Department of Transportation's National Infrastructure Investments under the Consolidated Appropriations Act, 2014

TIGER VI Discretionary Grant Program

Project Name: **Highway 67 Interchange**

Project Location: **Cabot, Lonoke County, Arkansas**
United States Congressional District 1

Location Type: **Urban**

Total Funds Requested: **$11,500,000**

Total Local Funds: **$9,500,000**

Total Project Cost: **$21,000,000**

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April 2014

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Highway 67 Interchange

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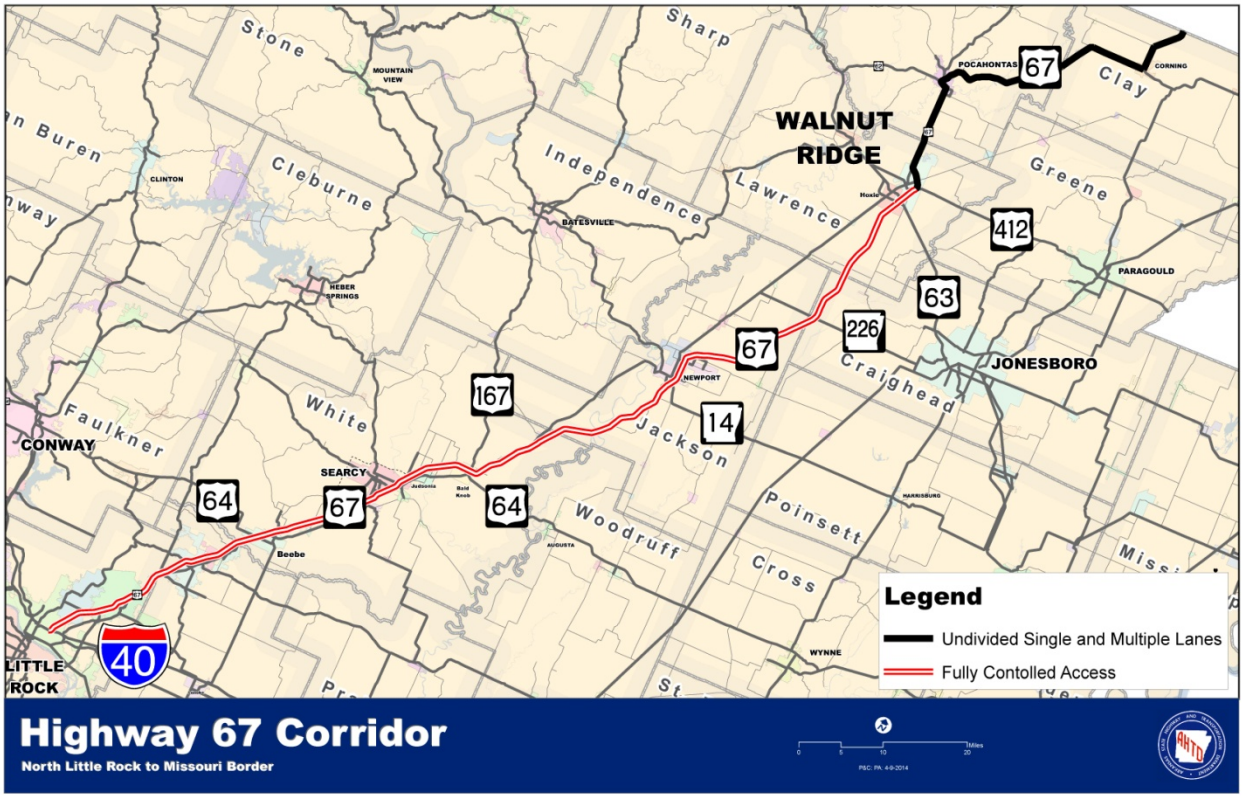
Project

Project Description

The Arkansas State Highway and Transportation Department (AHTD) is requesting funding to construct a new Interchange on Highway 67 north of Cabot, located in Lonoke County, Arkansas. This urban area project will also include construction of a new road connecting the interchange to the intersection of Highways 367 and 38. The total cost of the project will be $21 million dollars. This application requests $11.5 million. The City of Cabot has committed to pay $9.5 million, and voters in the area have passed a five-year city tax to pay their share of the project.

Overview

U.S. Highway 67 is a vital transportation corridor through the state of Arkansas. Highway 67 parallels Interstate 30 from Texarkana to Central Arkansas. Then from Interstate 40 to the northeast, Highway 67 is an extension of Interstate 30, having been constructed as a freeway for approximately 120 miles to U.S. Highways 63 and 412 in Walnut Ridge (surfacing of the last 22 miles is under contract). From there Highway 67 continues along its historical alignment through Pocahontas and Corning to the Missouri State Line, then to St. Louis and beyond. Access to Highway 67 is important for every community along the route.



This new access to Highway 67 will have a significant impact on residents of the area, with regard to safety, economy and quality of life. It will encourage residents to use the newly constructed Union Pacific Railroad overpass on Highway 38 to access Cabot schools, thereby increasing safety. It will also have a positive impact for travelers on Highway 67 by decreasing off-ramp back-ups at Cabot's two existing interchanges during peak hours.

Project Schedule

Task	Completion Date
Award to Contract	June-16
Mobilization of Project	July-16
Project Substantially Complete	August-18
Open to Traffic	August-18

Interstate 30 / Highway 67 Corridor

As mentioned above, U.S. Highway 67 is an important corridor through Arkansas. From Interstate 40 in North Little Rock to Bald Knob, a distance of 55 miles, U.S. Highway 67 is dually signed as U.S. Highway 167. From Beebe to Bald Knob, it is also signed as U.S. Highway 64. North of Newport, U.S. Highway 67 intersects with State Highway 226 which is under construction as a four-lane connection to Jonesboro via U.S. Highway 49 to future Interstate 555.

In Central Arkansas, population growth and commuter traffic between Cabot and Little Rock has resulted in major traffic congestion along U.S. Highway 67. $128 million has already been spent to complete reconstruction and widening to six lanes for the 19 miles from I-40 to south Jacksonville. Arkansas' Connecting Arkansas Program (CAP) and our Statewide Transportation Improvement Program (STIP) include $171 million to continue widening U.S. Highway 67 through Jacksonville to Cabot in the next five years.

Regional Projects Supporting Improvements to Highway 67 Interchange (Cabot)

Route	Termini	Length (Miles)	Completed	Under Construction	Scheduled	Proposed TIGER Project
			Cost (millions)			
67	I-40 to South Jacksonville	19.0	128.0			
67	Jacksonville to Cabot	7.0			171.0	
367 and 38	Hwy. 367/38 Signal & Intersection Improvements (Cabot)	0.4		0.7		
89	Hwy. 89 Relocation (Cabot)	0.2	0.7			
67	U.P. Railroad Overpass (Cabot)	0.7	6.4			
67 and 38	Hwy. 67 Interchange North of Cabot with Connector	0.9				21.0
	Totals	28.2	135.1	0.7	171.0	21.0

Communities Served

Cabot, founded in 1873, is located 20 miles northeast of Arkansas' capital city of Little Rock. Due to its locale, outstanding school district and great business opportunities, it has become one of the fastest growing cities in Arkansas.

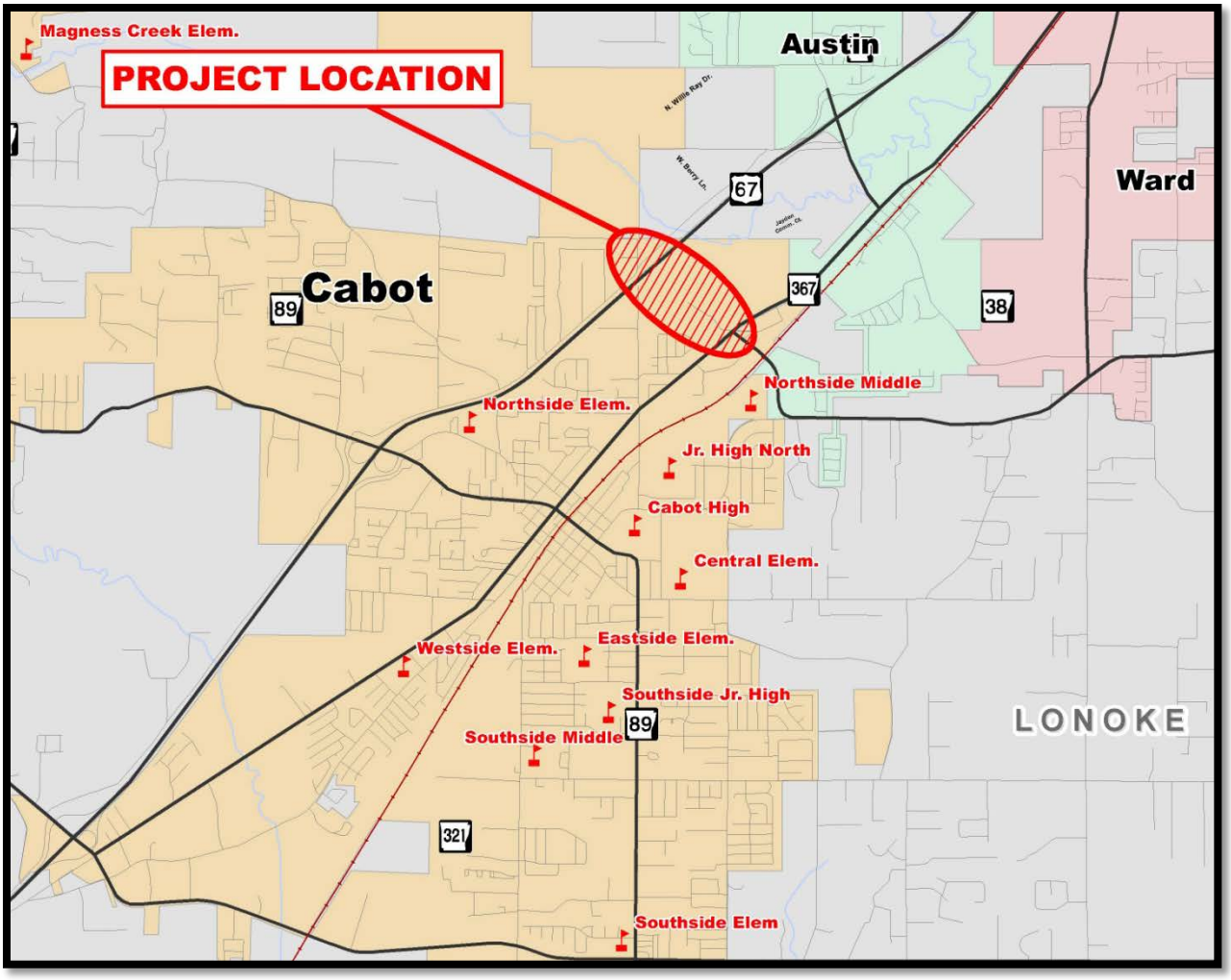
According to 2010 U.S. Census Bureau estimates, the population of the city is 23,776, ranking it as the state's 20th largest city, and the largest in Lonoke County, (population 68,356). Since 2000, it has had a population growth of 138 percent. The population of Cabot is expected to double by 2050. It is part of the Little Rock–North Little Rock–Conway Metropolitan Statistical Area. The city has a total area of 19.2 square miles.

Census	Pop.	%±
1960	1,321	15.2%
1970	2,903	119.8%
1980	4,806	65.6%
1990	8,319	73.1%
2000	15,261	83.4%
2010	23,776	47%
Est. 2014	36,366	53.0%

The phenomenal population growth experienced from the 1970s to today is also evidenced in new housing starts, as seen by new subdivided developments, that now cover the town. Some reasons for such growth is the Little Rock Air Force Base in nearby Jacksonville, the top-rated Cabot School District, and overall growth in the Little Rock Metropolitan area. Cabot residents work in Little Rock, North Little Rock, and Jacksonville, while they have chosen Cabot as their home because of the quality of life.

Cabot has a local school district with a local school board and neighborhood schools. The District encompasses much of northwest Lonoke County, including the cities of Cabot, Austin, and Ward. The community focus on education is the primary reason why Cabot is one of the fastest-growing cities in Arkansas.

The Cabot School District has nine elementary schools, two middle schools, two junior high schools, and one high school. The district consists of 10,644 students, making it the 7th largest district in state and largest employer in the county. There are approximately 13.9 students per teacher in Cabot.



Cabot High School is the sixth largest in the state of Arkansas, and competes in the largest athletic classification. Cabot High regularly produces National Merit Scholarship students, and earns statewide recognition for extracurricular activities such as Forensics and Debate, Band, and Quiz Bowl.

The city is within a 50-mile radius of four major universities, as well as a number of smaller colleges, community colleges, and technical schools. Specialty programs are also available at the University of Arkansas for Medical Sciences in Little Rock, and the University of Arkansas at Little Rock School of Law. This close proximity to higher education means that

many students are able to maintain their residence in the area and commute to further their education, while enjoying the costs savings of living at home. However, the cost savings to students and their parents adds more vehicles to the roadways leading in and out of this region. Convenient access to educational opportunities provides the citizens of this region ability to strengthen the middle class.

Adverse Effects of Growth

While the excellent schools might be considered ideal by many, residents have had to adjust to the explosive growth such excellence often produces. Extreme traffic congestion is a daily problem for residents of the area in and around Cabot.

Reduction in air quality due to the excess of automobiles each morning and afternoon negates part of the allure of the suburbs. Fresh country air is replaced with exhaust fumes. Stress caused by sitting in bumper-to-bumper, stop and go traffic replaces the tranquility of small town life.

The large and growing number of students and schools cause congestion in the area nine months out of the year. Population growth to the northwest and an absence of schools beyond elementary on that side of the highway, force parents and school bus drivers to drive through downtown Cabot to the south, or Austin to the north. Combined with business travelers the result is a dangerous, stressful, and inefficient commute.

Healthcare access from Cabot is also adversely affected by traffic congestion in the area. The nearest full-service hospital in the area is located 19 miles away in Searcy, or just over 20 miles away in North Little Rock. The National Institute of Health has published that the time it takes to reach an emergency facility has a direct correlation to survival rates of many major conditions and illnesses. In Cabot, distance and traffic congestion combine to make even a mild heart attack, potentially fatal.

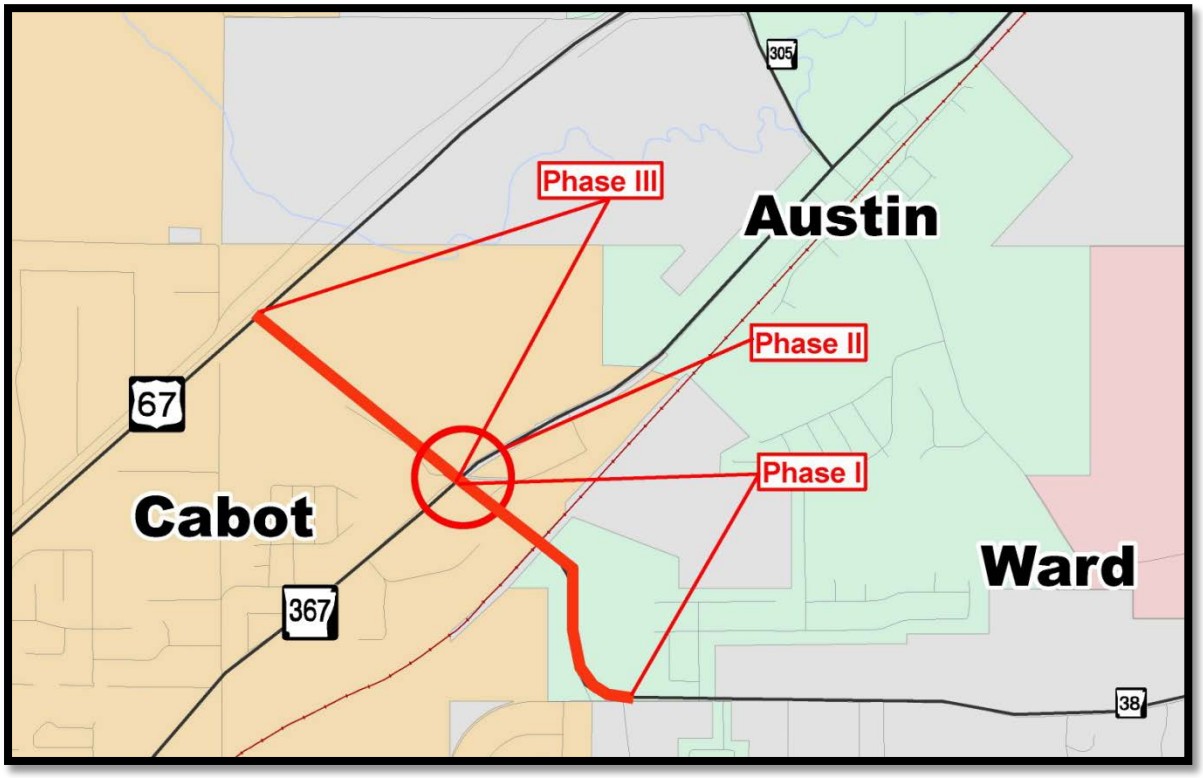
Solutions

The first two phases of traffic solutions are complete or are underway, and consists of:

Phase I: New overpass of the Union Pacific main rail line and relocation of Highway 38 was completed in 2010. The project cost was $6.4 million.

Phase II: Signalization of Highway 367/38 intersection and addition of turn lane was let to contract in February 2014 for $663,373.

Phase III: Consists of the new interchange on Highway 67, and a new road connecting to Highway 367/38 and the new railroad overpass.



Project Parties

In one of the strongest partnerships to date, the City of Cabot has offered $9.5 million to the Arkansas State Highway and Transportation Department to construct a new Highway 67 Interchange and connecting road. The City of Cabot also plans to build a road on the north side of the new interchange to connect with Highway 5, another high traffic route.

Grant Funds and Sources/ Uses of Project Funds

The City of Cabot has shown their commitment to relieve traffic problems for their residents by partnering with the Arkansas State Highway and Transportation Department to construct a new interchange on Highway 67 and build a new road to connect to Highway 367/38 and the new railroad overpass. Cabot has committed to pay $9.5 million, and voters in the area have passed a five-year city tax to pay their share of the project. Unfortunately, State and Federal funding is not available in the 2013-2016 Statewide Transportation Improvement Program (STIP). Therefore, the Arkansas State Highway and Transportation Department is requesting $11.5 million in TIGER funds to allow the project to proceed. City and/or State Highway funds are available for the matching share.

Selection Criteria

Primary Selection Criteria

Economic Competitiveness

Increase economic competitiveness for the area, by bringing more jobs to an area already set apart by an excellent school district and close proximity to Little Rock.

Quality of Life

Quality of Life will be increased for residents by reducing congestion and improving transportation alternatives. Air quality will also be increased in the area by reducing the number of automobiles on overcrowded thoroughfares.

Safety

The area will become safer by allowing easier access to Highway 67 via a new road that will connect to Highways 367/38 and the recently constructed railroad overpass. Drivers will be able to cross over the railroad and continue on to Highway 67. The route also enables drivers to reach their destinations with fewer turns and less time spent in heavily populated areas, many with large pedestrian populations.

Secondary Selection Criteria

Partnership

The Partnership with the City of Cabot is among the strongest the Arkansas State Highway and Transportation has ever entered into with any municipality or community organization.

Results of Benefit-Cost Analysis

The Benefit Cost Analysis (BCA) (http://www.arkansashighways.com/TIGER/T6/t6.aspx), was performed in accordance with the ARRA guidance provided in the Federal Register. These benefits and costs were quantified in accordance with Notice of Funding Availability, 79 Fed. Reg. 11,854 (2014).

The purpose of the BCA is to systematically compare the benefits and costs of constructing a proposed new interchange to the north of Cabot in Lonoke County, Arkansas. The BCA compared the cost of constructing the new interchange to the cost of doing nothing other than routine maintenance. The analysis considers the construction phase followed by a 20-year project life beyond the proposed opening date (2014 through 2038) for purposes of the BCA.

The analysis considered typical roadway construction and maintenance costs in Arkansas. Table 1 summarizes the findings of the BCA analysis using both a 3 percent discount rate and a 7 percent discount rate. 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.

Table 1: Benefit Cost Analysis Results

Year	Construction Costs			Travel Time Benefit			Vehicle Operation Cost Benefit			Safety Benefit		
	Non-Disc.	Disc (3%)	Disc. (7%)	Non-Disc.	Disc (3%)	Disc. (7%)	Non-Disc.	Disc (3%)	Disc. (7%)	Non-Disc.	Disc (3%)	Disc. (7%)
2014	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2015	$2,100,000	$2,038,835	$1,962,617	$0	$0	$0	$0	$0	$0	$0	$0	$0
2016	$3,712,500	$3,499,387	$3,242,641	$0	$0	$0	$0	$0	$0	$0	$0	$0
2017	$7,975,000	$7,298,255	$6,509,976	$0	$0	$0	$0	$0	$0	$0	$0	$0
2018	$3,712,500	$3,298,508	$2,832,248	$0	$0	$0	$0	$0	$0	$0	$0	$0
2019	$0	$0	$0	$4,273,145	$3,686,052	$3,046,693	$6,400,894	$5,521,468	$4,563,749	$5,953,724	$5,135,734	$4,244,923
2020	$0	$0	$0	$3,890,362	$3,258,117	$2,592,313	$5,927,787	$4,964,428	$3,949,935	$5,513,668	$4,617,610	$3,673,990
2021	$0	$0	$0	$3,507,580	$2,851,983	$2,184,344	$5,454,679	$4,435,154	$3,396,900	$5,073,612	$4,125,311	$3,159,591
2022	$0	$0	$0	$3,124,797	$2,466,744	$1,818,661	$4,981,572	$3,932,499	$2,899,320	$4,633,556	$3,657,772	$2,696,772
2023	$0	$0	$0	$2,742,015	$2,101,526	$1,491,474	$4,508,465	$3,455,363	$2,452,306	$4,193,500	$3,213,969	$2,280,986
2024	$0	$0	$0	$2,359,232	$1,755,491	$1,199,314	$4,035,357	$3,002,685	$2,051,371	$3,753,445	$2,792,915	$1,908,061
2025	$0	$0	$0	$1,976,450	$1,427,830	$938,997	$3,562,250	$2,573,445	$1,692,399	$3,313,389	$2,393,663	$1,574,167
2026	$0	$0	$0	$1,593,668	$1,117,766	$707,607	$3,089,142	$2,166,662	$1,371,616	$2,873,333	$2,015,298	$1,275,794
2027	$0	$0	$0	$1,210,885	$824,554	$502,474	$2,616,035	$1,781,393	$1,085,562	$2,433,277	$1,656,943	$1,009,724
2028	$0	$0	$0	$828,103	$547,473	$321,152	$2,142,928	$1,416,728	$831,064	$1,993,221	$1,317,754	$773,006
2029	$0	$0	$0	$445,320	$285,834	$161,405	$1,669,820	$1,071,794	$605,220	$1,553,166	$996,918	$562,939
2030	$0	$0	$0	$62,538	$38,971	$21,184	$1,196,713	$745,752	$405,368	$1,113,110	$693,653	$377,049
2031	$0	$0	$0	-$320,245	-$193,753	-$101,381	$723,606	$437,793	$229,075	$673,054	$407,209	$213,072
2032	$0	$0	$0	-$703,027	-$412,954	-$208,000	$250,498	$147,141	$74,113	$232,998	$136,862	$68,936
2033	$0	$0	$0	-$1,085,810	-$619,222	-$300,235	-$222,609	-$126,951	-$61,553	-$207,058	-$118,082	-$57,253
2034	$0	$0	$0	-$1,468,592	-$813,124	-$379,512	-$695,717	-$385,201	-$179,786	-$647,113	-$358,291	-$167,226
2035	$0	$0	$0	-$1,851,375	-$995,205	-$447,131	-$1,168,824	-$628,301	-$282,286	-$1,087,169	-$584,407	-$262,566
2036	$0	$0	$0	-$2,234,157	-$1,165,990	-$504,279	-$1,641,931	-$856,912	-$370,606	-$1,527,225	-$797,047	-$344,715
2037	$0	$0	$0	-$2,616,940	-$1,325,982	-$552,035	-$2,115,039	-$1,071,673	-$446,161	-$1,967,281	-$996,805	-$414,992
2038	$0	$0	$0	-$2,999,722	-$1,475,665	-$591,385	-$2,588,146	-$1,273,196	-$510,244	-$2,407,337	-$1,184,250	-$474,598
TOTAL	$17,500,000	$16,134,985	$14,547,482	$12,734,227	$13,360,447	$11,901,659	$38,127,480	$31,310,070	$23,757,362	$35,463,870	$29,122,728	$22,097,657
							No Disc.	3% Disc.	7% Disc.			
						Costs	$17,500,000	$16,134,985	$14,547,482			
						Benefits	$86,325,577	$73,793,246	$57,756,679			
						B/C Ratio	4.93	4.57	3.97			

Many benefits of this project do not easily lend themselves to simple quantification. The economic benefits of providing additional access for communities along a major highway corridor, as well as providing a safe and efficient transportation network for the region cannot be easily quantified beyond the impacts of construction activities and travel time savings. Providing an improved transportation network in the region does make an impact in terms of improving the per capita income in areas of the country that are below the national average which is a goal of the TIGER Discretionary Grant program.

The BCA was calculated using the following key factors for evaluation:

- Construction Costs
- Forecasted Traffic
- Travel Speeds and Congestion
- Historic Crash Data
- Vehicle Miles Traveled (VMT)
- Vehicle Hours Traveled (VHT)
- Traffic Distribution by Vehicle Type
- Value of Time

The construction cost estimate for the proposed interchange and connector is $15 million. Construction costs were spread across 2016, 2017 and 2018. The analysis also assumes 14 percent right-of-way costs and 10 percent preliminary and construction engineering costs. These costs reflect basic construction costs that would be incurred if the project were built using traditional construction methods and schedules. Assumed costs by year are shown in Attachment 3.

The BCA value of time analysis quantifies the road user impacts that the new interchange would have in terms of travel time savings by first determining the amount of travel time saved and then assigning a dollar value for this time. The Central Arkansas Regional Transportation Study (CARTS) travel demand model was used to estimate the change in VHT on the roadway network in Lonoke County, as shown in Attachment 2. Linear interpolation was used to estimate VHT in years other than the available model years in years between the 2010 and 2030 model runs. Because model data was not available beyond 2030, and because VHT values were very similar under the build and no-build models in 2030, VHT values were assumed to be equal beyond 2030. Time values were calculated in Attachment 1 and assigned to the travel time saving, as shown in Attachment 4. It was assumed that the new interchange would primarily divert automobiles.

The impacts of the vehicle operating costs account for the actual cost to operate the vehicle, aside from the travel time costs. Again, it was assumed that the primary beneficiaries would be passenger vehicles. Operating costs per mile are calculated in Attachment 1. The CARTS model was again used to estimate the change in total VMT in 2010 and 2030. A similar process to that used for VHT was used to estimate VMT in other years. The model results are provided in Attachment 2, and per mile costs are applied to these VMT values in Attachment 5.

The value of safety improvements considers cost savings that can be attributed to the reduction in travel distance by vehicles in Lonoke County. The statistical cost of a fatal and non-fatal crash was determined using TIGER guidance, and Arkansas urban fatal and non-fatal statewide average crash rates in 2012 were calculated. Using this information, a crash cost per VMT was estimated, as shown in Attachment 1. This cost was applied to the total VMT estimates in Lonoke County, as shown in Attachment 6.

When examined in the context of the Lonoke County roadway network, the proposed interchange exhibits a net positive economic impact of 5.46.

REFERENCES

- User and Non-User Benefit Analysis for Highways, September 2010, AASHTO
- Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, Office of Management and Budget
- TIGER Benefit-Cost Analysis (BCA) Resource Guide (http://www.dot.gov/tiger)
- http://www.thetruckersreport.com/infographics/cost-of-trucking/

ATTACHMENT 1

Benefits per VHT and VMT					
Value of Time					
Automobiles			**Trucks**		
Value of Time[1]	$12.98	per hour	Value of Time[1]	$25.75	per hour
Occupancy	1.1		Occupancy	1.05	
			Inventory Costs[2]	$1.03	
TOTAL COST	**$14.28**	per VHT	**TOTAL COST**	**$28.06**	per VHT
Vehicle Operating Costs					
Automobiles			**Trucks**		
Fuel Economy	25	MPG	Fuel Economy	6	MPG
Fuel Price	$3.00	per gallon	Fuel Price	$3.00	per gallon
Other Maint.[3]	$0.061	per mile	Other Maint.[6]	$0.150	per mile
Vehicle Life	10	years	Vehicle Life	5	years
Vehicle Cost	$20,000		Vehicle Cost[6]	$150,000	
Salvage Value	$2,000		Salvage Value	$15,000	
Miles per Year	15,000	miles	Miles per Year[6]	125,000	miles
Finance Rate	3.0%		Finance Rate	3.0%	
Owner. Cost[4]	$2,170	per year	Owner. Cost[6]	$29,928	per year
Insurance[5]	$1,092	per year	Insurance[6]	$6,500	per year
Fuel Cost	$0.120	per VMT	Fuel Cost	$0.500	per VMT
Other Maint.	$0.061	per VMT	Other Maint.	$0.150	per VMT
Ownership	$0.145	per VMT	Ownership	$0.239	per VMT
Insurance	$0.073	per VMT	Insurance	$0.052	per VMT
TOTAL COST	**$0.398**	**per VMT**	**TOTAL COST**	**$0.941**	**per VMT**
Safety Costs					
All Vehicles				**Cost of Crash[1]**	
	Crash Rate (per MVM)[7]			**AIS 0**	$0
	Build	**No-Build**	**Crash Cost[1]**	**AIS 1**	$27,600
Fatal Crashes	0.00965	0.00965	$9,200,000	**AIS 2**	$432,400
Non-Fatal Crash	2.224	2.224	$126,735	**AIS 3**	$966,000
	Crash Cost (per VMT)			**AIS 4**	$2,447,200
Fatal Crashes	$0.089	$0.089		**AIS 5**	$5,455,600
Non-Fatal Crash	$0.282	$0.282		**AIS 6**	$9,200,000
TOTAL COST	$0.371	$0.371			

1 -TIGER Guidance

2 - AASHTO, Equation 5-12, 3% interest rate, $300,000 Value of Cargo

3 - AASHTO Table 5-4, Avg. of Maint. and Tires for 5 vehicle types, adjust for inflation

4 - AASHTO, Equation 5-6

5 - AASHTO, Table 5-4, Avg. of Insurance for 5 Vehicle Types, adjusted for inflation

6 - From http://www.thetruckersreport.com/infographics/cost-of-trucking/

7 - Based on 2012 statewide average crash rates in urban areas

ATTACHMENT 2

Estimates of VMT and VHT						
	Output from CARTS Travel Demand Model (Lonoke County)					
	Daily VMT			Daily VHT		
	Build	No-Build	Reduction	Build	No-Build	Reduction
2010	2,060,609	2,133,894	73,285	46,672	48,153	1,481
2030	2,977,113	2,985,341	8,228	73,828	73,840	12
	Estimates of VMT and VHT by years using linear interpolation					
	Daily VMT			Daily VHT		
	Build[1,2]	No-Build	Reduction	Build[1,2]	No-Build	Reduction
2014	2,304,183	2,304,183	0	53,290	53,290	0
2015	2,346,756	2,346,756	0	54,575	54,575	0
2016	2,389,328	2,389,328	0	55,859	55,859	0
2017	2,431,900	2,431,900	0	57,143	57,143	0
2018	2,474,473	2,474,473	0	58,428	58,428	0
2019	2,473,036	2,517,045	44,009	58,892	59,712	820
2020	2,518,861	2,559,618	40,757	60,250	60,997	747
2021	2,564,686	2,602,190	37,504	61,608	62,281	673
2022	2,610,511	2,644,762	34,251	62,966	63,565	600
2023	2,656,337	2,687,335	30,998	64,323	64,850	526
2024	2,702,162	2,729,907	27,745	65,681	66,134	453
2025	2,747,987	2,772,479	24,492	67,039	67,418	379
2026	2,793,812	2,815,052	21,239	68,397	68,703	306
2027	2,839,637	2,857,624	17,987	69,755	69,987	232
2028	2,885,463	2,900,196	14,734	71,112	71,271	159
2029	2,931,288	2,942,769	11,481	72,470	72,556	85
2030	2,977,113	2,985,341	8,228	73,828	73,840	12
2031	3,027,913	3,027,913	0	75,124	75,124	0
2032	3,070,486	3,070,486	0	76,409	76,409	0
2033	3,113,058	3,113,058	0	77,693	77,693	0
2034	3,155,630	3,155,630	0	78,977	78,977	0
2035	3,198,203	3,198,203	0	80,262	80,262	0
2036	3,240,775	3,240,775	0	81,546	81,546	0
2037	3,283,347	3,283,347	0	82,830	82,830	0
2038	3,325,920	3,325,920	0	84,115	84,115	0

1. VMT and VHT for build scenario is equal to no-build until project opens.
2. VMT and VHT for build and no-build assummed to be equal beyond model years

ATTACHMENT 3

Construction and Maintenance Costs							
	Build			No-Build			ANNUAL COST
Year	Activity	Costs	User Delay	Activity	Costs	User Delay	(Current Dollars)
2014		$0	$0		$0	$0	$0
2015	ROW	$2,100,000	$0		$0	$0	$2,100,000
2016	Const & Eng	$3,712,500	$0		$0	$0	$3,712,500
2017	Const & Eng	$7,975,000	$0		$0	$0	$7,975,000
2018	Const & Eng	$3,712,500	$0		$0	$0	$3,712,500
2019		$0	$0		$0	$0	$0
2020		$0	$0		$0	$0	$0
2021		$0	$0		$0	$0	$0
2022		$0	$0		$0	$0	$0
2023		$0	$0		$0	$0	$0
2024		$0	$0		$0	$0	$0
2025		$0	$0		$0	$0	$0
2026		$0	$0		$0	$0	$0
2027		$0	$0		$0	$0	$0
2028		$0	$0		$0	$0	$0
2029		$0	$0		$0	$0	$0
2030		$0	$0		$0	$0	$0
2031		$0	$0		$0	$0	$0
2032		$0	$0		$0	$0	$0
2033		$0	$0		$0	$0	$0
2034		$0	$0		$0	$0	$0
2035		$0	$0		$0	$0	$0
2036		$0	$0		$0	$0	$0
2037		$0	$0		$0	$0	$0
2038		$0	$0		$0	$0	$0
Assumes 25% of construction in 2016, 50% of construction in 2017, and 25% in 2018							
Assumes right-of way aquisition = 14% of construction costs							
Assumes engineering = 10% of project costs							

ATTACHMENT 4

Travel Time Benefits						
Year	Reduction of VHT		Benefit per Auto VHT	Benefit per Truck VHT	DALIY BENEFIT (Current Dollars)	ANNUAL BENEFIT (Current Dollars)
	Auto	Truck				
2014	0.0	0.0	$14.278	$28.065	$0	$0
2015	0.0	0.0	$14.278	$28.065	$0	$0
2016	0.0	0.0	$14.278	$28.065	$0	$0
2017	0.0	0.0	$14.278	$28.065	$0	$0
2018	0.0	0.0	$14.278	$28.065	$0	$0
2019	820.0	0.0	$14.278	$28.065	$11,707	$4,273,145
2020	746.5	0.0	$14.278	$28.065	$10,659	$3,890,362
2021	673.0	0.0	$14.278	$28.065	$9,610	$3,507,580
2022	599.6	0.0	$14.278	$28.065	$8,561	$3,124,797
2023	526.1	0.0	$14.278	$28.065	$7,512	$2,742,015
2024	452.7	0.0	$14.278	$28.065	$6,464	$2,359,232
2025	379.3	0.0	$14.278	$28.065	$5,415	$1,976,450
2026	305.8	0.0	$14.278	$28.065	$4,366	$1,593,668
2027	232.3	0.0	$14.278	$28.065	$3,317	$1,210,885
2028	158.9	0.0	$14.278	$28.065	$2,269	$828,103
2029	85.5	0.0	$14.278	$28.065	$1,220	$445,320
2030	12.0	0.0	$14.278	$28.065	$171	$62,538
2031	0.0	0.0	$14.278	$28.065	$0	$0
2032	0.0	0.0	$14.278	$28.065	$0	$0
2033	0.0	0.0	$14.278	$28.065	$0	$0
2034	0.0	0.0	$14.278	$28.065	$0	$0
2035	0.0	0.0	$14.278	$28.065	$0	$0
2036	0.0	0.0	$14.278	$28.065	$0	$0
2037	0.0	0.0	$14.278	$28.065	$0	$0
2038	0.0	0.0	$14.278	$28.065	$0	$0
Assumes that only an insignificant portion of reduced VHT will be from trucks						

ATTACHMENT 5

Vehicle Operating Benefits						
Year	Reduction of VMT		Benefit per Auto VMT	Benefit per Truck VMT	DALIY BENEFIT (2014)	ANNUAL BENEFIT (2014)
	Auto	Truck				
2014	0	0	$0.398	$0.941	$0	$0
2015	0	0	$0.398	$0.941	$0	$0
2016	0	0	$0.398	$0.941	$0	$0
2017	0	0	$0.398	$0.941	$0	$0
2018	0	0	$0.398	$0.941	$0	$0
2019	44009	0	$0.398	$0.941	$17,537	$6,400,894
2020	40757	0	$0.398	$0.941	$16,241	$5,927,787
2021	37504	0	$0.398	$0.941	$14,944	$5,454,679
2022	34251	0	$0.398	$0.941	$13,648	$4,981,572
2023	30998	0	$0.398	$0.941	$12,352	$4,508,465
2024	27745	0	$0.398	$0.941	$11,056	$4,035,357
2025	24492	0	$0.398	$0.941	$9,760	$3,562,250
2026	21239	0	$0.398	$0.941	$8,463	$3,089,142
2027	17987	0	$0.398	$0.941	$7,167	$2,616,035
2028	14734	0	$0.398	$0.941	$5,871	$2,142,928
2029	11481	0	$0.398	$0.941	$4,575	$1,669,820
2030	8228	0	$0.398	$0.941	$3,279	$1,196,713
2031	0	0	$0.398	$0.941	$0	$0
2032	0	0	$0.398	$0.941	$0	$0
2033	0	0	$0.398	$0.941	$0	$0
2034	0	0	$0.398	$0.941	$0	$0
2035	0	0	$0.398	$0.941	$0	$0
2036	0	0	$0.398	$0.941	$0	$0
2037	0	0	$0.398	$0.941	$0	$0
2038	0	0	$0.398	$0.941	$0	$0
Assumes that only an insignificant portion of reduced VMT will be from trucks						

ATTACHMENT 6

Safety Benefits						
Year	Build VMT All	No-Build VMT All	Build Cost per Mile	No-Build Cost per Mile	DALIY BENEFIT (Current Dollars)	ANNUAL BENEFIT (Current Dollars)
2014	2,304,183	2,304,183	$0.371	$0.371	$0	$0
2015	2,346,756	2,346,756	$0.371	$0.371	$0	$0
2016	2,389,328	2,389,328	$0.371	$0.371	$0	$0
2017	2,431,900	2,431,900	$0.371	$0.371	$0	$0
2018	2,474,473	2,474,473	$0.371	$0.371	$0	$0
2019	2,473,036	2,517,045	$0.371	$0.371	$16,312	$5,953,724
2020	2,518,861	2,559,618	$0.371	$0.371	$15,106	$5,513,668
2021	2,564,686	2,602,190	$0.371	$0.371	$13,900	$5,073,612
2022	2,610,511	2,644,762	$0.371	$0.371	$12,695	$4,633,556
2023	2,656,337	2,687,335	$0.371	$0.371	$11,489	$4,193,500
2024	2,702,162	2,729,907	$0.371	$0.371	$10,283	$3,753,445
2025	2,747,987	2,772,479	$0.371	$0.371	$9,078	$3,313,389
2026	2,793,812	2,815,052	$0.371	$0.371	$7,872	$2,873,333
2027	2,839,637	2,857,624	$0.371	$0.371	$6,667	$2,433,277
2028	2,885,463	2,900,196	$0.371	$0.371	$5,461	$1,993,221
2029	2,931,288	2,942,769	$0.371	$0.371	$4,255	$1,553,166
2030	2,977,113	2,985,341	$0.371	$0.371	$3,050	$1,113,110
2031	3,027,913	3,027,913	$0.371	$0.371	$0	$0
2032	3,070,486	3,070,486	$0.371	$0.371	$0	$0
2033	3,113,058	3,113,058	$0.371	$0.371	$0	$0
2034	3,155,630	3,155,630	$0.371	$0.371	$0	$0
2035	3,198,203	3,198,203	$0.371	$0.371	$0	$0
2036	3,240,775	3,240,775	$0.371	$0.371	$0	$0
2037	3,283,347	3,283,347	$0.371	$0.371	$0	$0
2038	3,325,920	3,325,920	$0.371	$0.371	$0	$0

Project Readiness

Task	Completion Date
Design Surveys	June-14
Roadway Design	October-14
Environmental	March-15
Right of Way	May-15
Project Obligation	June-16