TIGER Discretionary Grant Application

High Priority Corridor 1

Northern Extension of Interstate 49:

Facilitating International & Domestic Commerce & Tourism

Submitted by the Louisiana Department of Transportation and Development

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A. Overview

A sum of $195 million is requested for the extension of Interstate 49 in Louisiana from Interstate 220 in Shreveport to the Arkansas state line, a distance of approximately 36 miles. A portion of the project is located within the Shreveport Metropolitan Area; the remainder is in a rural area of Caddo Parish. The project is located entirely within Louisiana's 4th Congressional District represented by the Honorable John Fleming. In response to the specific application requirements, the following is offered:

Project Type: Highway (extension of Interstate 49)

Project Location: State of Louisiana
City of Shreveport
Caddo Parish
4th Congressional District

Urban/Rural: A portion of the project is located within the Shreveport Metropolitan Area; the remainder is in a rural area.

Amount Requested: $195 million

B. Contact Information

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C. Project Description

The northern extension of Interstate 49, also referred to in Louisiana as the North-South Expressway, is a four-lane, divided, fully controlled access highway, on new location, approximately 36 miles in length, in Caddo Parish, Louisiana. The project begins at Interstate 220 in Shreveport, Louisiana and ends at the Arkansas state line at a point aligning with the future alignment of the highway north of the state line as specified in the Final Environmental Impact Statement (EIS) from Texarkana, Arkansas to the Louisiana state line.

The northern extension of I-49 was first studied in 1988 as part of a multi-state effort led by the Arkansas State Highway and Transportation Department to examine the economic feasibility of constructing a highway to Interstate standards between Shreveport and Kansas City, Missouri. The study was prepared in response to Section 166 of the 1987 Surface Transportation Act. The results showed that such a facility would provide significant benefits to all three states.

In the Intermodal Surface Transportation Efficiency Act (1991), Congress designated the extension of I-49 from Shreveport to Kansas City as High Priority Corridor 1. The goal is to develop a transcontinental corridor to link the Gulf Coast with the central United States and Canada in support of international and domestic commerce, and tourism. From Kansas City, I-29 completes the link to Canada crossing the border just south from Winnipeg, Manitoba. The corridor concept is illustrated in Figure 1 including High Priority Corridor 37 which would extend I-49 south from Lafayette, Louisiana to New Orleans.

In 1995, the Louisiana Department of Transportation and Development (LA DOTD) completed a more detailed feasibility study for the 36-mile section from I-220 to the Arkansas state line. This study included a comprehensive traffic analysis, an examination of existing environmental information, and public information meetings. Several corridors of 2000 feet in width were developed for this section.

In 1996, a Notice of Intent to prepare an EIS was published in the Federal Register. In 1997, LA DOTD initiated the preparation of the EIS; the Final EIS was completed in 2001. The Record of Decision (ROD) for the project was signed on May 4, 2001. Both of the aforementioned feasibility studies as well as the Final EIS and ROD may be accessed at: http://www.dotd.la.gov/administration/public_info/projects/i49north/. The selected alignment is illustrated in Figure 2.

The principal purpose of the I-49 corridor (High Priority Corridor 1) is to improve system linkage and accessibility in support of international and domestic commerce, and tourism. The project represents an important link in the national, as well as Louisiana's, transportation network. Currently, a gap exists in the north-south Interstate network between I-35 and I-55 (a distance of approximately 400 miles). Development of High Priority Corridor 1 will fill this gap and augment the Interstate system serving the Midwest and other central states. In Kansas City, I-49 would link with Interstates 29 and 70. The facility would intersect with six east-west Interstates, namely Interstates 10, 20, 30, 40, 44, and 70. Linkage with Interstates 80, 90, and 94 would also be made via I-29 and I-35 north of Kansas City.

The extension of I-49 to the north will increase the transportation efficiency for industries dependent upon trucking. The project will facilitate the shipment of raw materials and finished products. Further, intermodal connectivity will be enhanced. The Shreveport Metropolitan Area is an emerging hub for freight transportation. With the completion of the Red River Waterway, barge services are now available via the Port of Caddo-Bossier. Shreveport Regional Airport handles significant air cargo volumes and both KCS Railway Company and Union Pacific Railroad operate large intermodal facilities in the area.

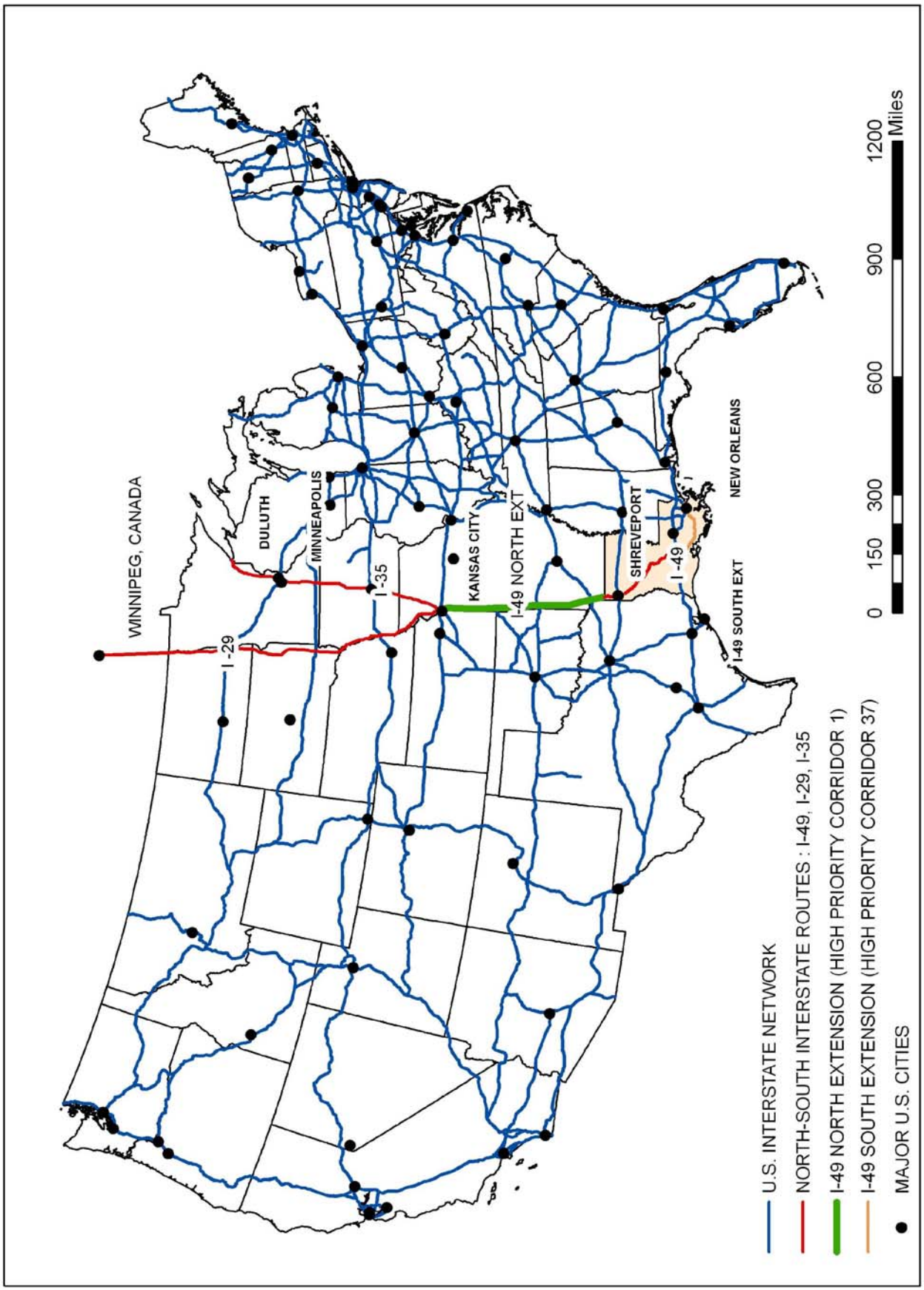

Figure 1
Transcontinental Corridor Linking the Gulf Coast with the Central United States and Canada

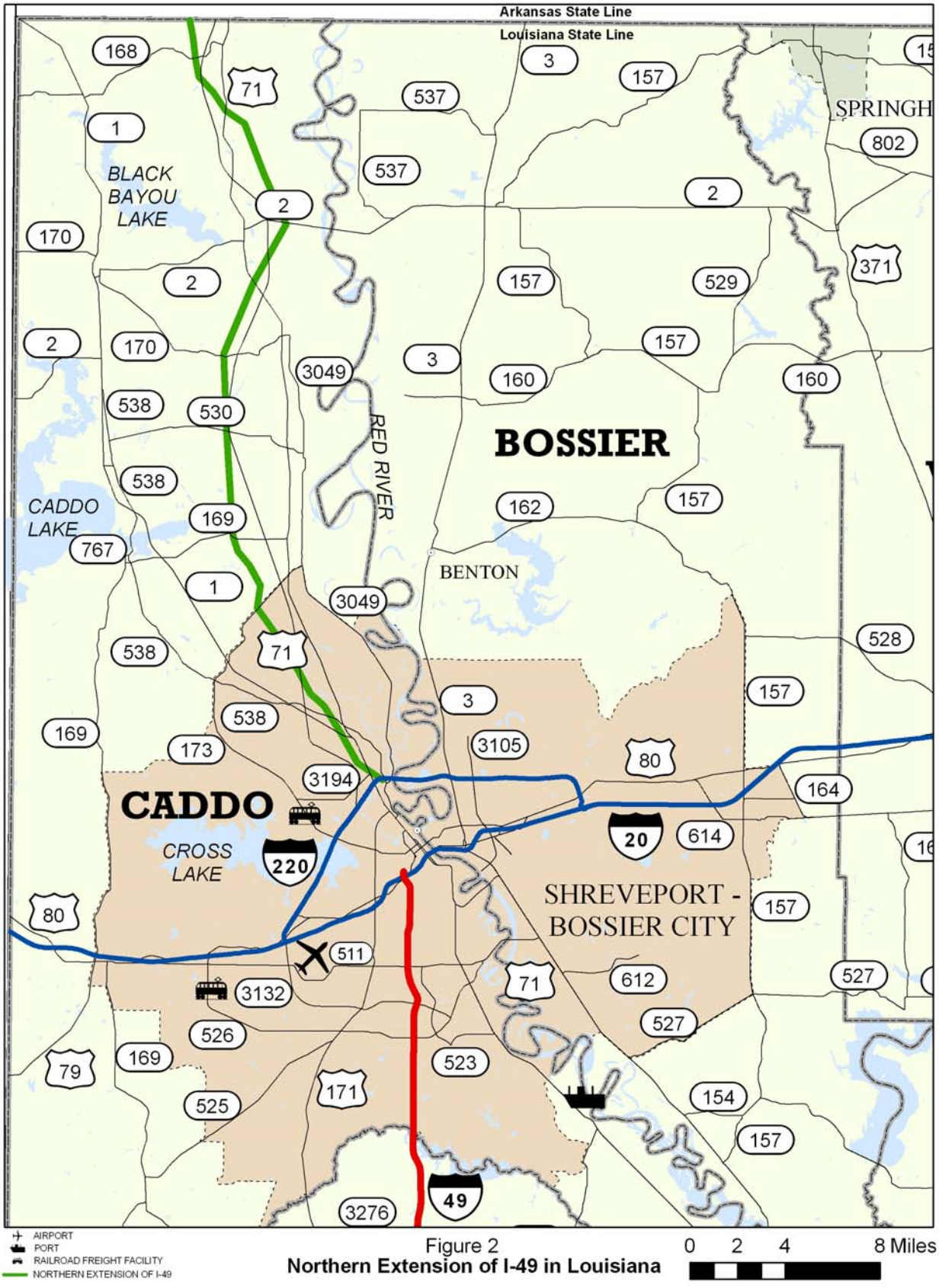

Figure 2
Northern Extension of I-49 in Louisiana

Traffic forecasts prepared as part of the aforementioned 1995 Feasibility Study for the corridor indicated volumes of over 37,000 vehicles per day just north of I-220 to over 10,000 vehicles per day at the state line in 2020. As part of the comprehensive update of the Louisiana Statewide Transportation Plan, a statewide travel demand forecasting model was developed to enable objective evaluation of major projects. The model accounts for external-external, external-internal, internal-external and internal-internal auto and truck trips. The model includes the entire continental United States. Outside of Louisiana, the zone structure becomes increasingly aggregate as the distance from the state increases. Within the state, the zone structure was established to forecast interregional travel; it is not nearly as refined as a metropolitan model and should not be used to estimate intra-urban travel. Analyses using the statewide model predict over 10,700 vehicles per day at the state line in 2020 with over 60 percent trucks. The statewide model and its output will be discussed in greater detail in the section on Long-Term Outcomes.

Since local traffic patterns will shift, the I-49 extension in Louisiana will alleviate current and projected congestion on a number of existing highways in the corridor, including US 71, LA 1, LA 2, LA 3, LA 173, and LA 538. The facility will benefit rural communities in the corridor by improving access to employment and services in the Shreveport Metropolitan Area and decreasing emergency response times. In addition, safety will be enhanced as traffic shifts from existing two-lane and four-lane conventional highways to the new facility. In rural areas of Louisiana, the crash rate for Interstate highways is about one-half that of two-lane facilities.

Much of the project is funded and portions are already under construction. The project has been divided into eleven segments (A through K) as illustrated in Figure 3. The funding status of each of the segments is outlined in Table 1. A review of this information indicates that only three of the segments are in need of funding, all of which is for construction. The total needed is just over $195 million out of a total project cost of nearly $610 million. The segments for which construction funding is required are listed below. Segment E is partially funded from other sources; the amount shown below is the balance needed. The construction estimates have been increased by 20 percent to cover construction engineering, inspection, indirect costs, and contingencies.

Segment E	LA 170 to US 71	3.0 miles	$ 38.8 million
Segment J	MLK Blvd. to LA 1	4.25 miles	$ 60.5 million
Segment K	I-220 to MLK Blvd.	1.0 miles	$ 96.7 million
		Total:	$196.0 million

D. Project Parties

The Louisiana Department of Transportation and Development (LA DOTD), Post Office Box 94245, Baton Rouge, LA 70804-9245 will be the recipient for this TIGER Discretionary Grant. Effective July 27, 2009, the Federal Highway Administration and LA DOTD have amended the 2007 Stewardship and Oversight Plan to outline additional actions that the FHWA LA Division and the LA DOTD will undertake to ensure ARRA funds are obligated and expended in accordance with both Title 23 United States Code and the specific requirements stated in the ARRA.

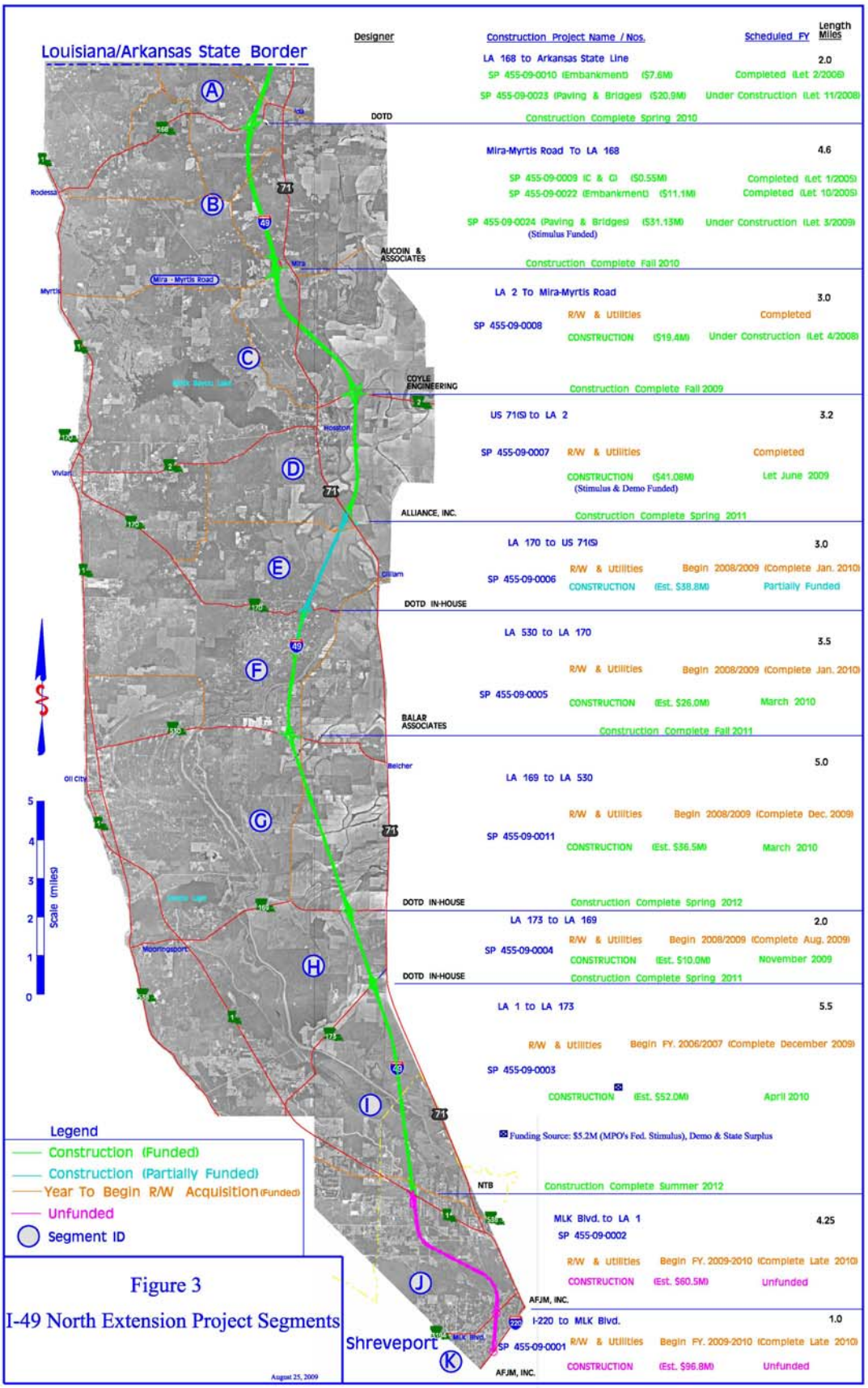
Louisiana/Arkansas State Border
Designer
Construction Project Name / Nos.
Scheduled FY
Length Miles
LA 168 to Arkansas State Line
2.0
SP 455-09-0010 (Embankment) ($7.6M) Completed (Let 2/2006)
SP 455-09-0023 (Paving & Bridges) ($20.9M) Under Construction (Let 11/2008)
DOTD
Construction Complete Spring 2010
Mira-Myrtis Road To LA 168
4.6
SP 455-09-0009 (C & G) ($0.55M) Completed (Let 1/2005)
SP 455-09-0022 (Embankment) ($11.1M) Completed (Let 10/2005)
SP 455-09-0024 (Paving & Bridges) ($31.13M) Under Construction (Let 3/2009)
(Stimulus Funded)
AUCOIN & ASSOCIATES
Construction Complete Fall 2010
LA 2 To Mira-Myrtis Road
3.0
SP 455-09-0008
R/W & Utilities Completed
CONSTRUCTION ($19.4M) Under Construction (Let 4/2008)
COYLE ENGINEERING
Construction Complete Fall 2009
US 71(S) to LA 2
3.2
SP 455-09-0007 R/W & Utilities Completed
CONSTRUCTION ($41.08M) Let June 2009
(Stimulus & Demo Funded)
ALLIANCE, INC.
Construction Complete Spring 2011
LA 170 to US 71(S)
3.0
SP 455-09-0006
R/W & Utilities Begin 2008/2009 (Complete Jan. 2010)
CONSTRUCTION (Est. $38.8M) Partially Funded
DOTD IN-HOUSE
LA 530 to LA 170
3.5
R/W & Utilities Begin 2008/2009 (Complete Jan. 2010)
SP 455-09-0005
CONSTRUCTION (Est. $26.0M) March 2010
BALAR ASSOCIATES
Construction Complete Fall 2011
5.0
LA 169 to LA 530
R/W & Utilities Begin 2008/2009 (Complete Dec. 2009)
SP 455-09-0011
CONSTRUCTION (Est. $36.5M) March 2010
DOTD IN-HOUSE
Construction Complete Spring 2012
LA 173 to LA 169
2.0
R/W & Utilities Begin 2008/2009 (Complete Aug. 2009)
SP 455-09-0004
CONSTRUCTION (Est. $10.0M) November 2009
DOTD IN-HOUSE
Construction Complete Spring 2011
LA 1 to LA 173
5.5
R/W & Utilities Begin FY. 2006/2007 (Complete December 2009)
SP 455-09-0003
CONSTRUCTION (Est. $52.0M) April 2010
Funding Source: $5.2M (MPO's Fed. Stimulus), Demo & State Surplus
NTB
Construction Complete Summer 2012
MLK Blvd. to LA 1
4.25
SP 455-09-0002
R/W & Utilities Begin FY. 2009-2010 (Complete Late 2010)
CONSTRUCTION (Est. $60.5M) Unfunded
AFJM, INC.
I-220 to MLK Blvd.
1.0
SP 455-09-0001
R/W & Utilities Begin FY. 2009-2010 (Complete Late 2010)
CONSTRUCTION (Est. $96.8M) Unfunded
AFJM, INC.
Shreveport
Legend
Construction (Funded)
Construction (Partially Funded)
Year To Begin R/W Acquisition (Funded)
Unfunded
Segment ID
Scale (miles)
0 1 2 3 4 5
Figure 3
I-49 North Extension Project Segments
August 25, 2009

Table 1: Funding Status of I-49 Project Segments

Segment	Phase	Total Cost	Amount Funded	Funding Needed
A - LA 168 to Arkansas Line	Engineering	326,000	326,000	
	ROW Acquisition	1,300,000	1,300,000	
	Utility Relocation	280,000	280,000	
	Construction	34,440,000	34,440,000	
	Total Segment Cost	**36,346,000**	**36,346,000**	
B- Myra Myrtis Rd to LA 168	Engineering	1,086,000	1,086,000	
	ROW Acquisition	3,606,000	3,606,000	
	Utility Relocation	392,000	392,000	
	Construction1	14,091,840	14,091,840	
	Construction2	37,351,357	37,351,357	
	Total Segment Cost	**56,527,197**	**56,527,197**	
C - LA 2 to Myra Myrtis Rd	Engineering	492,000	492,000	
	ROW Acquisition	1,321,600	1,321,600	
	Utility Relocation	392,000	392,000	
	Construction	23,503,000	23,503,000	
	Total Segment Cost	**25,708,600**	**25,708,600**	
D - US 71 to LA 2	Engineering	806,000	806,000	
	ROW Acquisition	5,040,000	5,040,000	
	Utility Relocation	1,568,000	1,568,000	
	Construction	48,384,000	48,384,000	
	Total Segment Cost	**55,798,000**	**55,798,000**	
E - LA 170 to US 71	Engineering	896,000	896,000	
	ROW Acquisition	10,046,000	10,046,000	
	Utility Relocation	728,000	728,000	
	Construction	50,803,200	12,023,744	38,779,456
	Total Segment Cost	**62,473,200**	**23,693,744**	**38,779,456**
F - LA 530 to LA 170	Engineering	1,344,000	1,344,000	
	ROW Acquisition	19,900,000	19,900,000	
	Utility Relocation	437,000	437,000	
	Construction	31,450,000	31,450,000	
	Total Segment Cost	**53,131,000**	**53,131,000**	
G - LA 169 to LA 530	Engineering	450,000	450,000	
	ROW Acquisition	9,408,000	9,408,000	
	Utility Relocation	1,120,000	1,120,000	
	Construction	44,161,600	44,161,600	
	Total Segment Cost	**55,139,600**	**55,139,600**	

Table 1: Funding Status of I-49 Project Segments (continued)				
Segment	**Phase**	**Total Cost**	**Amount Funded**	**Funding Needed**
H - LA 173 to LA 169	Engineering	280,000	280,000	
	ROW Acquisition	952,000	952,000	
	Utility Relocation	1,098,000	1,098,000	
	Construction	12,096,000	12,096,000	
	Total Segment Cost	**14,426,000**	**14,426,000**	
I - LA 1 to LA 173	Engineering	1,120,000	1,120,000	
	ROW Acquisition	5,488,000	5,488,000	
	Utility Relocation	2,240,000	2,240,000	
	Construction	62,900,000	62,900,000	
	Total Segment Cost	**71,748,000**	**71,748,000**	
J - MLK Blvd. to LA 1	Engineering	1,300,000	1,300,000	
	ROW Acquisition	4,760,000	4,760,000	
	Utility Relocation	1,904,000	1,904,000	
	Construction	60,480,000		60,480,000
	Total Segment Cost	**68,444,000**	**7,964,000**	**60,480,000**
K- I-220 to MLK Blvd.	Engineering	2,000,000	2,000,000	
	ROW Acquisition	2,800,000	2,800,000	
	Utility Relocation	2,352,000	2,352,000	
	Construction	96,768,000		96,768,000
	Total Segment Cost	**103,920,000**	**7,152,000**	**96,768,000**
I-49 - I-220 to Arkansas Line	**Environmental**	**3,875,000**	**3,875,000**	
	Engineering	**10,100,000**	**10,100,000**	
	ROW Acquisition	**64,621,600**	**64,621,600**	
	Utility Relocation	**12,511,000**	**12,511,000**	
	Construction	**516,428,997**	**320,401,541**	**196,027,456**
	Geotechnical Borings	**2,000,000**	**2,000,000**	
	Total Cost	**609,536,597**	**413,509,141**	**196,027,456**

E. Grant Funds and Sources and Uses of Project Funds

An overview of the funding allocated and balance needed for the project is provided below:

Federal Sources	Federal ID No.	Obligation Authority
ISTEA/Tea 21 earmarks	LA 017	$ 33.7 million
FY 03 IMD		$ 1.0 million
FY 99 Corridor & Border		$ 1.0 million
FY 04 Appropriation	LA 061	$ 3.0 million
FY 05 Appropriation	LA 073	$ 1.0 million
NCPD FY 95		$ 1.9 million
SAFETEA-LU earmark including RABA	LA 132	$ 22.5 million
SAFETEA-LU earmark (NCIIP)	LA 173	$135.9 million
SAFETEA-LU earmark (NCIIP)	LA 175	$ 24.9 million
TTHUD 2006	LA 182	$ 0.5 million
ARRA (from State allocation)		$ 42.0 million
ARRA (from Shreveport MPO allocation)		$ 5.2 million
	Total Federal	$272.6 million

State Sources	
State Transportation Trust Fund (1997)	$ 0.8 million
Act 27 of 2006 Capital Outlay Bonds	$ 5.0 million
Act 203 of 2007 General Fund Surplus	$ 57.0 million
Act 29 of 2008 Unclaimed Property Fund (FY 08 & FY 09)	$ 15.0 million
Act 29 of 2008 Capital Outlay Cash	$ 3.6 million
Act 7 of 2008, 2nd Special Session, General Fund Surplus	$ 17.0 million
Act 20 of 2009 General Fund Surplus	$ 10.0 million
Act 20 of 2009 General Fund Surplus	$ 25.0 million
Act 20 of 2009 Unclaimed Property Fund (FY 10)	$ 7.5 million
Total State	$140.9 million

Federal Highway Funds Committed	$225.4 million	37.0 percent
Federal ARRA Funds Committed	$ 47.2 million	7.7 percent
State Funds Committed	$140.9 million	23.1 percent
Funding Needed	$196.0 million	32.2 percent
Estimated Cost of Project	$609.5 million	100.0 percent

TIGER Discretionary Grant request: $195 million (32 percent of project cost)

The three segments for which construction funding is required are listed below.

Segment E	LA 170 to US 71	3.0 miles	$ 38.8 million
Segment J	MLK Blvd. to LA 1	4.25 miles	$ 60.5 million
Segment K	I-220 to MLK Blvd.	1.0 miles	$ 96.7 million
			$196.0 million

F. Selection Criteria

1. Primary Selection Criteria

This TIGER Discretionary grant application is to complete Louisiana's portion (from I-220 in Shreveport to the Arkansas state line) of a multi-state corridor. Examining only the benefits of this section does not provide an accurate assessment of the value of the project. Therefore in quantifying benefits for use in the economic analysis and in the benefit-cost analysis, the entire I-49 corridor from Shreveport to Kansas City was used. In the spring of 2009, the Arkansas State Highway and Transportation Department, in consultation with LA DOTD and the Missouri Department of Transportation, updated a cost and schedule to complete the multi-state corridor. With an adequately funded federal transportation bill and an emphasis on investments that produce national benefits, the entire corridor can be completed and open to traffic by 2020.

(a) Long-Term Outcomes

State of Good Repair: The extension of I-49 in Louisiana involves the construction of approximately 36 miles of Interstate highway on new alignment. Other than a shift in traffic to the new facility which will reduce the rate of deterioration of existing highways in the corridor, the project has no impact on the condition of existing transportation infrastructure. However, the larger project, from Shreveport to Kansas City, yields a substantial decrease in vehicle-miles traveled (VMT) for both autos and trucks (discussed in greater detail below). This reduction in VMT will have a net positive impact on the rate of deterioration of highway infrastructure in the corridor region. The LA DOTD will operate and maintain the facility.

Economic Competitiveness: The principal purpose of the I-49 corridor (High Priority Corridor 1) is to improve system linkage and accessibility in support of international and domestic commerce, and tourism. The project represents an important link in the national, as well as Louisiana's, transportation network. Currently, a gap exists in the north-south Interstate network between I-35 and I-55 (a distance of approximately 400 miles). Development of High Priority Corridor 1 will fill this gap and augment the Interstate system serving the Midwest and other central states. In Kansas City, I-49 would link with Interstates 29 and 70. The facility would intersect with six east-west Interstates, namely Interstates 10, 20, 30, 40, 44, and 70. Linkage with Interstates 80, 90, and 94 would also be made via I-29 and I-35 north of Kansas City.

The extension of I-49 to the north will increase the transportation efficiency for industries dependent upon trucking. The project will facilitate the shipment of raw materials and finished products. Further, intermodal connectivity will be enhanced. The Shreveport Metropolitan Area is an emerging hub for freight transportation. With the completion of the Red River Waterway, barge services are now available via the Port of Caddo-Bossier. Shreveport Regional Airport handles significant air cargo volumes and both KCS Railway Company and Union Pacific Railroad operate large intermodal facilities in the area.

In addition, access to the deep draft ports on the lower Mississippi River, including the Ports of Plaquemines, St. Bernard, New Orleans, South Louisiana, and Baton Rouge, and ports elsewhere along the Gulf Coast, including Houston, Lake Charles, Gulfport, and Mobile will be improved.

In updating the Louisiana Statewide Transportation Plan, completed in 2003, the LA DOTD developed a travel demand forecasting model that included both "macro" and "micro" components. The macro model extends nationwide to capture external-external, external-internal, and internal-external traffic in Louisiana, particularly truck trips. The macro model includes 529 traffic analysis zones (TAZs) comprised of 154 Bureau of Economic Analysis (BEA) zones, 311 counties in six adjacent states, and the 64 parishes in Louisiana. The National Highway Planning Network is used in the model. Beyond the county-level TAZs in the six adjacent states, the model employs only Interstate highways in the network. The macro model zone structure and highway network are illustrated in Figures 4 and 5, respectively.

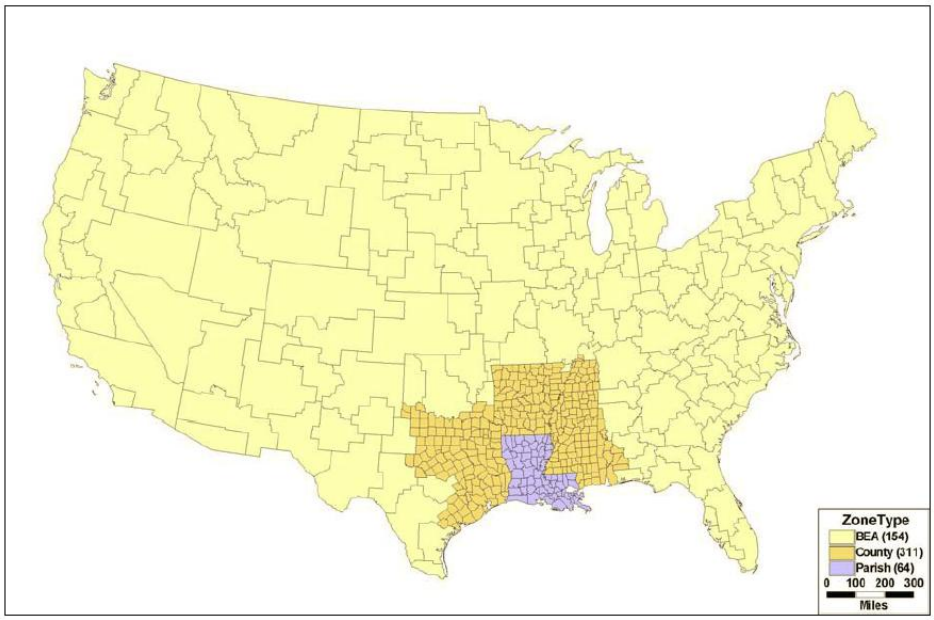

Figure 4: Macro Model Zone Structure

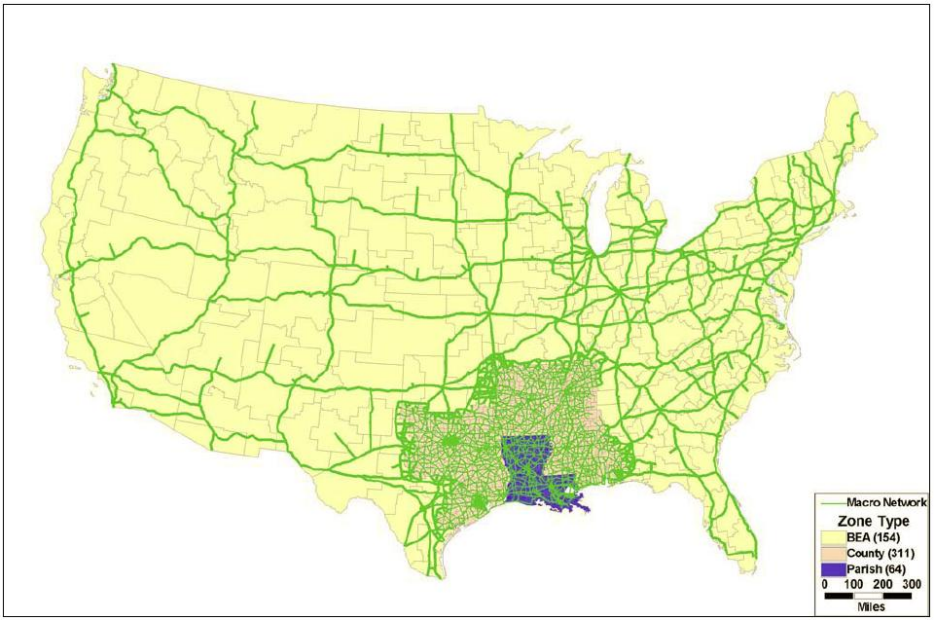

Figure 5: Macro Model Network

The micro model includes 1313 TAZs consisting of the aggregation of MPO model zones into 184 TAZs, 270 Census Places, 818 Census Block Groups, and 41 macro network state line crossings. The micro model is not a substitute for the metropolitan travel demand forecasting models, but rather serves as a supplement to them for estimating intercity travel within the state.

The macro-micro model framework allows LA DOTD to evaluate multi-state projects or projects in adjacent states that impact Louisiana, and major projects internal to the state. However, the macro model will likely underestimate local traffic since the TAZ structure is coarse (i.e., county- and BEA-level TAZs). Outside of Louisiana, local trips within TAZs are not reflected in the model output. Further, the model is structured to estimate traffic that directly impacts Louisiana; the model is not designed to estimate traffic that has no opportunity to impact Louisiana. For example, the model is not designed to estimate traffic flows between the Denver and St. Louis TAZs.

The I-49 corridor from Shreveport to Kansas City was modeled to estimate the impacts on the nation's transportation system. Figures 6 through 9 show the 2020 and 2030 forecast volumes for autos and trucks, respectively. Auto traffic ranges from about 4400 to over 21,000 per day in 2020. In 2030, auto volumes range from nearly 4700 to over 23,000. Truck traffic ranges from over approximately 5300 to nearly 8,600 per day in 2020. In 2030, truck traffic ranges from over 6200 to over 10,000 per day.

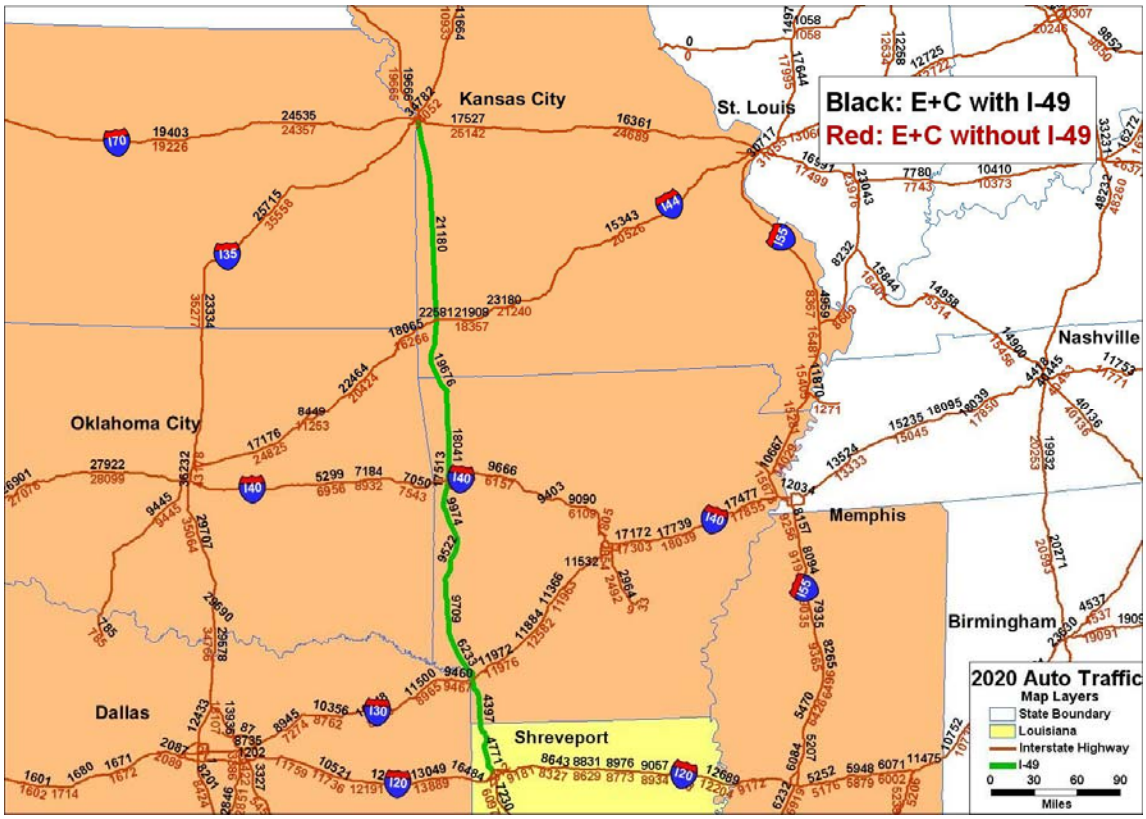

Figure 6: 2020 Interstate Auto Traffic

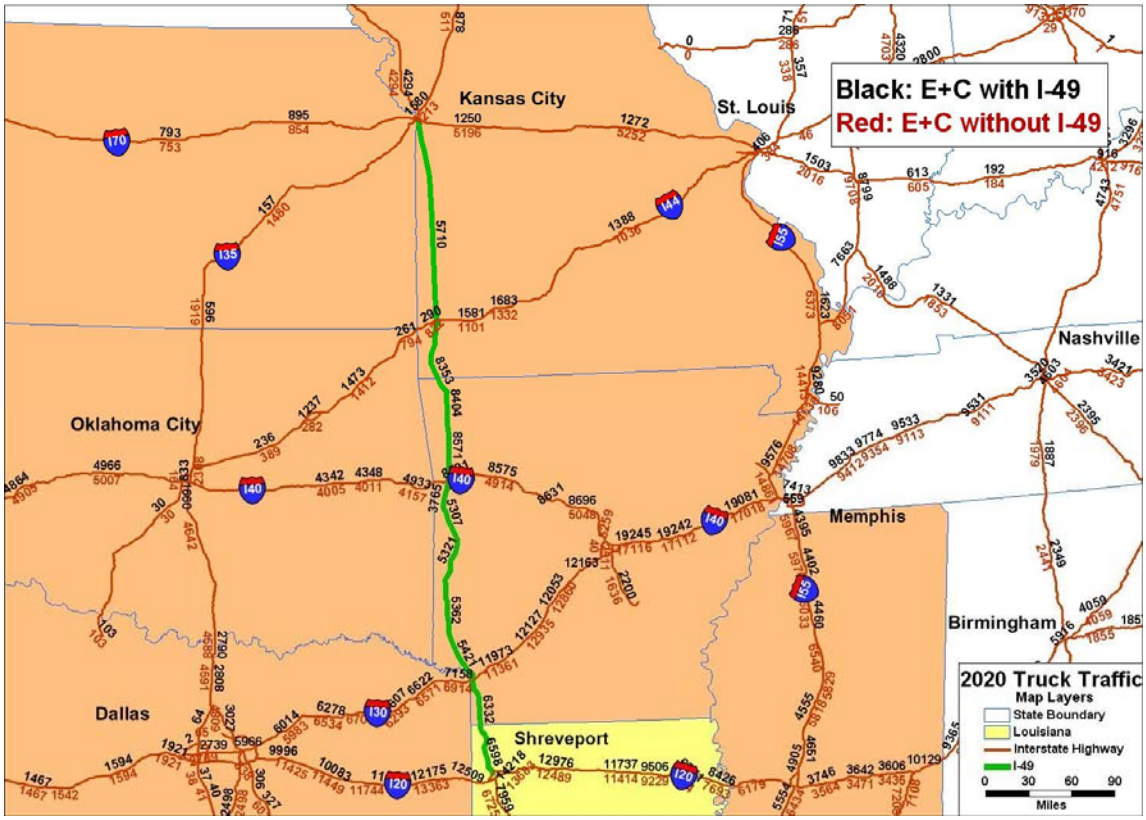

Figure 7: 2020 Interstate Truck Traffic

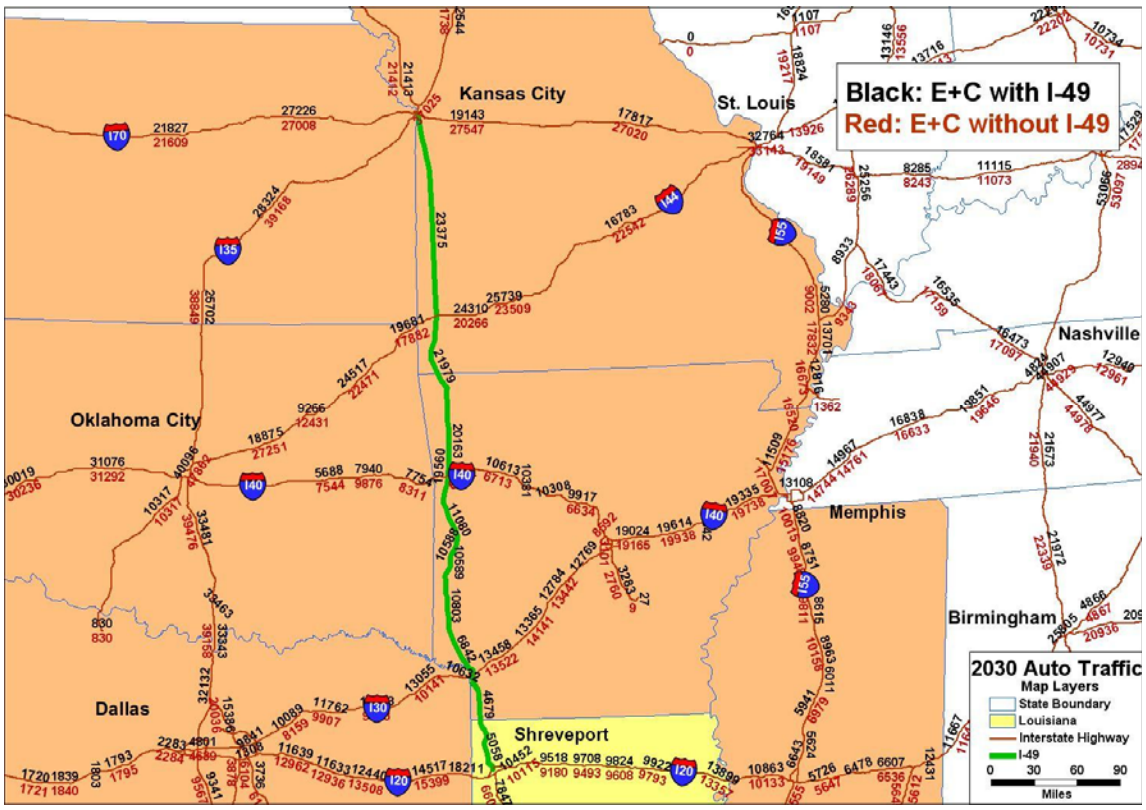

Figure 8: 2030 Interstate Auto Traffic

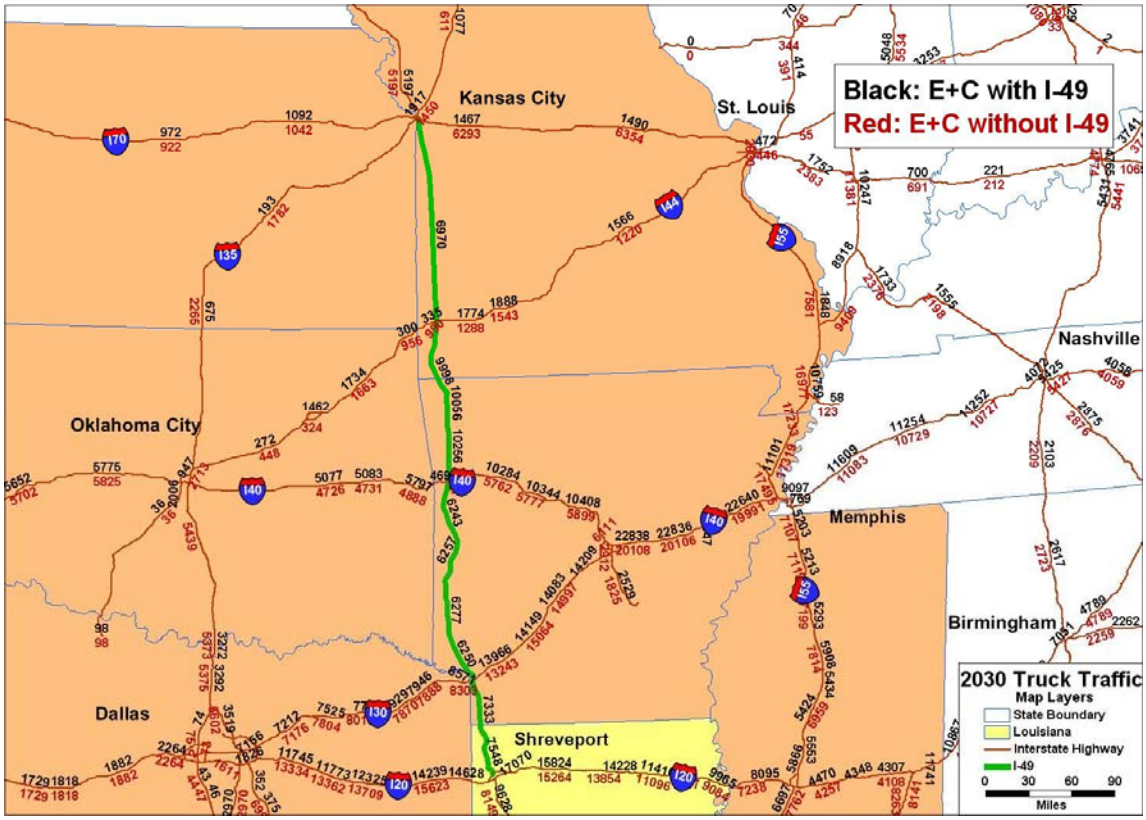

Figure 9: 2030 Interstate Truck Traffic

Developing this corridor yields national savings in 2030 of 1.7 billion auto miles traveled, nearly 250 million truck miles traveled, over 26 million vehicle-hours for autos, and 5 million vehicle-hours for trucks. The model results show that traffic shifts on the national network to take advantage of the reduction in travel times and distances that the corridor provides between regions and between cities. For example, travel distance and time between New Orleans and Kansas City will be reduced by about 130 miles and 2 hours (see Figures 10 and 11). The estimated travel distance and time savings to the nation are summarized in Table 2.

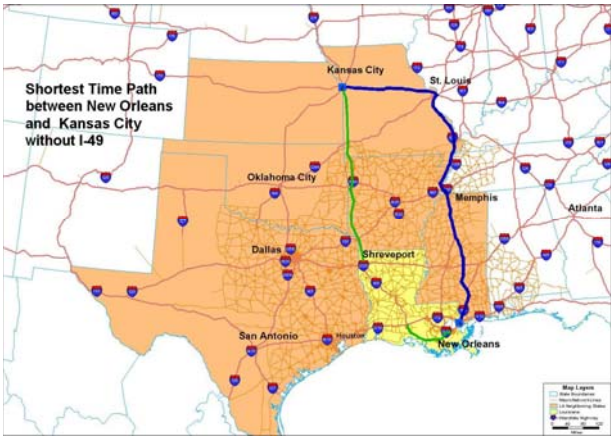

Figure 10: Shortest Time Path - New Orleans to Kansas City without I-49

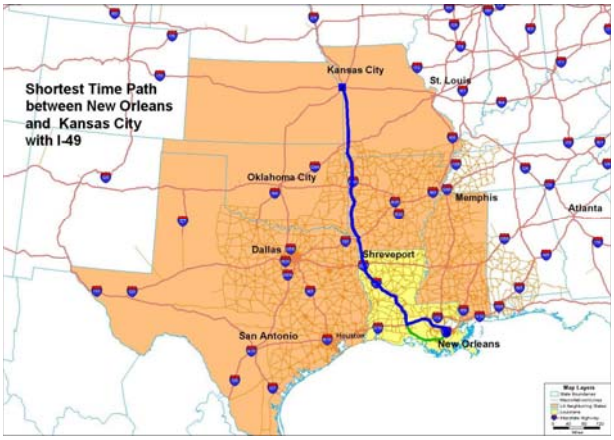

Figure 11: Shortest Time Path – New Orleans to Kansas City with I-49

Table 2: Travel Time and Distance Savings with I-49, Shreveport to Kansas City

Year	Annual Savings: Auto-Miles Traveled (millions)	Annual Savings: Truck-Miles Traveled (millions)	Annual Savings: Auto-Hours Traveled (millions)	Annual Savings: Truck-Hours Traveled (millions)
2020	1,519	206	24.2	4.2
2021	1,534	210	24.4	4.3
2022	1,549	214	24.7	4.4
2023	1,565	218	24.9	4.5
2024	1,580	222	25.2	4.5
2025	1,595	226	25.4	4.6
2026	1,611	230	25.6	4.7
2027	1,626	235	25.9	4.8
2028	1,641	239	26.1	4.9
2029	1,657	243	26.4	4.9
2030	1,672	247	26.6	5.0
2031	1,687	251	26.9	5.1
2032	1,703	255	27.1	5.2
2033	1,718	259	27.3	5.3
2034	1,733	264	27.6	5.4
2035	1,749	268	27.8	5.4
2036	1,764	272	28.1	5.5
2037	1,779	276	28.3	5.6
2038	1,795	280	28.6	5.7
2039	1,810	284	28.8	5.8
Total	33,287	4,899	529.9	99.8

From the model analysis, the travel impacts on various classes of highway were estimated. Travel on conventional 2-lane and 4-lane highways, as well as existing Interstate highways, is reduced as traffic shifts on the network due to the completion of I-49 from I-220 to I-70. The overall reduction in vehicle-miles traveled (VMT), and the shift in VMT from one facility type to another, impacts both highway safety and air quality/green house gas emissions. The annual savings in VMT for the various highway facility types are quantified in Table 3.

Table 3: Annual VMT Savings by Highway Facility Type with I-49, Shreveport to Kansas City

Facility Type	2020	2030
2-Lane Conventional	518 million	578 million
4-Lane Conventional	28 million	29 million
Interstate	1,192 million	1,328 million
Total	1,738 million	1,935 million

Crash rates for these same facility types are listed in Table 4. These rates are for Louisiana highways but are assumed to be typical of this region. The estimated crash reductions associated with the project are provided in Table 5.

Table 4: Average Crash Rates by Highway Facility Type

Facility Type	Property Damage Only (crashes/MVMT)	Injury (crashes/MVMT)	Fatal (crashes/MVMT)
2-Lane Conventional	0.579	0.474	0.025
4-Lane Conventional	0.390	0.277	0.014
Interstate	0.370	0.215	0.011

Table 5: Estimated Crash Reductions Associated with I-49, Shreveport to Kansas City

Year	Property Damage Only Crashes	Injury Crashes	Fatal Crashes
2020	752	510	26
2021	760	515	27
2022	769	521	27
2023	777	527	27
2024	786	533	28
2025	794	538	28
2026	803	544	28
2027	811	550	29
2028	820	556	29
2029	828	561	29
2030	837	567	29
2031	845	573	30
2032	854	579	30
2033	862	584	30
2034	871	590	31
2035	879	596	31
2036	888	602	31
2037	896	608	32
2038	905	613	32
2039	913	619	32
Total	16,652	11,286	586

An analysis of the long-term economic benefits of the extension of I-49 from Shreveport to Kansas City was undertaken using the Regional Economic Models Incorporated (REMI) TranSight 3.0 software. LA DOTD leases a one-area model (i.e., Louisiana) from REMI. It incorporates state-specific data with national economic trends and relationships to produce a mathematical reproduction of the state economy. REMI is a dynamic input-output economic model; it can estimate the immediate impacts of a policy action and the long-term impacts of that action. For a transportation investment, the model will estimate the impacts of the initial construction and the long-term impacts that the project's benefits will yield to the economy.

The Louisiana one-area model can estimate the economic impacts of a transportation project to the state as a whole; it cannot estimate sub-state impacts or impacts in other states. Therefore, for the purposes of analysis, only the user benefits that result in direct savings to businesses and consumers in Louisiana serve as inputs to the model. These include travel distance, travel time, and safety benefits. For the purposes of analysis, it was assumed that 13.1 percent of the auto travel time savings is business related (i.e., on-the-clock); therefore, 86.9 percent of the auto travel time savings was excluded from the economic analysis but has been included in the benefit-cost analysis presented later in this document. Further, user benefits associated with external-external trips were excluded from the economic analysis since these benefits do not accrue to Louisiana but rather to businesses and consumers in other states; however, these benefits have been included in the benefit-cost analysis.

The results of the economic analysis are presented in Table 6. The value to Louisiana of extending I-49 from Shreveport to Kansas City is an increase of 5,687 jobs, $596 million in gross state product (2000 dollars), and $1.26 billion in personal income (nominal dollars) by 2039 over the "no build" forecasts. The project also facilitates domestic and international trade.

Table 6: Net Economic Benefits Associated with I-49, Shreveport to Kansas City

Economic Variable	Year					
	2020	2023	2027	2031	2035	2039
Total Employment	2,786	3,404	4,095	4,625	5,154	5,687
- Management, business, finance	121	181	241	283	324	361
- Computer, math, arch, engr, tech	10	33	60	80	100	118
- Life, physical, social scientists	13	18	24	29	34	38
- Community, social services	47	60	80	97	116	134
- Legal	1	7	13	18	23	27
- Education, training, library	55	71	94	116	137	159
- Arts, entertainment, sports, media	10	17	26	33	41	48
- Healthcare	240	261	325	387	457	535
- Protective services (fire, police, etc)	90	115	143	165	185	204
- Food preparation and service	277	323	389	442	488	528
- Bldg, grounds, pers care, tourism	356	384	455	520	591	665
- Sales, office, administrative	386	497	627	724	817	907
- Farm, fish, forestry	015	16	16	16	15	14
- Construction	234	364	386	370	359	356
- Installation, maintenance, repair	129	161	187	204	221	238
- Production (manufacturing)	149	174	201	220	237	251
- Transportation and moving	224	253	284	309	333	356
Gross State Product (billions of 2000 $)	0.195	0.258	0.339	0.416	0.501	0.596
Personal Income (billions of nominal $)	0.195	0.321	0.487	0.673	0.922	1.261
Imports from Rest of Nation (bil. 2000$)	0.322	0.363	0.427	0.490	0.561	0.641
Imports from Rest of World (bil. 2000$)	0.050	0.056	0.067	0.079	0.092	0.108
Exports to Rest of Nation (billions 2000$)	0.333	0.374	0.425	0.476	0.530	0.587
Exports to Rest of World (billions 2000$)	0.003	0.012	0.023	0.033	0.043	0.051

Livability: The ability of the transportation system to provide safe and efficient access to hospitals and other health care facilities, schools, government offices, and retail stores as well as movement between communities can influence the quality of life for people living in rural areas. Further, adequate fire and police services are important for the protection of citizens and property. Louisiana communities in the I-49 corridor are presently connected to the Shreveport Metropolitan Area via two-lane highways. Completion of the northern extension of I-49 in Louisiana will benefit area residents by reducing emergency response times and improving access to employment opportunities, medical care, educational facilities, retail, and other goods and services.

In addition, the completion of I-49 in Louisiana will enhance access to other transportation modes for both citizens and businesses. Several modes of transportation are available in Shreveport. The Shreveport Regional Airport provides national service and links to airports with international service while the Shreveport Downtown Airport serves general aviation needs. Passenger bus service provides travel nationwide through the Kerrville and Greyhound Bus Lines with main stations in Shreveport. Two major railroads, the Kansas City Southern and Union Pacific, serve the area with rail yards and terminals. Lastly, the Port of Shreveport-Bossier, located on the Red River, began operations in 1997 providing freight transport by barge.

The completion of I-49 will also enhance recreation opportunities. Caddo Lake, Cross Lake, and numerous area bayous offer year round boating and fishing. Over 60 area parks provide picnic, hiking, and other outdoor recreation. Opportunities in the city include museums, art galleries, gardens, amusement parks, horse racing, and casino gaming.

Sustainability: Completion of the northern extension of I-49 will yield both substantial fuel savings and reductions in air pollutants and green house gas emissions due to a decrease in VMT. The VMT savings for autos and trucks were presented in Table 2 earlier in this document. Using the MOBILE 6.2 air quality model, the estimated reduction in various pollutants is provided in Table 7.

An Environmental Impact Statement has been completed for the northern extension of I-49 in Louisiana. The alignment selected for the facility meets the project purpose and need, has the least amount of wetlands impacts, and minimizes wetland impacts to the extent practicable in accordance with Section 404 b(1) Guidelines. The selected alignment minimizes impacts overall and best balances the benefits expected from the project with the overall impacts.

Safety: Completion of the northern extension of I-49 will yield substantial safety benefits due to the overall reduction in VMT and the shift in VMT from one facility type to another. The changes in VMT for the various highway facility types were presented in Table 3 earlier in this document. Average crash rates by facility type were presented in Table 4. The estimated crash reductions were presented in Table 5. Over a 20-year period, the estimated savings are 16,652 property-damage-only crashes, 11,286 injury crashes, and 586 fatal crashes valued at $4.2 billion in 2009 using a discount rate of seven percent and $9.1 billion in 2009 at a discount rate of three percent.

Table 7: Estimated Pollutant Reductions Associated with I-49, Shreveport to Kansas City

Year	Annual Reductions in Air Pollutants (metric tons)			
	VOC	NO_X	CO	CO_2
2020	674	756	11,275	974,834
2021	647	699	11,264	985,957
2022	619	917	11,281	996,959
2023	611	594	11,034	1,008,121
2024	611	559	11,353	1,019,159
2025	605	523	11,065	1,030,271
2026	606	204	9,402	1,041,293
2027	608	466	9,451	1,052,315
2028	607	437	9,392	1,063,337
2029	612	421	9,485	1,074,359
2030	616	412	9,565	1,085,381
2031	619	397	9,657	1,096,402
2032	625	397	9,755	1,107,424
2033	629	397	9,849	1,118,446
2034	635	387	9,948	1,129,468
2035	641	391	10,048	1,140,490
2036	647	395	10,147	1,151,512
2037	654	399	10,247	1,162,534
2038	660	403	10,346	1,173,556
2039	666	407	10,446	1,184,577
Total	12,592	9,563	205,012	21,596,395

Benefit-Cost Analysis: A benefit-cost analysis was conducted using the methodology prescribed in the federal register. The net present value of the cumulative benefits for the 20-year period from 2020 through 2039 for travel time, distance, safety, and the environment, along with the unit values for each, are provided in Table 8. Benefits were assumed not to accrue prior to 2020 which is a very conservative assumption since many segments would be open before then.

The net present value of the benefits was computed by multiplying the unit value by the annual benefits provided in Tables 2, 5, and 7 then applying the specified discount rate. Unit values were assumed to increase at a rate of 2.6 percent compounded annually beyond 2009.

Table 8: Net Present Value (2010) of 20-Year Benefits for I-49, Shreveport to Kansas City

Benefit	Net Present Value Discount Rate = 7%	Net Present Value Discount Rate = 3%	Unit Value (2009)
Travel Time			
- Auto (Personal)	$ 7,301.2 million	$15,670.5 million	$31.14 per vehicle-hour
- Auto (Business)			$38.19 per vehicle-hour
- Truck	$ 967.7 million	$ 2,095.8 million	$22.80 per vehicle-hour
Travel Distance			
- Auto	$ 3,697.2 million	$ 7,935.3 million	$0.600 per mile
- Truck	$ 2,124.6 million	$ 4,560.1 million	$1.865 per mile

Table 8: Net Present Value (2010) of 20-Year Benefits for I-49, Shreveport to K.C. (continued)

Benefit	Net Present Value Discount Rate = 7%	Net Present Value Discount Rate = 3%	Unit Value (2009)
Traffic Crashes			
- PDO	$ 28.6 million	$ 61.4 million	$ 4,000 per crash
- Injury	$ 460.2 million	$ 988.9 million	$ 95,000 per crash
- Fatal	$ 1,659.7 million	$ 3,566.9 million	$6,600,000 per crash
Environment			
- VOC	$ 11.0 million	$ 23.5 million	$1,971 per metric ton
- NO_X	$ 20.4 million	$ 41.1 million	$4,637 per metric ton
- CO	$ 6.2 million	$ 13.1 million	$ 69 per metric ton
- CO_2	$ 324.4 million	$ 697.2 million	$ 35 per metric ton
Total	$16,601.2 million	$35,653.8 million	

The net present value of the cost to complete the three remaining sections of I-49 in Louisiana and the remaining sections in Arkansas and Missouri are presented in Table 9. Construction costs were assumed to increase at a rate of 2.6 percent annually beyond 2009. Increased annual maintenance (routine and capital) was also accounted for at a 2009 rate of $60,000 per mile.

Table 9: Net Present Value (2010) of Costs to Complete I-49, Shreveport to Kansas City

State/Segment	Obligation Year	Net Present Value Discount Rate = 7%	Net Present Value Discount Rate = 3%
Louisiana			
- Segment E	2010	$ 37.2 million	$ 38.6 million
- Segment J	2010	$ 58.0 million	$ 60.3 million
- Segment K	2011	$ 88.9 million	$ 96.0 million
Arkansas			
- State Line to Doddridge	2012	$ 48.5 million	$ 54.4 million
- Texarkana to DeQueen	2012	$ 74.4 million	$ 83.4 million
	2013	$ 31.7 million	$ 36.9 million
	2014	$ 232.0 million	$ 280.7 million
	2016	$ 142.3 million	$ 185.8 million
- DeQueen to Alma	2012	$ 102.8 million	$ 115.2 million
	2013	$ 165.2 million	$ 192.4 million
	2014	$ 676.5 million	$ 818.5 million
	2015	$ 407.8 million	$ 512.5 million
	2016	$ 414.8 million	$ 541.5 million
	2017	$ 231.8 million	$ 314.5 million
- Bella Vista Bypass	2012	$ 115.9 million	$ 130.0 million
	2015	$ 77.9 million	$ 98.0 million
Missouri			
- Bella Vista Bypass	2012	$ 63.5 million	$ 71.2 million
- I-44 to Bates/Cass Cty Line	2012	$ 112.8 million	$ 126.5 million
Construction Total		$3,082.0 million	$3,756.4 million
Increased Maintenance Costs		$ 104.5 million	$ 215.2 million
Grand Total		$3,186.5 million	$3,971.6 million

Benefit-Cost Ratio: The benefit-cost ratio to complete I-49 from Shreveport to Kansas City is provided below:

Using a Discount Rate of 7 percent, the benefit-cost ratio = 5.2

Using a Discount Rate of 3 percent, the benefit-cost ratio = 9.0

Evaluation of Project Performance: The LA DOTD will monitor and periodically report on-site employment during construction. Following construction, auto and truck traffic will also be monitored to compare with the forecasts.

(b) Job Creation & Economic Stimulus

Although the project is located in Caddo Parish, the extension of I-49 will benefit all regions of Louisiana. Of the 64 parishes, 56 are in the Delta Region; another 42 were designated as Economically Distressed Areas (EDAs) under previous federal criteria. However, Under FHWA Supplemental Guidance on the Determination of EDAs under the Recovery Act, the LA DOTD believes that Caddo Parish meets the criteria for designation as an EDA via Special Need Circumstance. In the past 12 months, General Motors has reduced its Shreveport assembly plant workforce from over 2000 to 500 and has announced the complete closure by June 2012. Civilian labor force totaled 119,509 in December 2008. Further, Caddo Parish was declared a disaster area in October 2008 as a result of Hurricane Gustav (FEMA-1786-DR). The storm disrupted business and weakened the business climate in Caddo and all other parishes.

The LA DOTD has a long history of providing opportunities to individuals and to disadvantaged businesses. Many contracts include provisions for on-the-job training programs; often times low income workers are the recipients although the programs are open to anyone. While the LA DOTD does not currently establish goals specifically for veteran-owned or service disabled veteran-owned businesses, all projects with federal dollars are considered for establishment of a DBE goal, with the yearly formula goal usually around 10 percent. The LA DOTD is well versed in federal regulations. Contractors are required to comply with equal employment opportunity, nondiscrimination, and affirmative action requirements of civil right laws and FHWA requirements. Contractors develop recruitment programs, which may include the use of minority, female, and community organizations and public and private referral sources. Information on contract procedures and requirements may be accessed at:
http://www.dotd.la.gov/administration/public_info/projects/i49north/.

Project Schedule: The schedule for completing the extension of I-49 in Louisiana from I-220 in Shreveport to the Arkansas state line is provided below. The schedule is based on a TIGER Discretionary Grant award notification in January 2010.

Segment E:

November 2009	Final Plans complete
January 2010	R/W acquisition complete; utilities agreements complete
March 2010	Project let with incentives for completion by February 17, 2012
April 2010	Contract signed and Notice to Proceed issued
May 2010 – mid-Feb. 2012	Construction

Segment J:

September 2009	Preliminary Plans complete
October 2010	Begin Final Plans
November 2009	R/W maps complete
January 2010	R/W acquisition begins
October 2010	R/W acquisition; final plans; and utility agreements complete
December 2010	Project let with incentives for early completion
January 2011	Contract signed and Notice to Proceed issued
Feb. 2011 – July 2013	Construction

Segment K:

November 2009	Preliminary Plans complete
December 2010	Begin Final Plans
January 2010	R/W maps complete
March 2010	R/W acquisition begins
December 2010	R/W acquisition; final plans; and utility agreements complete
February 2011	Project let with incentives for early completion
March 2011	Contract signed and Notice to Proceed issued
April 2011 – March 2014	Construction

Estimates of the construction expenditures and associated on-site employment are provided in Table 10. The quarterly expenditure estimates are based on payout data from other recent projects in Louisiana of similar size and scope.

Table 10: Estimated construction expenditures and associated on-site employment by quarter

Calendar Quarter	Expenditures (millions)				On-Site Employment
	Segment E	Segment J	Segment K	Subtotal	
April – June 2010	$ 3.12			$ 3.12	25
July – September 2010	$ 8.37			$ 8.37	67
October – December 2010	$10.75			$ 10.75	86
January – March 2011	$13.99	$ 2.00		$ 15.99	128
April – June 2011	$ 9.62	$ 5.08	$ 4.45	$ 19.15	153
July – September 2011	$ 9.25	$ 6.41	$ 6.77	$ 22.43	179
October – December 2011	$ 5.50	$ 7.86	$ 8.42	$ 21.78	174
January – March 2012	$ 1.87	$ 10.46	$11.42	$ 23.75	190
April – June 2012		$ 7.86	$12.19	$ 20.05	160
July – September 2012		$ 7.20	$12.97	$ 20.17	161
October – December 2012		$ 6.35	$10.06	$ 16.41	131
January – March 2013		$ 4.23	$ 9.39	$ 13.62	109
April – June 2013		$ 2.42	$ 8.42	$ 10.84	87
July – September 2013		$ 0.61	$ 6.10	$ 6.71	54
October – December 2013			$ 3.87	$ 3.87	31
January – March 2014			$ 2.71	$ 2.71	22
Total	* $ 62.47	$ 60.48	$ 96.77	$219.72	

*Segment E is partially funded with other federal and state monies.

The employment estimates are based on the guidance provided. For each $92,000 expended, one job-year is created of which 64 percent is direct and indirect employment, and 36 percent is induced employment. From the federal research presented in "Highway Infrastructure Investment and Job Generation" Publication Number FHWA-PL-96-015, the direct and indirect employment can be separated. Based on this information, two job-years (24 job-months) of direct, on-site employment are estimated for each $1,000,000 expended.

Environmental Approvals: An Environmental Impact Statement was completed for this project in 2001. The Record of Decision was signed on May 4, 2001. Section 404 permits are required for Segments J and K; the LA DOTD foresees no impediments in completing this process by January 2010.

Legislative Approvals: The I-49 extension project enjoys widespread support among local, state, and federal elected officials, business and community organizations, and the general public. The project has received strong support from three consecutive gubernatorial administrations. Further, the Louisiana Legislature has demonstrated a commitment to the project; approximately $140 million in state funds has been appropriated as noted previously herein. All segments of I-49 are listed in the legislatively approved Highway Program in compliance with state law.

State and Local Planning: The project emerged as a top priority in the 1996 Louisiana Statewide Transportation Plan and retained this priority in the comprehensive update of the Plan that was completed in 2003. With the award of a TIGER Discretionary Grant, all three segments will be added to the State Transportation Improvement Program; Segments J and K will be added to the financially-constrained Metropolitan Transportation Plan and to the Transportation Improvement Program for Shreveport.

Technical Feasibility: The environmental stage of this project has been completed. Final plans are nearly complete for Segment E; preliminary plans for Segment J and K will be complete in September 2009 and November 2009, respectively. The preparation of final plans will begin in the month following these dates. The LA DOTD has an excellent record in project delivery. The project completion schedules presented herein are reasonable and reliable.

Financial Feasibility: Much of the project is funded and portions are already under construction. As noted earlier in this document, the project has been divided into eleven segments (A through K). As outlined above, only three of the segments (E, J, and K) are in need of funding, all of which is for construction. Segment E is partially funded from other sources; the amount requested herein is the balance needed.

The LA DOTD is well versed in administering federal transportation funds and advancing projects expeditiously and in compliance with federal rules and regulations. This is clearly evident in the management of the portion of ARRA transportation funding allocated to the state.

2. Secondary Selection Criteria

(a) Innovation

The LA DOTD will employ the traditional design-bid-build method to complete the remaining three segments of the project for which funding is being sought. However, cost plus time (A+B) bidding procedures with contract time on a calendar day basis will be used. The contracts will include incentives for early completion. The design-build method was considered but rejected as right-of-way acquisition is the key activity in the critical path.

(b) Partnership

The I-49 extension project enjoys widespread support among local, state, and federal elected officials, business and community organizations, and the general public. The project emerged as a top priority in the 1996 Louisiana Statewide Transportation Plan and retained this priority in the comprehensive update of the Plan that was completed in 2003. Both planning efforts were heavily oriented toward freight transportation and economic growth, and included extensive stakeholder involvement.

The project has received strong support from three consecutive gubernatorial administrations. In 2000, Governor M.J. "Mike" Foster issued an executive order creating the I-49 North Extension Feasibility and Funding Task Force for the purpose of identifying potential funding sources and exploring innovative financing alternatives. Both Governors Kathleen Blanco and Bobby Jindal have retained the Task Force.

Both the Louisiana Congressional delegation and the Louisiana Legislature have demonstrated a commitment to the project. Over $300 million in federal highway funds have been allocated to the project, including over $47 million in ARRA formula funds, along with $140 million in state funds as outlined previously herein.

Louisiana's efforts have been coordinated with those in other corridor states. Arkansas, with the support of Missouri, intends to submit a TIGER Discretionary Grant application for a section of I-49 in northern Arkansas that extends into southern Missouri.

The Northwest Louisiana Council of Governments (NLCOG), which is the metropolitan planning organization for the Shreveport Metropolitan Area, has been very active in promoting and seeking funding for the project. The NLCOG website includes an I-49 page which can be accessed at: http://www.nwlainfo.com/. NLCOG allocated $5.2 million in ARRA formula funds to the project.

Lastly, two advocacy groups have formed to promote the project. The I-49 International Coalition is comprised of business, civic, and governmental leaders from the three corridor states, Louisiana, Arkansas, and Missouri, but also includes members from Texas and Oklahoma. The I-49 North Coalition is comprised of business and civic leaders from northwest Louisiana.

Letters of support and the aforementioned gubernatorial executive order may be accessed at: http://www.dotd.la.gov/administration/public_info/projects/i49north/.

G. Federal Wage Rate Requirement

Certification of compliance with the requirements of subchapter IV of Chapter 31 of Title 40, United States Code (Federal wage rate requirements) is provided at the end of this document.

H. National Environmental Policy Act Requirement

The environmental stage of this project has been completed. The preparation of an Environmental Impact Statement (EIS) was initiated in 1997 and completed in 2001. A Record of Decision (ROD) was signed in May 4, 2001. The Final EIS and ROD may be accessed at: http://www.dotd.la.gov/administration/public_info/projects/i49north/.

I. Environmentally Related Federal, State, and Local Actions

As specified in the Environmental Impact Statement, the following federal and state requirements must be met:

- The issuance of a Section 404 permit by the U.S. Army Corps of Engineers for the placement of dredged and fill material in waters of the United States and a related Section 401 Water Quality permit issued by the Louisiana Department of Environmental Quality.
- Coordination of the Section 106 process for consideration of historic resources to be handled by the Louisiana Department of Culture, Recreation, and Tourism, Division of Archaeology and the Advisory Council on Historic Preservation.
- A National Pollutant Discharge Elimination System (NPDES) permit as required by Section 402 of the Clean Water Act, issued by the Louisiana Department of Environmental Quality.
- A Louisiana Water Discharge Permit System (LWDPS) permit issued by the Louisiana Department of Environmental Quality.

All of these requirements have been satisfied. Documentation of compliance may be accessed at http://www.dotd.la.gov/administration/public_info/projects/i49north/.

J. Protection of Confidential Business Information

This application contains no confidential information.

BOBBY JINDAL
GOVERNOR

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WILLIAM D. ANKNER, Ph.D.
SECRETARY

CERTIFICATION REGARDING FEDERAL WAGE RATES

I, William D. Ankner, hereby certify that the infrastructure investments funded with amounts appropriated through the Tiger Discretionary Grant program will comply with the requirements of subchapter IV of Chapter 31 of Title 40, United States Code (Federal Wage Rate Requirements).

William D. Ankner, Ph.D.
Secretary
Louisiana Department of Transportation and Development

Signed this 9 day of September 2009

(this certification to accompany Tiger Discretionary Grant Application)