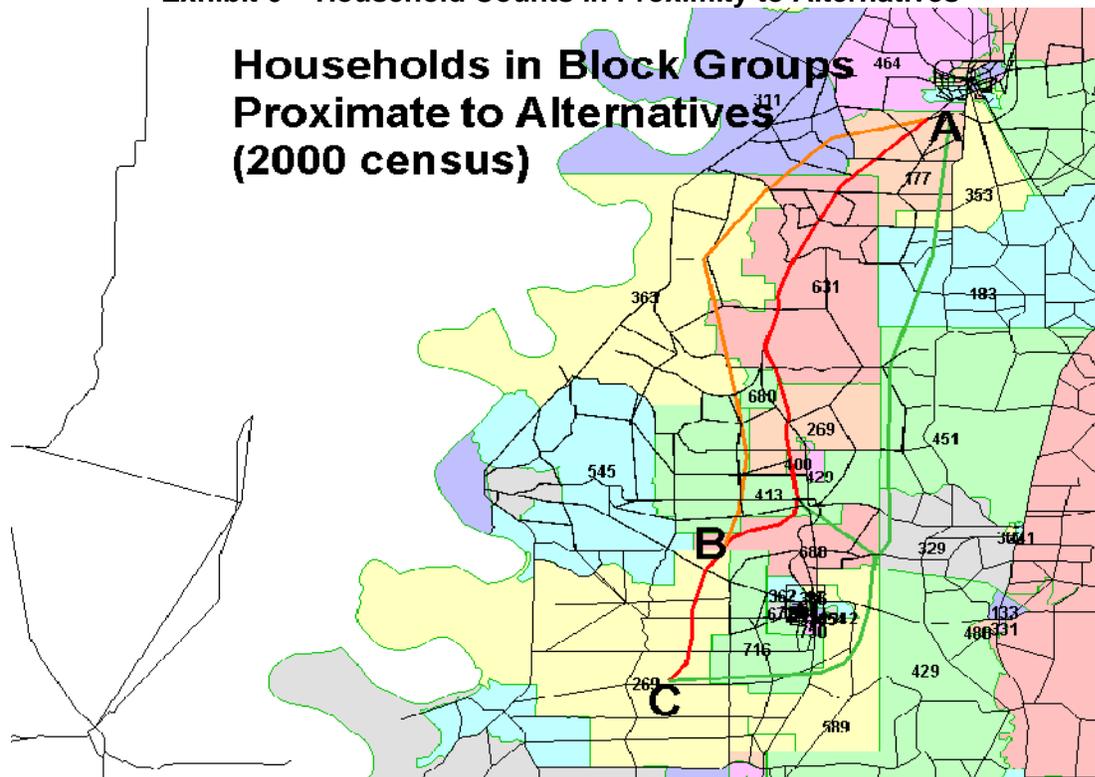
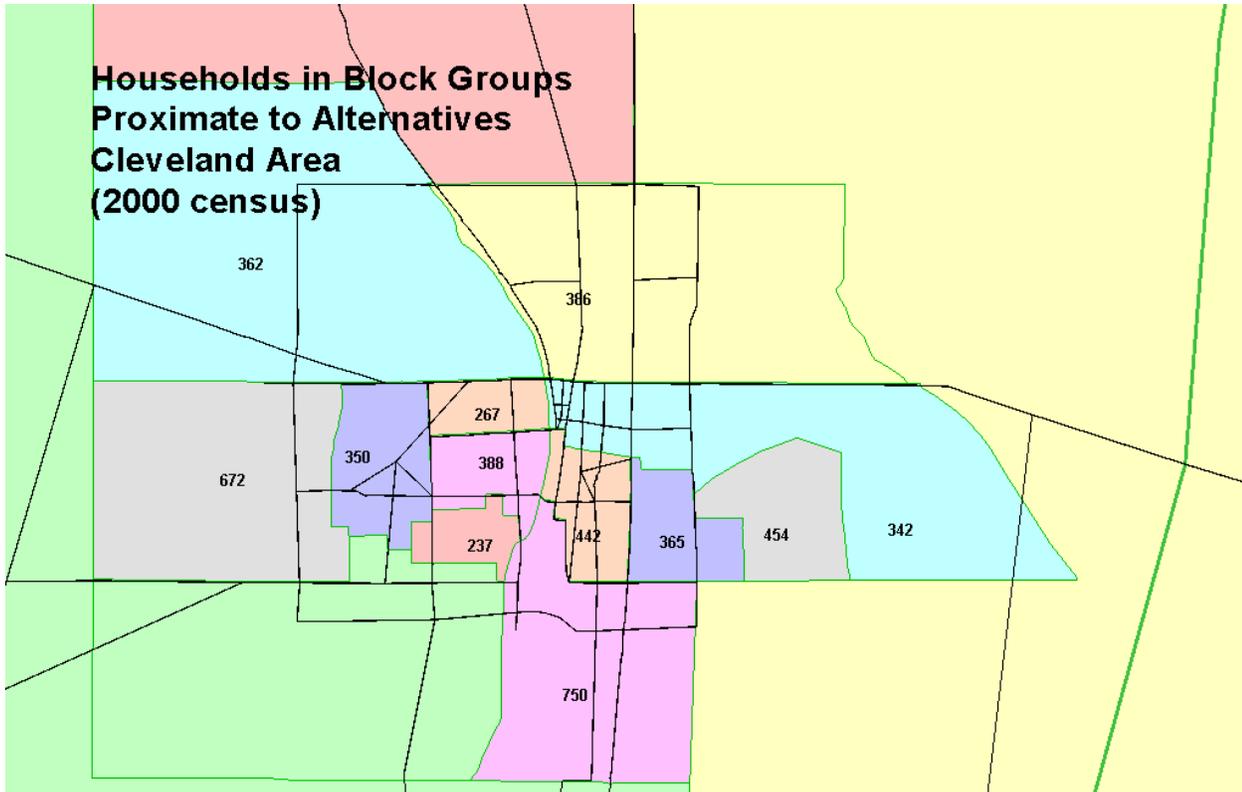


Exhibit 7 – Household Counts for Cleveland



Again, the Western Alternative is denoted in orange, the Central in red, and Eastern and Modified Eastern in green.

When comparing the Western Alternative to the Central Alternative, the sketch map above illustrates that the western portion of the study area is very sparsely occupied except near the population centers of Rosedale, Cleveland, and Clarksdale. When examining the households shown above (along with the distribution of the households within the block groups) The map illustrates that about 1100 households are best served by the Western Alternative, about 2300 households are indifferent between the Western and Central Alternatives, and at least 2100 households are better served by the Central Alternative. However, note that all residents east of the first tier of block groups shown on the map also are nearer the Central Alternative, so the balance is shifted far further toward the Central Alternative.

The Western Alternative is 1.5 miles longer than the Central Alternative between their common termini near Cleveland and Clarksdale. The Western Alternative is approximately 33 miles long and the Central Alternative is about 31.5 miles. The average distance between the two alternatives is about 3 miles. On a daily basis, the Western Alternative would require local residents to travel at least 28,500 miles more than the Central. This does not include additional miles generated by the longer route for through trips or for external trips to/from the study area.



When comparing the Eastern and Modified Eastern to the Central Alternative, the Central Alternative saves local users approximately 45,600 miles per day over the Eastern Alternative and an even more significant 85,000 miles per day over the Eastern modified. The VMT savings of the Central Alternative relative to the Modified Eastern is somewhat surprising at first glance but can be rationalized based on the premise that there is no opportunity for the large rural block groups that would prefer the east to net out the advantage of the central in the immediate vicinity of the populace in Cleveland. The fact that the vast majority of Cleveland's populace is west of US 61, traveling to the eastern alternative exacerbates the congestion along MS 8, especially at the US 61/MS 8 intersection, thus leading to increased travel time and vehicle operating costs should the Eastern Alternative be constructed.

Once the miles per day are estimated, the VOC are calculated by multiplying these by \$0.405 per mile and then by 365 days to obtain annualized increase in VOC. The RIMS II multipliers were then applied to the annualized VOC costs to estimate the associated loss in income and employment associated with increased VOC arising from the Western and the two Eastern Alternatives relative to the Central Alternative.

Agricultural Transportation Costs

The second category of impacts examined is the potential change in the cost of transporting agricultural products. Agriculture is the leading goods producing industry in the region and transportation is a key input in the industry. The primary concern regarding impacts to the agricultural industry arises as a result of upgrading the existing Highway 61 facility as part of the Central Alternative. Currently, Highway 61 serves as the primary field to market route for area farmers and because it is not an interstate highway, the facility is exempt from federal weight limitations. MDOT Harvest Permits currently allow agricultural products to move at 84,000 pounds on routes not otherwise restricted. The conversion of this facility to Interstate 69 would result in the application of weight restrictions at 80,000 pounds; thus, increasing the cost of getting agricultural products to the markets.

Data regarding production of the key crops – cotton, soybeans, and rice- in 2004 was used to estimate the potential impact of the Central Alternative on transportations costs to area farmers and the resulting economic impacts. Exhibit 8 displays the tonnages and values of these crops by county.

The transportation costs associated with the production of these crops was then estimated using the direct requirements table of the Bureau of Economic Analysis' National Input Output Table. Once the total transportation costs are estimated, the increase in transportation costs resulting from the interstate weight limits being imposed on US 61 must be calculated. Not all of the transportation costs associated with the production of the crops is accrued in the study region, therefore, an assumption that 30% of the costs are incurred in the study region is applied. Further, it is assumed that the use of the existing US 61 as the Central Alternative would give rise to a 10 percent increase in transportation costs incurred in the study region. This provides us with an estimate of increased transportation costs, which are then subjected to the RIMS II multipliers to derive the resulting decrease in income for the study region. These results are displayed in Exhibit 9. Because the other alternatives would not impact the ability of farmers to carry higher weights on Highway 61, there is no associated change in agricultural transportation costs for the Western or Eastern alternatives.



Exhibit 8 – Primary Agricultural Crop Production Data, 2004

County	Commodity	common measure	2004 Production	Tons	Price	Value
Bolivar	Corn	bushel	1,431,000	40,068	1.95	\$2,790,450
Coahoma			2,158,000	60,424	1.95	\$4,208,100
Sunflower			3,671,000	102,788	1.95	\$7,158,450
Tunica			218,000	6,104	1.95	\$425,100
Bolivar	Soybeans	bushel	8,855,000	265,650	6.04	\$53,484,200
Coahoma			4,520,000	135,600	6.04	\$27,300,800
Sunflower			6,595,000	197,850	6.04	\$39,833,800
Tunica			2,820,000	84,600	6.04	\$17,032,800
Bolivar	Rice	Cwt	5,105,000	255,250	6.8	\$34,714,000
Coahoma			743,000	37,150	6.8	\$5,052,400
Sunflower			2,209,000	110,450	6.8	\$15,021,200
Tunica			1,517,000	75,850	6.8	\$10,315,600
Bolivar	Cotton	Bale	165,000	39,600	0.42	\$33,264,000
Coahoma			250,000	60,000	0.42	\$50,400,000
Sunflower			124,000	29,760	0.42	\$24,998,400
Tunica			132,000	31,680	0.42	\$26,611,200

Exhibit 9 – Changes in Transportation Costs and Income Arising for the Central Alternative’s Impact on Transporting Agricultural Crops

County	Commodity	Increase trans costs	Decrease in income
Bolivar	Corn	\$13,077	-\$16,085
Coahoma		\$19,721	-\$24,257
Sunflower		\$33,548	-\$41,264
Tunica		\$1,992	-\$2,450
Bolivar	Soybeans	\$250,651	-\$308,301
Coahoma		\$127,944	-\$157,371
Sunflower		\$186,679	-\$229,615
Tunica		\$79,823	-\$98,183
Bolivar	Rice	\$162,685	-\$200,103
Coahoma		\$23,678	-\$29,124
Sunflower		\$70,396	-\$86,587
Tunica		\$48,344	-\$59,463
Bolivar	Cotton	\$155,890	-\$191,745
Coahoma		\$236,197	-\$290,522
Sunflower		\$117,154	-\$144,099
Tunica		\$124,712	-\$153,396
Totals		\$1,652,491	-\$2,032,564



Strategic Development/Business Attraction Benefits

The final category of benefits examined includes the strategic development impacts. These arise as result of expanding the connectivity, accessibility and mobility in communities impacted by the development of a new interstate. For example, if large tracts of developable land with completed infrastructure such as water and sewer exist, but the road leading to that land does not offer seamless connectivity to national markets, it is unlikely the land will be developed, or it may be developed in a fashion that does not represent its highest and best use. If the interstate creates better connectivity to national markets and trade corridors, new opportunities for development may arise. This represents strategic development benefits.

Transportation conditions and improvements to them have the potential to significantly affect business access to customer markets and suppliers. We can measure external transportation access in terms of the average travel time to airports, marine ports, and rail facilities (including both passenger and truck/rail intermodal terminals). We can also measure internal transportation access in terms of average speed of highway congestion levels.

Tourism is another important source of economic growth for some areas. The extent to which Interstate 69 could help boost tourism in the region is a direct result of both the strength of local attractions and the availability of access to them via highway, rail and/or air travel. Obviously, the casino developments in Tunica serve as a huge economic generator for the region and easier access to these facilities via I-69 could foster even more growth in this industry.

Other important factors affecting the study area's prospects for economic development include the conditions of industrial sites and buildings, availability of business support programs, and level of local labor force skills and education training.

As part of the evaluation of I-69, the consultant team utilized their Economic Development and Growth Evaluation (EDGE) tool to assess the potential for business attraction and strategic development benefits.¹ An inventory of local conditions for each of the counties in the study region was undertaken over a period of four days of on-site visits to provide data regarding additional business facilities and supporting resources that affect the study area's attractiveness for business. This inventory, combined with an assessment of the existing economic base, was used to identify and assess the study area's strengths and weaknesses in terms of business support programs, industrial land and buildings, labor force, and other key considerations which served as input into the EGDE model.

¹ EDGE is a proprietary WSA software tool that integrates land use and other community attributes to evaluate the business attraction potential of alternative investments, including transportation improvements.



The policy portion of EDGE model allows users to analyze the effects of future economic development policies and actions on the business growth and attraction potential of a local area. For the purposes of the current study, we modeled the potential business attraction impact of each of I-69 alternatives. Impacts of the proposed improvements are based on the relative competitive position of the study region with regards to attracting businesses. The EDGE tool provides an assessment of the regions best opportunity for growth by industry based on national industry trends as well as an evaluation of the competitive disadvantages of the region in competing to attract firms in those industries. A summary of the findings for the study region is provided in Exhibit 10. An estimate of the employment and income potential arising from increased business attraction potential was then calculated for each of the alternatives.

Exhibit 10 – Business Attraction Opportunities and Competitive Disadvantages

Alternative	Business Attraction Opportunity	Competitive Disadvantage
Western	Agricultural services, General contracting, Misc. manufacturing, wholesale distribution, General merchandise retail	Lack of sites with infrastructure, Lack of available buildings, Lack of broadband infrastructure, Worker base
Central	Agricultural services, General contracting, Transportation equipment manufacturing, Industrial machinery manufacturing, Misc. manufacturing, Trucking and warehousing, Wholesale distribution, General merchandise retail, Personal services	Worker base, Lack of broadband infrastructure, Lack of available buildings
Eastern/Modified Eastern	Agricultural services, General contracting, Food manufacturing, Misc. manufacturing, wholesale distribution, General merchandise retail, Personal services	Worker base, Lack of sites with infrastructure, Lack of available buildings, Lack of broadband infrastructure



IV. Results

Exhibit 11 summarizes the results of the economic analysis of the I-69 alternatives based on the methodology described in the previous section.

Exhibit 11 – Summary of Economic Impacts of the Proposed I-69 Alternatives

	Central Alternative		Western Alternative		Eastern Alternative		Modified Eastern	
	Income	Employment	Income	Employment	Income	Employment	Income	Employment
Travel Efficiency Impacts	NA	NA	-\$6,200,700	-370	-\$9,921,170	-585	-\$17,405,500	-1030
Agricultural Transportation Impacts	-\$2,032,564	-78	NA	NA	NA	NA	NA	NA
Business Attraction Potential	\$69,448,830	2757	\$30,807,370	1223	\$65,871,850	2615	\$55,166,100	2190
Total	\$67,416,266	2679	\$24,606,670	853	\$55,950,680	2030	\$37,760,600	1160

The travel efficiency benefits are reported with the Central Alternative as the baseline. This is due to the fact that the current traffic assignment model utilizes only existing facilities. The variance from the baseline or central alternative could be either negative or positive based on the impact on travel distances. In this case, the travel efficiency impacts are negative for the Western and both of the Eastern Alternatives, indicating that the Central Alternative provides a greater portion of the study region population with a more efficient route based on travel distance.

Specifically, when comparing the Western Alternative to the Central Alternative, 1,100 households would benefit more by the Western Alternative compared to 2,300 for the Central. Households with no advantage based on travel distance totaled 2,100. The analysis reveals that when comparing the Eastern to the Central Alternative, 5,950 would be better off with the Eastern route compared to 8,203 for the Central. The Modified Eastern would be preferable by 3,989 households compared to 4,168 for the Central.

Combining the household distance preference with the distance of the alternatives and number of trips per household yields estimates of Vehicle Miles Traveled (VMTs). Compared to the Central Alternative, the Western Alternative would give rise to 28,500 additional daily VMTs, the Eastern yields 45,600 additional daily VMTs, and the Modified Eastern yields an even more significant additional 85,000 daily VMTs. This translates into additional annual vehicle operating costs for the Western Alternative of \$ 4.2 million and \$6.7 million and \$11.8 million for the Eastern and Modified Eastern Alternatives, respectively. This increase in costs translates into less additional income and jobs for the region.

The agricultural impacts are based on the assumption that updating the existing US 61 to I-69 for the Central Alternative would result in higher transportation costs for local farmers as a result of lower weight limits. Therefore, these costs are only relevant for the Central Alternative and show up as a loss in income and employment for the region should the Central Alternative be constructed. Specifically, the Central Alternative would result in \$1.7 million in additional transportation costs annually. However, the jobs and income loss as a result of this increase in agricultural transportation costs does not offset the gain realized as a result of travel efficiency savings of the Central Alternative.



The final group of impacts examined is the strategic development impacts. As can be seen in the summary table, the Central Alternative led all other options in this category. The primary driver was the existing infrastructure which has been developed along the existing Highway 61. It will be much easier to develop the land along this corridor than on new location because significant complimentary infrastructure such as water and sewer access has been developed relative to the other alternatives. Not only will this result in a higher level of economic development benefits but the benefits are expected to begin to accrue much sooner along the Central Alternative.

V. Conclusion

An analysis of the potential for the new Interstate 69 to serve as a catalyst to economic development in the Mississippi Delta was conducted. The alternatives examined included the Western, Central, Eastern and Modified Eastern. Three types of potential impacts were examined – vehicle operating costs, agricultural transportation costs and strategic development impacts. The strategic development impacts proved to be the most significant source of potential benefits for the region.

Using traditional transportation economics methods and the WSA EDGE tool, the results indicate that the Central Alternative exhibits greater potential for creating additional jobs and income for the residents of the Delta Region than the other alternatives.