

# **FY 2011 Continuing Appropriations Act**

## **TIGER Discretionary Grant Program**

### **Highway 167 Improvement Project**

**Project Type:** Highway

**Project Location:** Dallas County, Arkansas (4<sup>th</sup> District)  
Cleveland County, Arkansas (4<sup>th</sup> District)

**Area Type:** Rural

**Grant Amount Requested:** \$31.52 million



Submitted by  
Arkansas State Highway and Transportation Department  
October 31, 2011

# **FY 2011 Continuing Appropriations Act**

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### **Highway 167 Improvement Project**

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## **I. Project Description**

The Arkansas State Highway and Transportation Department (Department) requests \$31.52 million to widen a 5.5-mile section of Highway 167 in Dallas and Cleveland Counties, Arkansas from the Saline River (34.11580° N, 92.40591° W) to a point 5.5 miles to the south (34.04779° N, 92.4104344° W). The existing two-lane facility will be widened to a multi-lane facility. The total cost of this project is \$39.4 million. This application seeks \$31.52 million in federal funding (80% of the project cost). If fully funded with this grant award, the Department will commit to funding the remaining 20% to the project. This project is not suitable for the TIFIA program because the total cost of the project is less than \$50 million.

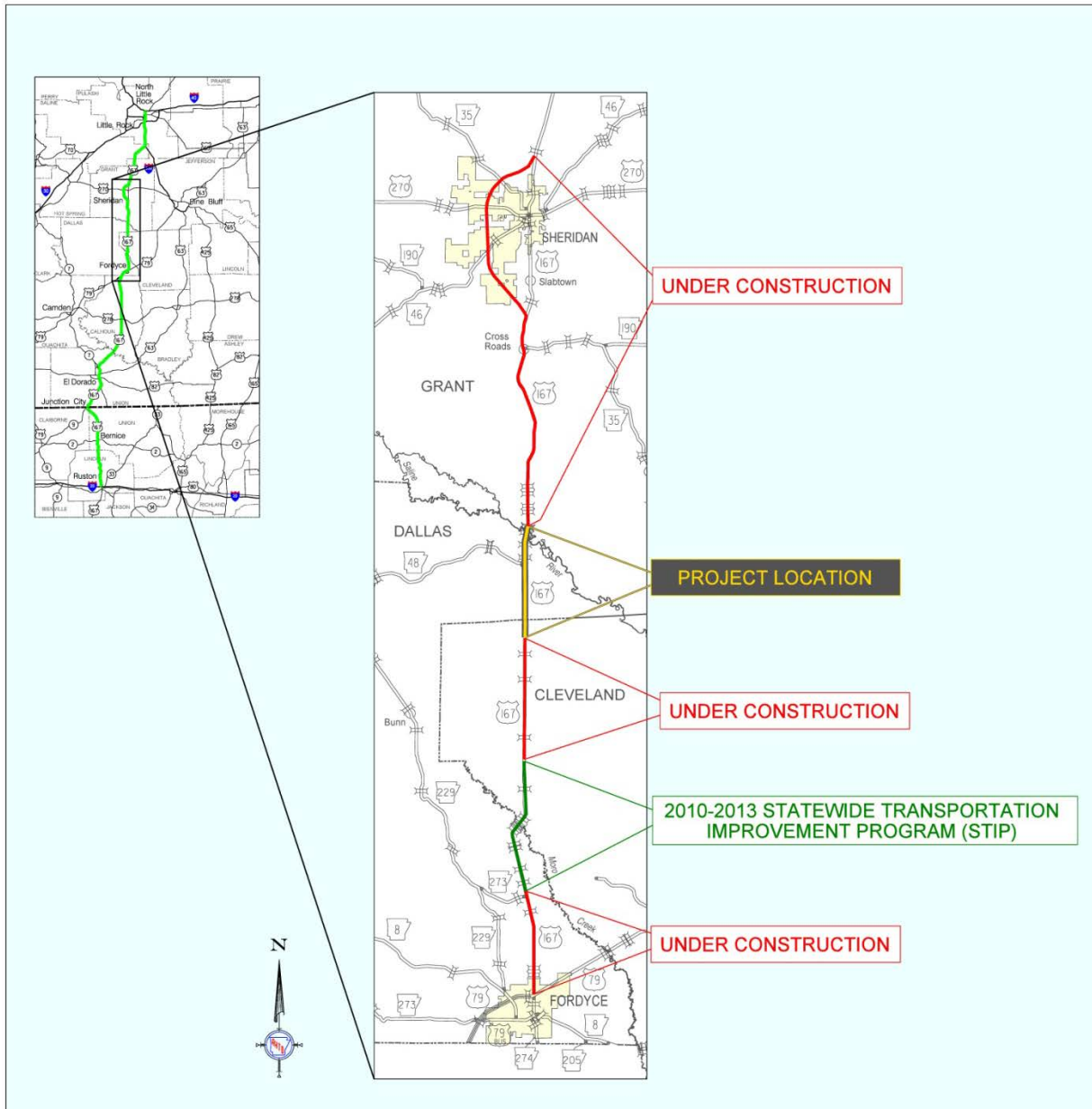
The purpose of this project is to continue improvements along the 170-mile, future four-lane Highway 167 corridor between Interstate 40 in Arkansas and Interstate 20 in Louisiana. With the completion of this project along with a second project in the 2010-2013 Arkansas Statewide Transportation Improvement Program (STIP), the four-lane highway will be complete from Little Rock to Fordyce and from El Dorado south to Ruston, Louisiana. Furthermore, two additional construction projects under way in Louisiana will continue this four-lane corridor to Alexandria, Louisiana (a total distance of 278 miles), allowing access via Interstate 49 to Interstate 10 and the Gulf Coast. The corridor within Arkansas is shown in Figure 1.

Highway 167 is a National Highway System (NHS) route that connects Interstate 40 in central Arkansas with the greater part of southern Arkansas, including communities such as Fordyce, Sheridan, the Golden Triangle region (El Dorado, Camden, and Magnolia), as well as northern and central Louisiana. Additionally, Highway 167 has been identified as part of the Four-Lane Grid System of improvements in Arkansas to assist and stimulate economic development throughout the State.

Highway 167 is currently a two-lane facility through the project area. Traffic volumes, particularly heavy truck volumes, have increased in recent years to the point where climbing lanes have been constructed in select areas to accommodate slow moving trucks along relatively steep grades. In recent years, multiple projects have been constructed to improve Highway 167 to a multilane facility from Interstate 40 in central Arkansas through southern Arkansas to Interstate 20 in Louisiana.

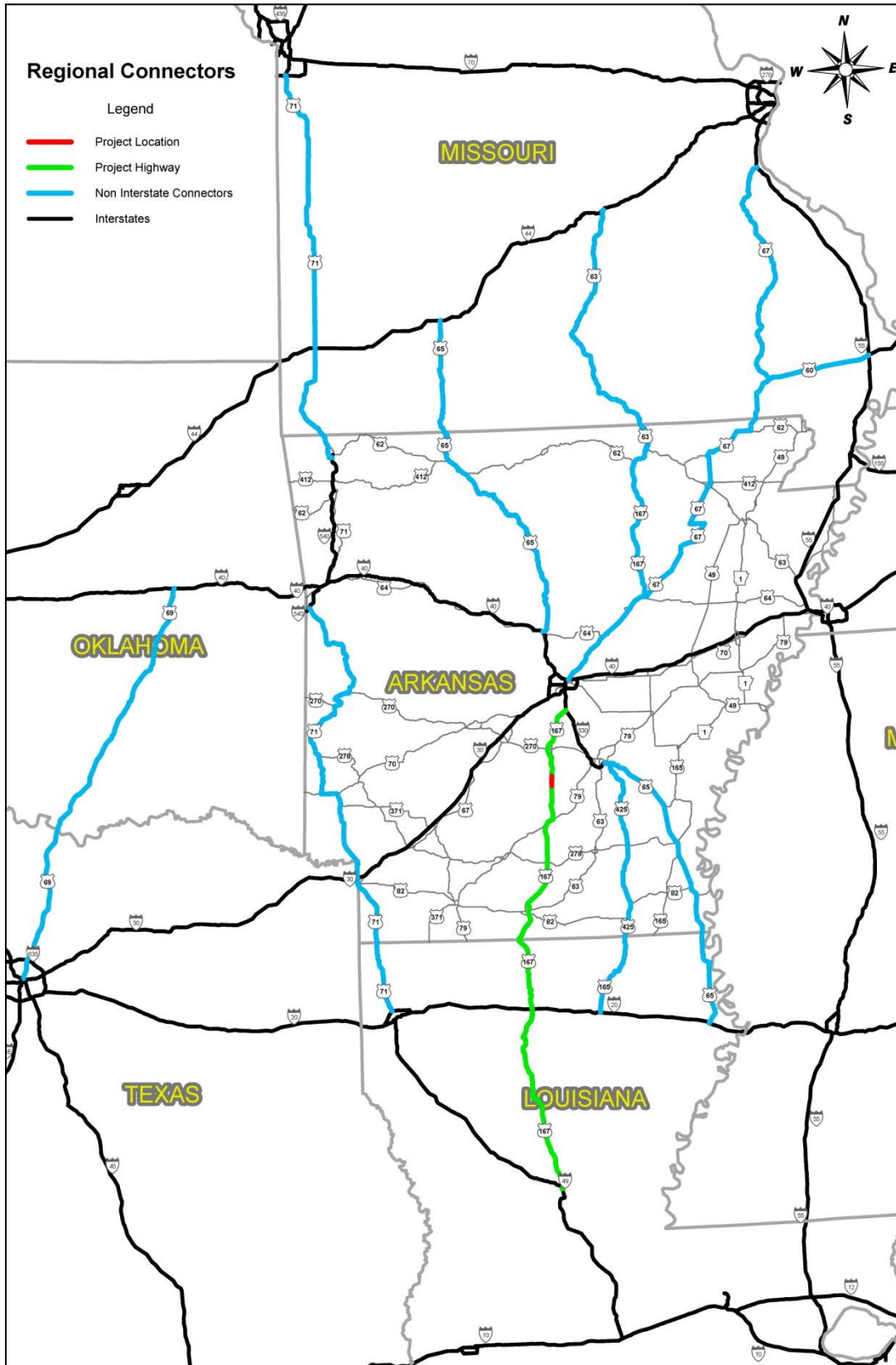
Limited funding has resulted in two segments totaling 10.8 miles that remain a two-lane facility and are not currently under construction. Full funding of this project would act as another step in providing the only north-south, four-lane connection from Interstate 40 to Interstate 20 between Dallas, Texas and Jackson, Mississippi, a span of 400 miles, as displayed in Figure 2. [[www.ahtd.ar.gov/TIGER/III/167/Regional\\_Connectors](http://www.ahtd.ar.gov/TIGER/III/167/Regional_Connectors)] It should be noted that although there are US Highway numbered corridors within this 400-mile area, they are not four-lane, high speed facilities and therefore are not as conducive to long-distance, high-volume travel.

**Figure 1 – Four-Lane Highway 167 Corridor**



Traffic volumes along this route have grown in recent years and are expected to continue to grow. High heavy vehicle percentages, particularly related to the timber industry, have impacted the operating characteristics of this roadway. This has led to reduced capacity, slower speeds, and increased congestion. Figure 3 provides examples of ways that heavy vehicles inhibit the maneuverability of other vehicles along this route by either slower than average operating speeds or general traffic impedance. Figure 4 provides current and projected traffic on this route. Projections are based solely on historical data and do not take into account recent projects in Arkansas and Louisiana that may attract trips from other routes onto this corridor.

Figure 2 – Major Highways in the South Central United States



**Figure 3 – Trucks Impeding Traffic Operations on Highway 167**



## **II. Project Parties**

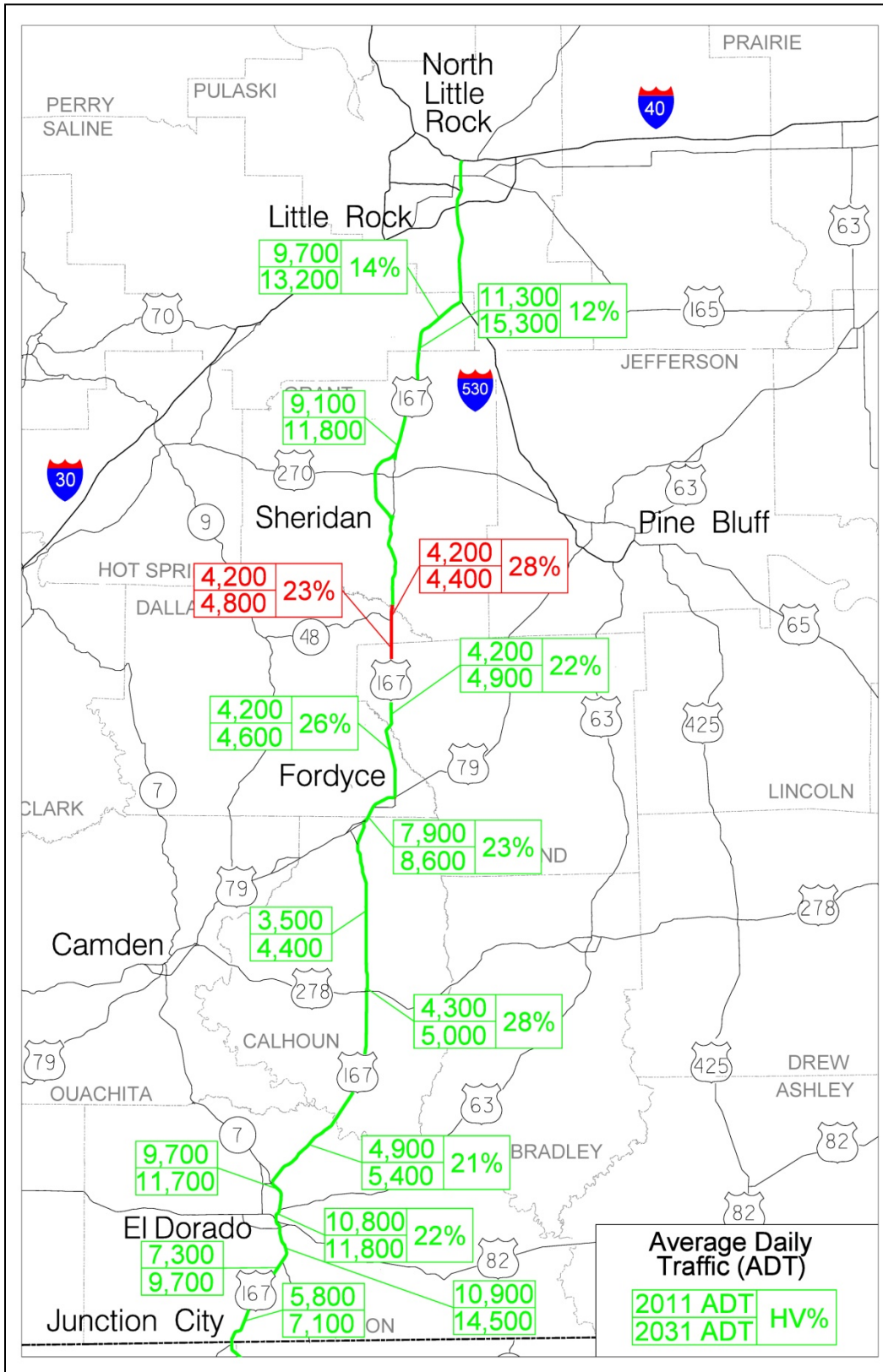
In 1913 the 39<sup>th</sup> Arkansas General Assembly appointed the first State Highway Commission, under Act 302, to address the transportation needs of the state. Amendment 42 of the Constitution of Arkansas, passed by a vote of the people in November 1952, established the present five-member State Highway Commission that is appointed by the Governor. Under Amendment 42, the State Highway Commission was vested with the power of administering Arkansas' State Highway System. In 1977, Act 192 created the Arkansas State Highway and Transportation Department by adding the responsibility for coordination public and private transportation activities and the implementation of a safe and efficient intermodal transportation system.

The Arkansas State Highway and Transportation Department is the sole applicant for this project. The primary point of contact for this grant application is:

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**Figure 4 – Average Daily Traffic Volumes**





### III. Grant Funds and Sources/Use of Project Funds

The Department has long been committed to the improvement of this corridor through southern Arkansas. Bypasses were first built around the major communities in southern Arkansas in the 1960s and 1970s, and the highways connecting southern Arkansas cities such as Fordyce, Camden, El Dorado, and Junction City were improved to four lanes in the 1970s, 1980s, and 1990s. In recent years, improvements have been constructed from Interstate 530 near Little Rock to Sheridan. With the completion of several projects currently under construction, this single project along with a project scheduled to be awarded to contract in 2013 (shown in Figure 1) will complete the four lane corridor from Little Rock to Fordyce, Arkansas.

**Table 1 – Use of Project Funds (1998 – 2011)**

<b>Task</b>	<b>Funds Previously Expended</b>	<b>Funds Requested (Federal)</b>	<b>State Match</b>	<b>Total</b>
<b>Interstate 530 – Sheridan</b>	\$40,050,006	\$0	\$0	\$40,050,006
<b>Sheridan Bypass</b>	\$46,561,987	\$0	\$0	\$46,561,987
<b>Sheridan – Fordyce</b>	\$109,647,570	\$31,520,000	\$7,580,000	\$149,047,570
<b>Fordyce – El Dorado</b>	\$36,793,090	\$0	\$0	\$36,793,090
<b>El Dorado Bypass</b>	\$107,520,386	\$0	\$0	\$107,520,386
<b>El Dorado – Junction City</b>	\$5,881,430	\$0	\$0	\$5,881,430
<b>TOTAL</b>	<b>\$351,454,469</b>	<b>\$31,520,000</b>	<b>\$7,580,000</b>	<b>\$390,854,469</b>

### IV. Selection Criteria

#### A. Long Term Outcomes:

##### i. State of Good Repair

The Department maintains routes on the NHS at a high level of performance. In general, NHS routes are rated “good”, “fair”, or “poor” for ride quality, rutting, and cracking. Currently, 65% of NHS mileage in Arkansas is considered to be “good.”

The existing hot mix asphalt pavement along Highway 167 is exhibiting signs of aging, particularly in Dallas County. Significant rutting has formed and fatigue cracking is prevalent. Highway 167 currently has 12-foot lanes with narrow or unpaved shoulders and a posted speed of 55 miles per hour (mph). The 3.91 miles of the existing facility in Dallas County has a pavement condition index of 80, with an International Roughness Index (IRI) value of 166 inches per mile (in/mi). The 1.51 mile portion of the facility in Cleveland County has a pavement condition index of 93, with an International Roughness Index (IRI) value of 89 inches per mile (in/mi).

As a part of standard preventative maintenance, this route would likely require a mill and overlay project within the next five years to maintain satisfactory pavement surface conditions. This proposed project would bring the pavement back to good condition and would negate the need for more than routine maintenance until 2025. Additionally, full funding of this project will allow the Department to focus maintenance funds on other areas with greater needs.

ii. *Economic Competitiveness*

This project will not only improve the competitiveness of southern Arkansas through improved access to jobs, but it will improve the competitiveness of the United States by connecting the natural resources of southern Arkansas such as timber to larger national markets. The economy of south central Arkansas, and especially Dallas County, is driven by all phases of the timber industry from logging and milling, to production of final products, such as lumber, paper, furniture, and a variety of chemicals.

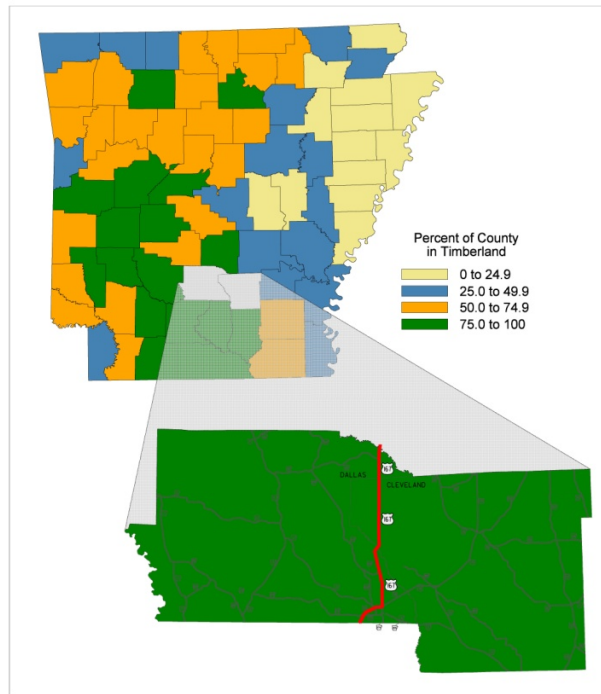
Unlike other regions of the United States, the southern Arkansas climate allows forests to grow relatively quickly. This has led to Arkansas being the fourth largest timber-producing state in the country and the largest timber-producing state in the south, as reported by the [Arkansas Forest Research Center](#). The favorable climate combined with modern sustainable logging and foresting practices has led to an industry that will remain viable in this region for the foreseeable future. Figure 5 illustrates the prominence of this industry in south central Arkansas. Improvements to the Highway 167 corridor will improve the industry's ability to transport goods by reducing delay associated with two-lane roadways.

It is estimated that at least one-third of all jobs in economically distressed Dallas County are directly dependent upon the timber industry with many more jobs indirectly connected. Of vital importance to this industry is the ability to efficiently move resources between forests, sawmills, factories, and regional and national markets.

Reduced transportation costs to regional and national markets via an improved highway will encourage manufacturers in timber-based industries to move to this region to harness these resources, providing additional employment opportunities to economically distressed counties along Highway 167, including Dallas, Cleveland, Calhoun, and Grant. In turn, having manufacturers located close to timber fields will increase the viability of profitably harnessing these natural resources in these economically distressed counties, encouraging present companies to expand, and providing new jobs.

Additionally, Highway 167 connects mid-America to the shipping industry of Louisiana. As reported by the [US Census Bureau](#), the Gulf Coast of Louisiana is home to the nation's largest port (by tons shipped), the Port of South Louisiana (213 million tons annually), as well as three other of the nation's thirteen largest ports, the Port of New Orleans (68 million tons annually), the Port of Lake Charles (52 million tons), and the Port of Baton Rouge (52 million tons annually). The largest public port in Arkansas, the Port of Little Rock, sees only 0.7 million tons of shipments annually. Additionally, ports in Arkansas cannot accommodate the large deep-water ships used by these Louisiana ports. Improving this highway will allow four-lane access to these ports along much shorter corridors, supporting vital trade routes, and delivering Arkansas' and mid-America's goods and resources to the world.

**Figure 5 – Timberlands in Arkansas**



*iii. Livability*

Dallas County currently has an unemployment rate of 11.1 percent, above the national unemployment rate of 9.5 percent. Dallas County, in addition to Grant, Cleveland, Calhoun Counties, all have per capita incomes at least 20 percent below the national average of \$39,635. These unemployment rates and low per capita incomes are noted by the shaded areas in Table 2 and are shown in Figure 6.

As specified in U.S. Code Title 42, Chapter 38, Subchapter III, Section 3161, a county is defined to be in economic distress if the median per capita income is less than 80 percent of the national average or the unemployment rate is greater than one percentage point above the national average. Dallas County currently meets both economic distress categories while Cleveland, Calhoun, and Grant Counties all have low per capita incomes.

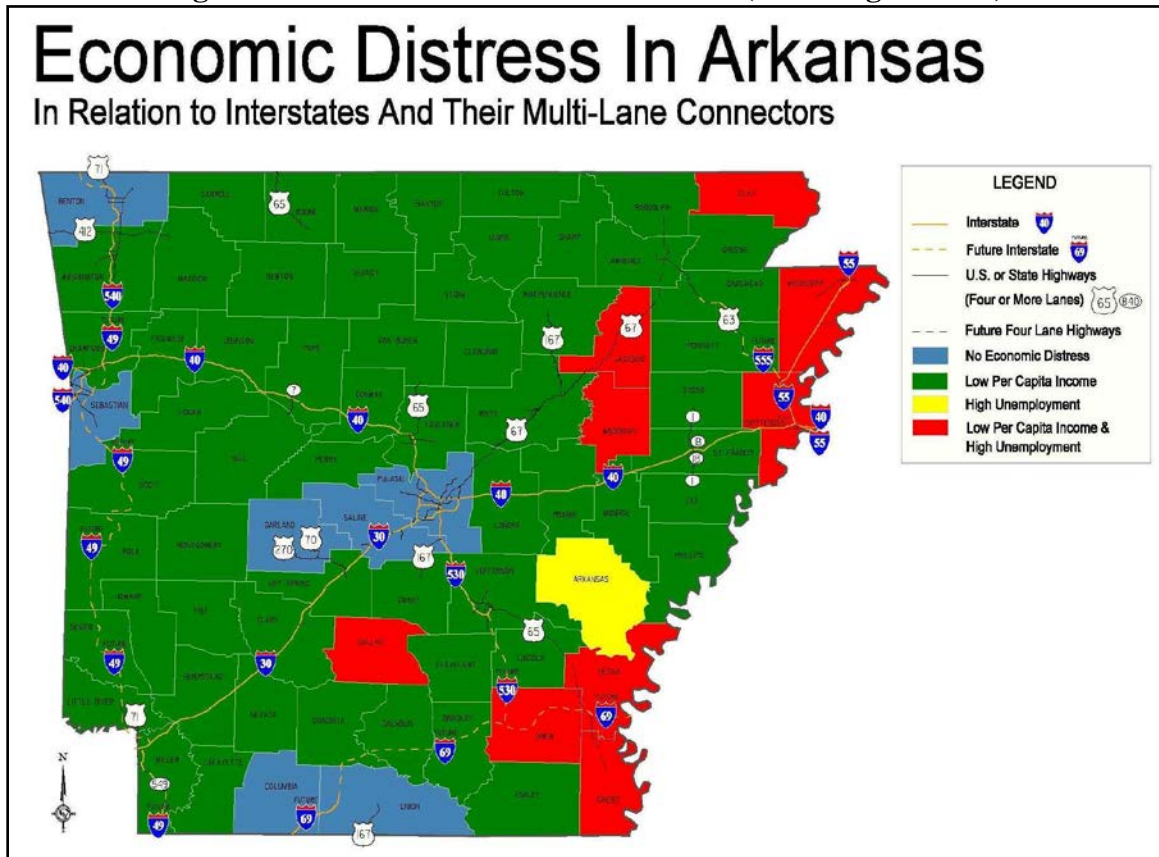
**Table 2 – Unemployment Rates and Median Incomes (as of August 2011)**

County	Median Income	Unemployment
Dallas	\$31,369	11.1%
Cleveland	\$31,826	8.4%
Calhoun	\$29,123	9.1%
Grant	\$31,005	7.0%
Arkansas Avg.	\$32,315	7.8%
United States Avg.	\$39,635	9.5%

**Note:** Shading indicates Median Income values less than the national average and Unemployment values greater than the national average.

Source: [42 USC 38 Subchapter III, Section 3161](#)  
[Arkansas Department of Workforce Services](#)

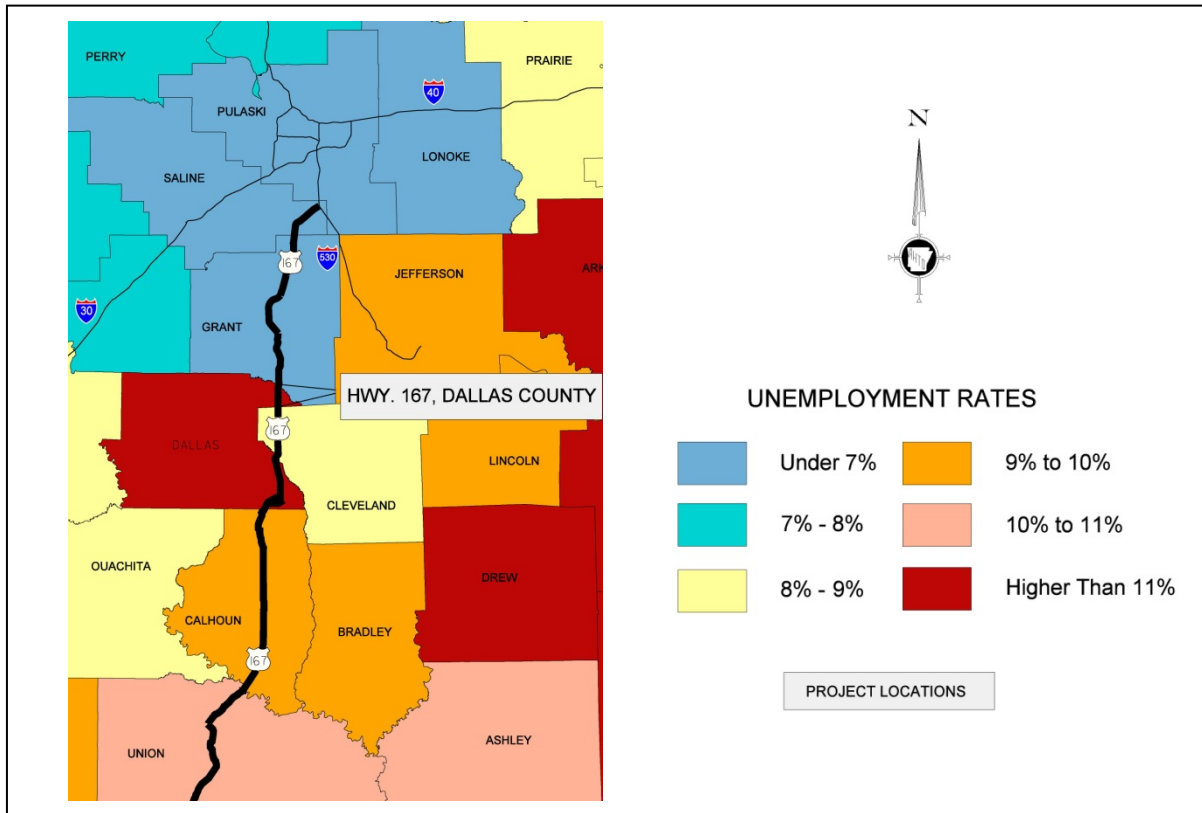
Figure 6 – Economic Distress in Arkansas (as of August 2011)



Historically, the lack of a suitable route between Sheridan and Fordyce has acted as a barrier separating the economies of central and southern Arkansas. Residents of Dallas County have historically gravitated towards jobs within Dallas County or towards Calhoun or Ouachita Counties, all connected by four-lane Highway 79. Only 8 percent of workers in Dallas County travel to jobs in Grant, Saline, or Pulaski County even though unemployment is much lower in those areas, as seen in Figure 7. At a travel time of slightly over one hour, the central Arkansas metropolitan area is just out of reach of most Dallas County commuters. The availability of an improved facility will reduce travel times, making the central Arkansas labor markets a feasible alternative for Dallas County residents.

While residents within a given city do sometimes walk or bicycle to places of employment within the same city, it is recognized that automobile travel is by far the most cost-effective mode of travel in this region in most cases, both in terms of time and monetary costs. Travel to workplaces such as logging fields that are, by necessity, not within a city makes transit or non-motorized travel impractical. Also, the movement of raw materials by a fixed guide way mode such as rail is not competitive when the locations of logging operations are constantly shifting. An improved Highway 167 is vital to ensuring that residents of south central Arkansas are able to efficiently reach places of employment, both providing for their families and producing natural resource commodities to the United States.

**Figure 7 – Unemployment in South Central Arkansas**



*iv. Sustainability*

Facility improvements along Highway 167 were designed to minimize the impacts of the surrounding wetlands of Dallas County. By widening the existing route as opposed to constructing a new facility, wetland impacts will be minimized. Additionally, a five-lane cross section was selected over a four-lane divided cross section (with a large median) through the Moro Creek floodplain to reduce the footprint of the highway and thus lower the impacts through this specific floodplain. All wetland impacts will be mitigated at the Middle Ouachita River Mitigation Bank as discussed in the two Tier III Categorical Exclusions [[www.ahtd.ar.gov/TIGER/III.167/Environmental\\_1](http://www.ahtd.ar.gov/TIGER/III.167/Environmental_1) and [www.ahtd.ar.gov/TIGER/III/167/Environmental\\_2](http://www.ahtd.ar.gov/TIGER/III/167/Environmental_2)].

An improved Highway 167 will provide a high-quality direct route from the heart of Arkansas into Louisiana. There currently exists a 400 mile gap between Dallas, Texas and Jackson, Mississippi without a four-lane north-south facility, as is seen in Figure 2. By providing an improved route between Interstate 40 and Interstate 20 through the communities of southern Arkansas, motorists would be more inclined to use this route as opposed to longer routes. This will result in reduced emissions into the atmosphere as well as reduced consumption of motor fuels. For instance, a trip from Little Rock to Baton Rouge currently requires 517 miles of travel along four-lane highways. Using a four-lane Highway 167 route will reduce this trip length to 390 miles, resulting in a reduction in emissions and motor fuel consumption of approximately 25 percent.

v. *Safety*

Highway 167 in Dallas and Cleveland Counties is currently a rural two-lane highway with no control of access, and with climbing lanes along select grades in Cleveland County. Turn lanes are not currently provided at any intersection along the entire project, creating a safety hazard wherever turns occur. This is particularly needed at the intersection with Highway 48, where tractor trailers hauling raw timber or timber products make a substantial number of slow turns onto and off Highway 167. These slow turns cause travelers to make unexpected, abrupt stops along what is expected to be an unimpeded facility.

The statewide average crash rate for the most recent three years of available data (2007-2009) for this type of facility is 1.03 crashes per million vehicle miles (crashes/mvm). The statewide average for a rural four-lane divided facility with no control of access, similar to that which will be used for most of this project, is 0.78 crashes/mvm. Providing this improved cross-section would be expected to reduce crash rates by about 0.25 crashes per mile over most of the project.

Due to the need to mitigate wetland impacts within the Moro Creek floodplain, it is necessary to construct the northernmost 1.41 miles of this project as a four-lane undivided highway with a two-way center left-turn lane, thereby minimizing the footprint of the highway. The statewide average crash rate for this type of facility is 1.05 crashes/mvm. Use of this cross section over the northernmost 1.41 miles is expected to result in a crash rate similar to what is experienced presently.

**B. Job Creation and Near-Term Economic Activity**

One immediate benefit of this project will be the creation of jobs during construction of the facility. Based on research conducted by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials, this project is expected to directly or indirectly support 1,095 jobs in this economically distressed region of the State. With full funding of this project request, the contract for this project will be awarded in October 2012, and construction of the project will begin immediately after. A breakdown of when jobs are expected is provided in Table 3.

**Table 3 – Schedule of Expected Job Support**

<b>Quarter (Calendar)</b>	<b>TOTAL JOBS</b>	<b>Construction</b>	<b>Supporting Construction</b>	<b>Non- Construction</b>
2012 Q4	<b>91</b>	31	14	46
2013 Q1	<b>91</b>	31	14	46
2013 Q2	<b>91</b>	31	14	46
2013 Q3	<b>137</b>	47	21	69
2013 Q4	<b>137</b>	47	21	69
2014 Q1	<b>137</b>	47	21	69
2014 Q2	<b>137</b>	47	21	69
2014 Q3	<b>274</b>	94	42	138
<b>PROJECT TOTAL</b>	<b>1,095</b>	375	168	552

### **C. Innovation**

If full funding is received, accelerated construction practices will be applied to ensure that this project reaches the public in an expedient manner. Practices such as Incentive/Disincentive Bidding will be used to ensure the project is delivered by the contractor quickly. This may reduce the cost of delay experienced by motorists during construction. Additionally, the use of accelerated construction practices will deliver job opportunities to this economically distressed region of the state more rapidly.

### **D. Partnership**

Due to the location of this facility entirely within the boundaries of the state of Arkansas, the Department is the sole applicant for this project.

### **E. Results of Benefit-Cost Analysis**

The Benefit Cost Analysis (BCA) [[www.ahtd.ar.gov/TIGER/III/167\\_APP/167\\_BCA](http://www.ahtd.ar.gov/TIGER/III/167_APP/167_BCA)] was performed in accordance with the American Recovery and Reinvestment Act (ARRA) guidance provided in the Federal Register. The purpose of the BCA is to systematically compare the benefits and costs of improving Highway 167. The BCA compared the cost of improving Highway 167 within the limits of this project to the cost of not doing anything outside of standard maintenance. The analysis considers a twenty-year project life (2013 through 2033) for purposes of the BCA.

The analysis considered standard features of roadway construction and maintenance costs in Arkansas. Table 4 summarizes the findings of the BCA analysis. Road User Benefits that were considered include the value of travel time savings provided by the improved facility, vehicle operating cost benefits, and the value to society of enhancing the safety within the improved highway network.

Many benefits of this project do not easily lend themselves to simple quantification. The economic benefits of connecting south central Arkansas industries, such as the timber industry to the network of high type highways or connecting Dallas County residents to the central Arkansas labor market cannot be easily quantified, although making Economically Distressed Areas competitive is stated as a primary goal of the TIGER Discretionary Grant program.

Construction cost estimates for portions of the project reflect the use of standard design and construction methods as described above. The total project construction cost estimate is \$39,400,000. A 3% inflation rate was applied to calculate future costs and benefits. Additionally, a 3% discount rate was used to bring future benefits and costs to present value. The results of the BCA are shown in Table 4.

When examined as a single segment of improvements made within this corridor, the proposed 5.50-mile widening of Highway 167 does not exhibit a net positive economic impact. As mentioned before, as part of a larger corridor there are many intangible factors that cannot be quantified for a benefit-cost calculation. Detailed information on the BCA can be found in Appendix A.



**Table 4: Benefit Cost Analysis Results**

Year	Activity	Construction and Maintenance Costs		Travel Time Benefit		Vehicle Operation Cost Benefit		Safety Benefit	
		Non-Disc.	Discounted	Non-Disc.	Discounted	Non-Disc.	Discounted	Non-Disc.	Discounted
2013	(Construction)	\$40,120,000	\$40,120,000	\$0	\$0	\$122,290	\$122,290	\$0	\$0
2014		\$0	\$0	\$819,757	\$795,881	\$125,907	\$122,240	\$81,949	\$79,562
2015		-\$1,221,096	-\$1,151,000	\$846,316	\$797,734	\$129,986	\$122,524	\$84,604	\$79,747
2016		\$0	\$0	\$873,736	\$799,592	\$134,197	\$122,810	\$87,345	\$79,933
2017		\$0	\$0	\$904,515	\$803,650	\$138,925	\$123,433	\$90,421	\$80,338
2018		\$0	\$0	\$931,269	\$803,320	\$143,034	\$123,382	\$93,096	\$80,305
2019		\$0	\$0	\$961,440	\$805,191	\$147,668	\$123,670	\$96,112	\$80,492
2020		\$0	\$0	\$992,590	\$807,066	\$152,452	\$123,958	\$99,226	\$80,680
2021		\$0	\$0	\$1,027,556	\$811,162	\$157,823	\$124,587	\$102,721	\$81,089
2022		\$0	\$0	\$1,057,948	\$810,829	\$162,491	\$124,536	\$105,760	\$81,056
2023		\$0	\$0	\$1,092,224	\$812,718	\$167,755	\$124,826	\$109,186	\$81,245
2024		\$0	\$0	\$1,127,611	\$814,610	\$173,190	\$125,116	\$112,724	\$81,434
2025		\$1,367,305	\$959,000	\$1,167,333	\$818,744	\$179,291	\$125,751	\$116,695	\$81,847
2026		\$0	\$0	\$1,201,861	\$818,409	\$184,594	\$125,700	\$120,146	\$81,814
2027		\$0	\$0	\$1,240,799	\$820,314	\$190,575	\$125,992	\$124,039	\$82,004
2028		\$0	\$0	\$1,280,999	\$822,225	\$196,749	\$126,286	\$128,057	\$82,195
2029		\$0	\$0	\$1,326,125	\$826,397	\$203,680	\$126,927	\$132,569	\$82,612
2030		\$0	\$0	\$1,365,349	\$826,059	\$209,704	\$126,875	\$136,490	\$82,578
2031		\$0	\$0	\$1,409,584	\$827,982	\$216,499	\$127,170	\$140,912	\$82,771
2032		\$0	\$0	\$1,455,253	\$829,910	\$223,513	\$127,466	\$145,477	\$82,963
2033		\$0	\$0	\$1,506,517	\$834,122	\$231,386	\$128,113	\$150,602	\$83,385
TOTAL			\$39,928,000		\$16,285,916		\$2,623,649		\$1,628,051
			\$20,537,617	Discounted Benefit					
			\$39,928,000	Discounted Costs					
			0.51	Overall B/C					

**V. Project Readiness and NEPA**

Environmental clearance has been completed and right of way activities should be complete by early 2012.

**VI. Federal Wage Rate Certification**

All certification statements necessary for TIGER Discretionary Grant Program funding are provided in [Appendix B](#).

**VII. Changes to Pre-Application**

Latitude and Longitude values for the project location have been revised from the pre-application to the current application.

Location	Latitude	Longitude
Project Start	34.11580	-92.40591
Project End	34.04779	-92.104344