30 CROSSING

FASTLANE 2016
GRANT APPLICATION
I-30 CROSSING PROJECT

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
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Arkansas State Highway and Transportation Department
Fostering Advancements in Shipping and Transportation for the
Long-term Achievement of National Efficiencies (FASTLANE) Grant

Interstate 30 National Freight Corridor Improvements	
Project Name	Interstate 30 National Freight Corridor Improvements
Previously Incurred Project Cost	$8,783,118
Future Eligible Project Cost	$622,916,882
Total Project Cost	$631,700,000
NSFHP Request	$100,000,000
Total Federal Funding (including NSFHP)	$227,400,000
Are matching funds restricted to a specific project component? If so, which one?	No
Is the project or a portion of the project currently located on National Highway Freight Network	Yes
Is the project or a portion of the project located on the National Highway System • Does the project add capacity to the Interstate system? • Is the project in a national scenic area?	NHS – Yes Interstate Capacity - Yes Scenic - No
Do the project components include a railway-highway grade crossing or grade separation project?	Yes
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	Yes
If answered yes to either of the two component questions above, how much of requested NSFHP funds will be spent on each of these project components?	Bridge cost $114,000,000. A portion of the NSFHP funds received will be used for this component.
State(s) in which project is located	Arkansas
Small or Large project	Large
Also submitting an application to TIGER for this project?	No
Urbanized Area in which project is located, if applicable	Little Rock and North Little Rock, Arkansas
Population of Urbanized Area	431,338
Is the project currently programmed in the • TIP • STIP • MPO Long Range Transportation Plan • State Long Range Transportation Plan • State Freight Plan?	TIP - Yes STIP – Yes MPO LRTP - Yes SLRTP – This is not a project specific plan. SFP – Current SFP is not project specific. The update is underway and this will be included.

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PROJECT SUMMARY

In 2012 the people of Arkansas voted to implement the Connecting Arkansas Program (CAP), passing a Constitutional Amendment to assess a one-half cent, ten year sales tax to support the largest single highway program in the history of Arkansas. Thirty-five projects were identified as part of that program when the vote was taken, with The I-30 Corridor Project (Project), being the largest and most ambitious ever planned to be undertaken by the Arkansas State Highway and Transportation Department (AHTD). It will be the first project in the state to utilize the design-build-finance method, and is the first to incorporate the Planning and Environmental Linkage (PEL) study process.

The Project seeks to improve portions of Interstate 30 (I-30) and Interstate 40 (I-40) in Central Arkansas. The Project's major components include improvements to approximately five miles of I-30 from the Interstate 530 (I-530) interchange north to the I-40 interchange; approximately 1.75 miles of I-40 from Highway 107 east to the Highway 67 interchange; the Interstate 630 (I-630) interchange; and replacement of the structurally deficient, fracture-critical Arkansas River Bridge.

This Project will ease congestion and reduce travel times in one of the most heavily traveled corridors of the state. Repairs and replacements are necessary due to wear and tear on the roadway associated with constant, heavy traffic in the area. However, rather than simply repair the existing roadway, the Project seeks to address traffic operational needs through widening of the roadway; increase safety through redesign of access; increase connectivity of the local communities; and ease freight movement along Marine Highway 40 (M-40). These highway improvements will occur on either side of the I-30 Arkansas River Bridge, the "Keystone" of the Project, which at 126,000 vehicles per day is the most traveled bridge in the state. The Bridge is in need of replacement due to fatigue, the lack of beams sharing the load of the pin and hanger assembly, and the inadequacy of the columns in the event of a seismic event. The new structure will not only be designed to promote safe and efficient traffic flow on I-30, the bridge piers will be relocated to clear the navigational path for river freight along M-40, the only waterway connecting Arkansas and Oklahoma.

The Project will serve connections to five major interstates and one freeway — I-40, I-630, I-30, I-530, and Interstate 440 (I-440), and Highway 67 — within the Little Rock/ North Little Rock metropolitan area. Interstate 30, as well as the connecting routes are included in the National Highway Freight Network. These routes are critical to the efficient movement of freight not only in Arkansas but also nationally. Both I-30 and I-40 are national freight shipping lanes that also happens to be located in the project foot print. These connections make the Project both locally and regionally significant. See "Figure 1 [I-30 Corridor Project Map]".

Total cost of this Project is estimated to be $631,700,000. The dollar amount and large scope of this project makes funding difficult. AHTD is requesting $100,000,000 in National Significant Freight and Highway Project (NSFHP) funds. The balance of funding will come from CAP funds, and $22 million from AHTD's Interstate Rehabilitation Program (IRP).

PROJECT DESCRIPTION

This Project proposes to widen, reconstruct, and rehabilitate portions of I-30 and I-40, including replacing and widening the Arkansas River Bridge. Consideration has been made for increasing safety by revising access ramps in order to lengthen weaving distances and decision making time, and to increase accessibility with the possible inclusion of additional ramps. Frontage roads will be connected, and additional lanes will be included on the Arkansas River Bridge. A VISSIM model showing the extent of the Project can be found at [https://vimeo.com/125509867.](https://vimeo.com/125509867)

Figure 1 [I-30 Corridor Project Map]

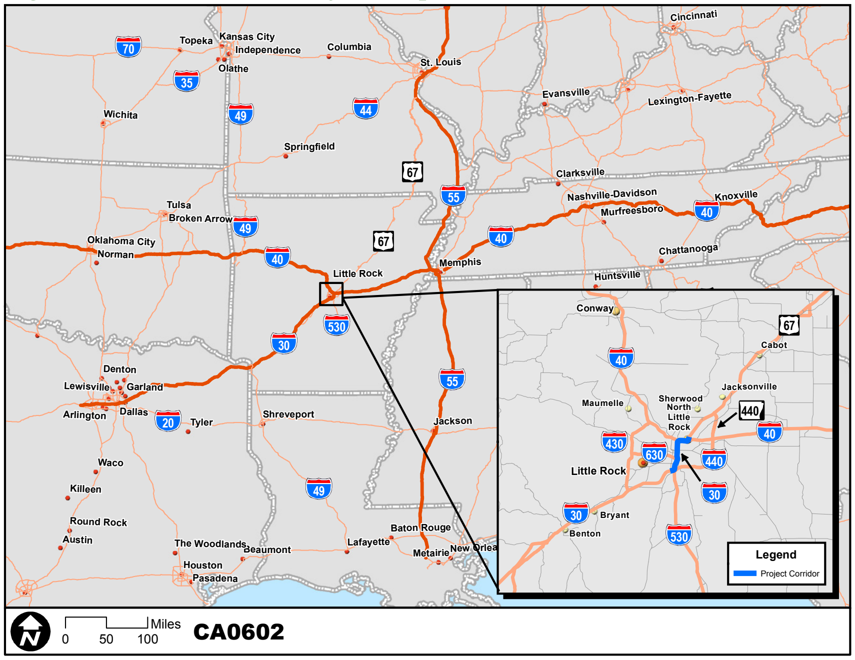


Table 1 [Needs and Purpose]

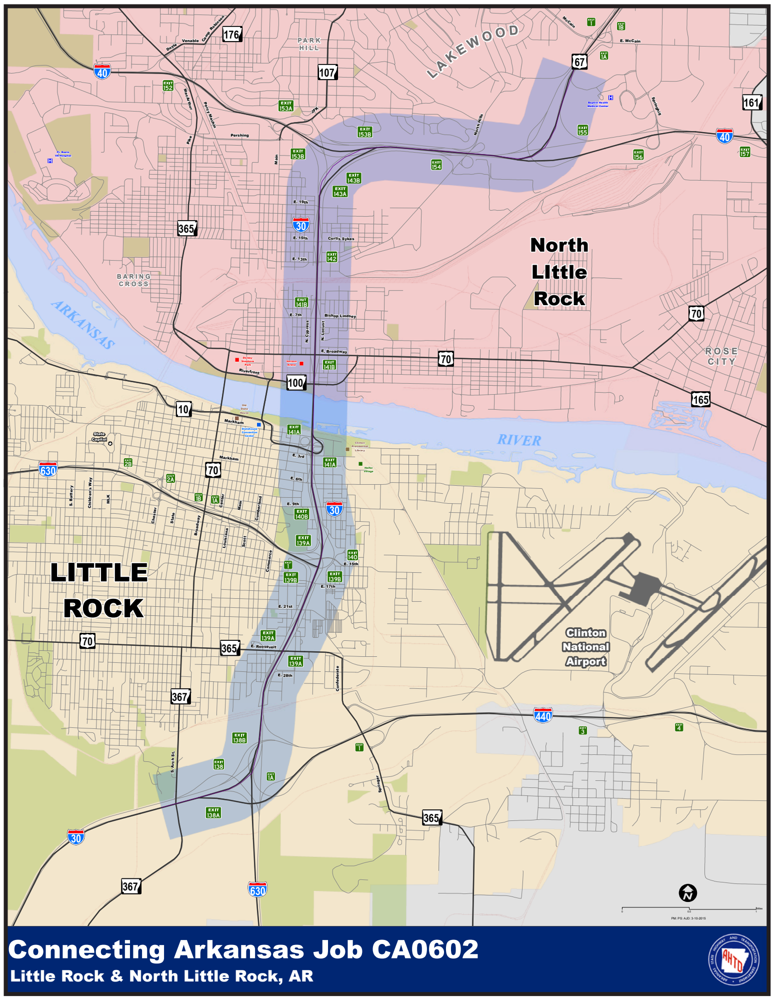
NEEDS (PROBLEMS)	PURPOSE (SOLUTIONS)
Traffic Congestion	To improve mobility on I-30 and I-40 by providing comprehensive solutions that improve travel speed and travel time to downtown North Little Rock and Little Rock and accommodate the expected increase in traffic demand. I-30 provides essential access to other major statewide transportation corridors, serves local and regional travelers and connects residential, commercial and employment centers.
Roadway Safety	To improve travel safety within and across the I-30 corridor by eliminating and/or improving inadequate design features.
Structural and Functional Roadway Deficiencies	To improve I-30 roadway conditions and functional ratings.
Navigational Safety	To improve navigational safety on the Arkansas River by eliminating and/or improving inadequate design features.
Structural and Functional Bridge Deficiencies	To improve I-30 Arkansas River Bridge conditions and functional ratings.

PROJECT LOCATION

The Project is located in Central Arkansas, on I-30 and starts at the junction with I-530 in the south as shown in "Figure 2 [I-30 Corridor Project Area]". From there the Project moves north through downtown Little Rock and its junction with I-630 and, after crossing the Arkansas River, through North Little Rock. From the junction of I-30 and I-40, the project continues, heading east on I-40 to the interchange with Highway 67.

The project area is considered Urban, centered within Arkansas' largest urbanized area with a population of 431,338. Little Rock is the capitol, and most populous city, of Arkansas and the county seat of Pulaski County. North Little Rock is situated across the Arkansas River from Little Rock, and the two cities are connected by the I-30 Arkansas River Bridge.

Figure 2 [I-30 Corridor Project Area]



PROJECT PARTIES

Statewide Parties

The primary party in this Project is the Arkansas State Highway and Transportation Department. AHTD has partnered with Metroplan, the City of Little Rock, and the City of North Little Rock. They are committed to the success of this, and all projects, of regional significance in their area. The Project is funded in partnership with the People of Arkansas through IRP and CAP funds.

Interstate Rehabilitation Program

- In a special election held November 8, 2011, the citizens of Arkansas voted to allow the Arkansas Highway Commission to issue up to $575 million in Grant Anticipation Revenue Vehicles bonds to help finance improvements and repairs to existing interstates in Arkansas. This program, in combination with existing federal and state revenues, is expected to support $1.2 billion in construction on our interstate highways over the life of the program. The IRP will provide $23 million for the Project.

Connecting Arkansas Program

- The CAP is the largest highway construction program ever undertaken by AHTD. In early 2011 the Arkansas Legislature voted to include Issue #1 on the General Election ballot. On November 6, 2012, Arkansas voters approved this ten-year, half-cent sales tax to improve highway and infrastructure projects throughout the state. This constitutional amendment will finance widening, improvements, and completion of certain state highways. The $1.8 billion CAP will end when the bonds are paid off. The temporary tax is shared statewide by consumers and road users. Taxes were not raised on groceries, medicine, or motor fuels. This program provides $404 million for the Project.

Local Parties

On a more local level, the communities impacted by the Project have been engaged and participated extensively through the PEL process. Significant outreach resulting in community involvement has brought the surrounding areas and the businesses, schools, and attractions, together as partners with the AHTD in seeking funding for the Project. Summaries of all meetings can be found at the CAP website at https://connectingarkansasprogram.com/meetings/I-30-pulaski-county/.

Broad-based community support has directed and defined the Project from the early stages, and will continue to push the Project to implement community-driven needs. Broad-based support is evident from the diverse groups represented in the technical work group reflected in "Table 2 [PEL Technical Work Group Members]". The Technical Work Group is a meeting of local, state and federal agencies having an interest in the various components of the project and its immediate surroundings.

Table 2 [PEL Technical Work Group Members]

PEL TECHNICAL WORK GROUP MEMBERS	
Ark. State Highway and Transportation Dept.	City of North Little Rock Parks and Recreation
Ark. Archeological Survey	Federal Highway Administration
Ark. Commissioner of State Lands	Federal Railroad Administration, SW Region
Ark. Dept. of Emergency Management	Little Rock District Corps of Engineers
Ark. Dept. of Environmental Quality	Little Rock School District
Ark. Dept. of Parks and Tourism	Metroplan
Ark. Economic Development Commission	North Little Rock A&P Commission
Ark. Game and Fish Commission	North Little Rock Visitors Bureau
Ark. Geological Survey	North Little Rock School District
Ark. Historic Preservation Program	Pulaski County Planning & Development
Ark. Natural Heritage Commission	Pulaski County Special School District
Ark. Natural Resources Commission	Union Pacific Railroad
Ark. State Police	US Army Corps of Engineers
Ark. Waterways Commission	US Coast Guard - Western Rivers
Central Ark. Transit Authority	US Dept. of Housing & Urban Development
City of Little Rock - Planning and Development	US Dept. of the Interior - National Park Service
City of Little Rock - Public Works	US Environmental Protection Agency Region 6
City of Little Rock Parks and Recreation	US Fish and Wildlife Service
City of North Little Rock	US Geological Survey - Ark. Water Science

GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS / COST SHARE

The Project will be the largest construction project let to contract in Arkansas' history. This Project will cost more than AHTD receives in Federal funds for an entire year. The total cost of the Project is $631.7 million. AHTD is requesting $100 million in NSFHP funds. The remaining balance of funding will come from the CAP, the IRP, and other federal funds. Both of these programs were approved by a vote of the people of Arkansas. The state match for this project will be close to 70% of the total cost if NSFHP funds are received. Congress approved a $1 million earmark under SAFETEA-LU for this project. The table below shows funding sources and their percent of the Project.

As shown in the "Table 3 [Funding Source]", CAP will be primary funding source for this Project. When the people of Arkansas voted for the CAP, this project was on the list of improvements. This project would not have been possible if the people of Arkansas had not seen a great need for improving the highway system in the state. The Project can reach its full potential and fulfill the vision of the people of Arkansas with the additional support of NSFHP funds.

Table 3 [Funding Source]

Funding Source	Cost (Millions)	Funding Status	% of Total Funds
NSFHP Funds	$100.0	Applied For	15.8%
Connecting Arkansas Program	$404.3	Committed	64.0%
Interstate Rehabilition Program	$22.7	Committed	3.6%
SAFETEA-LU Earmark	$1.1	Committed	0.2%
Other Federal	$103.6	Committed	16.4%
Total Project Funds	**$631.7**		

COST-EFFECTIVENESS

Travel demand benefits for the proposed improvements along I-30 are summarized below "Table 4 [Project-Level Impacts]" on page 6. Benefits reflect corridor-level impacts compared to a future 2040 No-Build scenario. The project's proposed opening to traffic is in year 2020. A future/horizon year for the No Build and Build project scenarios is set at 2040 to provide a 20-year benefit stream for the impact analysis. Impacts are isolated to the I-30 project only; they do not reflect any additional planned improvements in the region.

It is estimated that in the base year, the proposed project will reduce delay by around 35% percent during (AM and PM) peak periods of travel for both autos and trucks.

Table 4 [Project-Level Impacts]

	Base Year No Build	Base Year Build	% Change
Total Daily Delay	173,635	111,347	-36%
AM Peak Delay/Auto	30,797	21,113	-31%
AM Peak Delay/Truck	1,556	1,009	-35%
PM Peak Delay/Auto	101,577	62,427	-39%
PM Peak Delay/Truck	4,206	2,738	-35%

The benefits of implementing the project include cost savings due to reduced pavement maintenance cost, travel time, delays and vehicle operating cost, motor vehicle crash costs. "Table 5 [Summary of Benefit-Cost Analysis]" on page 7 summarizes the findings of the benefit-cost analysis which yield a robust Benefit Cost Ratio (BCR) ranging between 1.6 and 2.1.

Economic Impacts

The transportation cost savings arising from the Project will support additional economic growth and development in the region. It is estimated that the short-term impact of the increased construction spending will lead to an additional 8,450 jobs. In the long term, the Project will increase the overall competitiveness of the region, translating into an additional 369 jobs, $17.1 million in labor income, and $51.0 million in Gross State Product (GSP), annually.

Summary Benefits

The I-30 corridor project is estimated to provide significant benefit to the Little Rock region and the State of Arkansas. Capacity upgrades yield a significant and immediate 31 to 39 percent delay reduction across the corridor. Improved mobility and reliability resulting from the project will support reduced air pollution and ensure the region and the state's economy grows bigger and faster. The Gross State Product (GSP), a measure of the size of the state's economy, is projected to grow by about $51 million more per year with the project than without it. The expansion in GSP translates into an additional 369 permanent jobs per year and $17.1 million in additional personal income per year for residents throughout the state.

Table 5 [Summary of Benefit-Cost Analysis]

	Discount rate	
Benefits	**7%**	**3%**
Reduction in Value of Time Costs	$656,154,034	$957,843,150
Reduction in Non-Fuel Vehicle Operating Costs	$800,623	$1,140,167
Reduction in Fuel Vehicle Operating Costs	$1,137,305	$1,619,543
Reduction in Safety Costs	$ 1,924,490	$2,740,368
Reduction in Emissions Costs	$483,162	$693,006
Reduction in Logistics Costs	$ (2,846)	$ (4,200)
Reduction in Repair Costs	$155,040,781	$247,237,507
Total Benefits	$ 815,537,548	$1,211,269,539
Costs		
Construction Costs	$514,412,924	$586,435,428
Maintenance and Operations Costs	$ 2,370,441	$3,974,520
Total Costs	$516,783,366	$590,409,948
Benefits vs. Costs		
Net Present Value of Benefits	$298,754,182	$620,859,591
Benefit-Cost Ratio	**1.6**	**2.1**

PROJECT READINESS

Although large in scope, this Project will have an abbreviated timeline as compared to other projects of similar size and scope. This abbreviated timeline is due to the Project being confined predominantly to the existing right of way footprint and by utilizing time saving techniques in the planning, design and construction phases. By utilizing the PEL process during the planning phase, the resulting PEL recommendations will streamline the NEPA process thus reducing the timeframe for environmental clearance. By use of the design build process; design, utility relocation and construction will occur concurrently resulting in a greatly reduced project timeline. Environmental clearance for this Project is expected by the end of 2016. Following environmental clearance, a design build firm will be selected in mid 2017 with construction expected to begin in mid 2018. Project completion is expected in late 2022.

Table 6 [Project Readiness]

ECONOMIC OUCOMES

Statistical data and economic information for the Little Rock/ North Little Rock areas are provided in Tables 7 through 10. Data compiled by Metroplan, using the Metropolitan Planning Organization (MPO) for Central Arkansas, U.S. Census data shows that approximately 56,000 commuters from the closest neighboring counties travel to Pulaski County each day for work. Residents of Pulaski County who remain in the county for work total 171,000. Of the approximately 227,000 persons working in Pulaski County, at least 25% of those are employed at the major employment centers highlighted in red in "Figure 3 [Concentrated Employment Areas]"on the following page.

The recommendations include implementation and utilization of bus-on-shoulders, increasing the efficiency and ride ability of available transit. This provides additional methods of transportation in an area where residential information indicates a significant portion of residents are classified as low income.

Table 7 [Population]

2014 est. Census, population	Little Rock	North Little Rock	Total
People	197,706	66,810	264,516
Households	77,352	26,530	103,882
Density (peo./mile^2)	4,624	1,210	

Data from United States Census Bureau

Table 8 [Median Income]

2014 Median Income	Little Rock	North Little Rock	National
Median household income	$46,409	$40,305	$53,482
Population below the poverty Line	18.0%	21.7%	15.6%

Data from United States Census Bureau

Table 9 [Population by Race]

2010 Census, Population	Little Rock	North Little Rock
White	46.7%	51.6%
Black or African American	42.3%	39.7%
Native American	0.4%	0.4%
Asian / Pacific Islander	2.8%	1.0%
Hispanic or Latino	6.8%	5.7%
Two or More Races	1.7%	2.1%

Data from United States Census Bureau

Table 10 [Metropolitan Statistical Area]

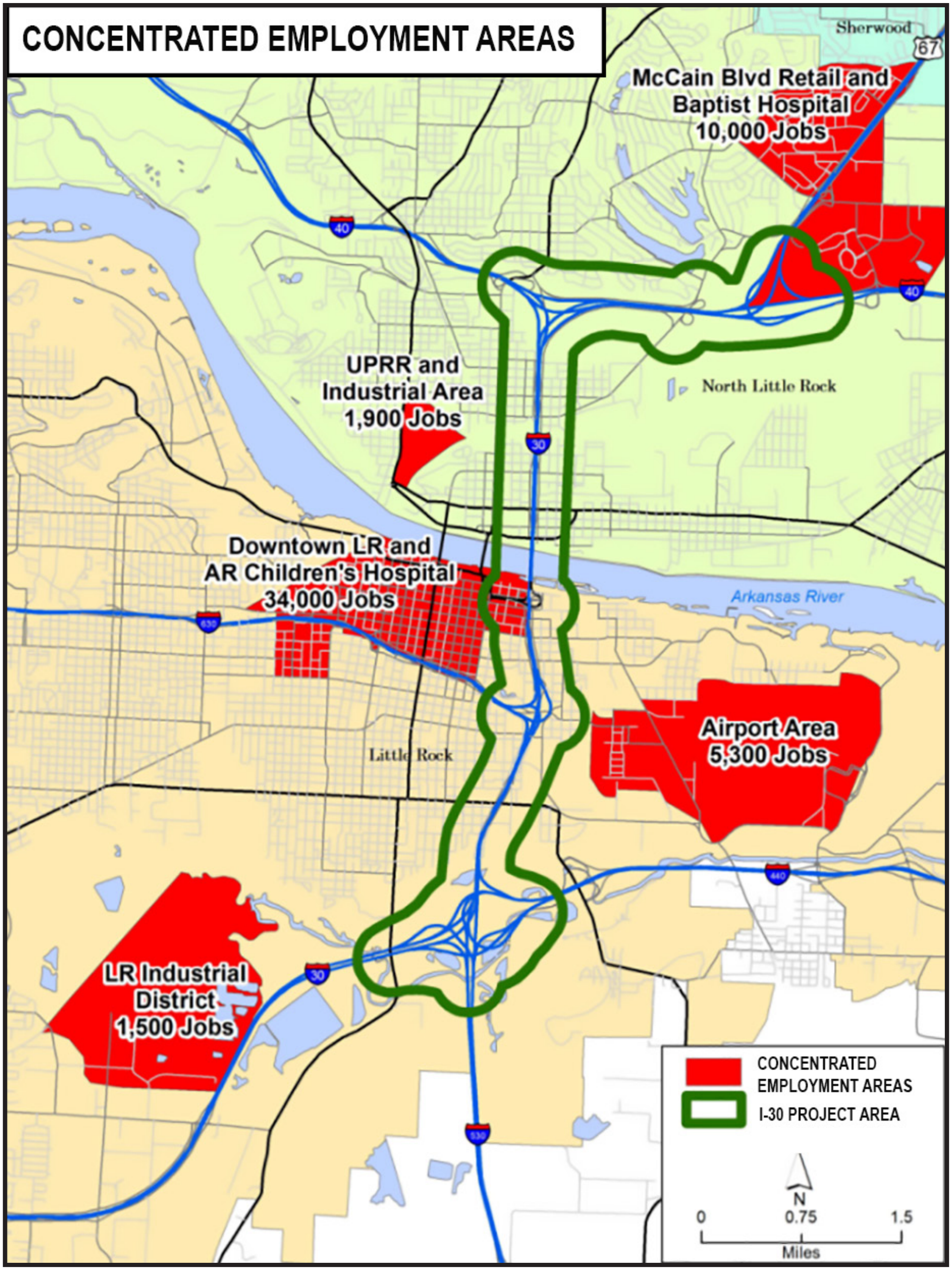
Year	MSA
2013	724,385
2010	699,757
2000	610,518

Data from United States Census Bureau

The additional lanes on the I-30 Arkansas River Bridge would provide an ease of connectivity not previously available to these two cities,and provide north-south connections for both cities' downtown areas.

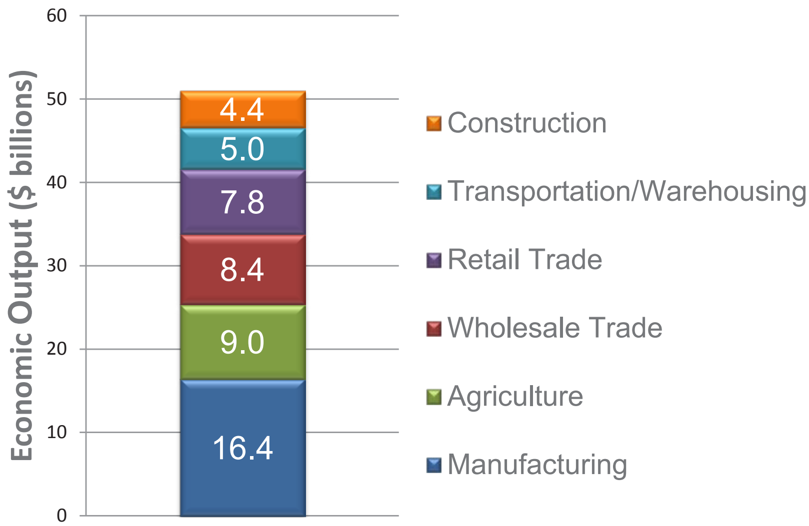
Opportunities to enhance safety and reconnect east and west sides of I-30 would be heightened through better visual connections and safe sight lines and vistas over and under the interstate. Where possible, longer bridge spans will be explored, including minimizing column placements and depressing of corridor sections at strategic locations. Visibility under bridges should be developed to improve pedestrian and bicycle safety. This could be achieved through greater sidewalk widths, longer bridge spans or sloped abutments where necessary and enhanced pedestrian and vehicular safety lighting under bridge structures and along pathways.

Figure 3 [Concentrated Employment Areas]



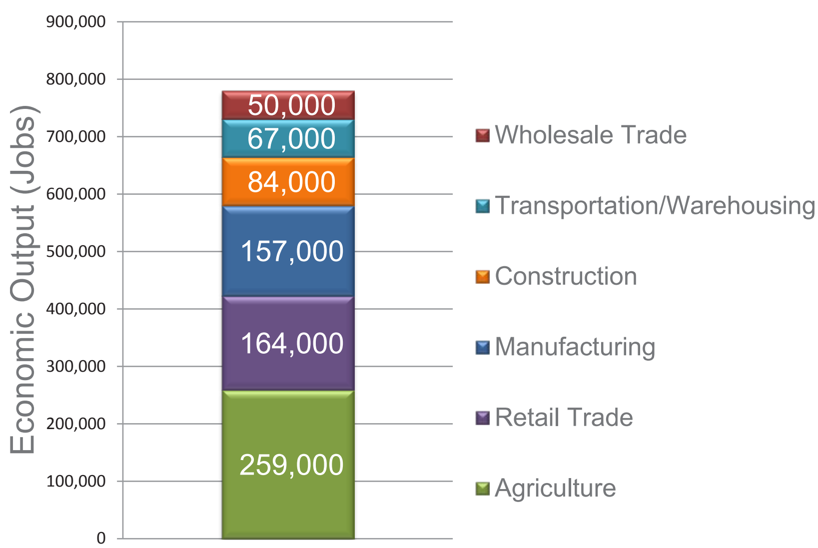
Across the state, transportation is a critical factor in the movement of freight. Of the total $119 billion in economic output, 43% or $51 billion is dependent on freight movement. The following chart details the sectors of the economy most dependent on freight.

Figure 4 [Freight Dependent Portion of Arkansas' Economy]



Likewise, nearly 781,000 jobs or half of the total employment in Arkansas, is dependent on freight movement either as a resource for manufacturing or for delivery of finished goods for retail sales. "Figure 5 [Freight Dependent Portion of Arkansas' Economy - Jobs]" displays the distribution of freight-dependent employment in Arkansas. Of course, agriculture is very heavily dependent on freight movement as both a sector of the economy as well as a major employer with over 259,000 jobs attributed to the agricultural sector.

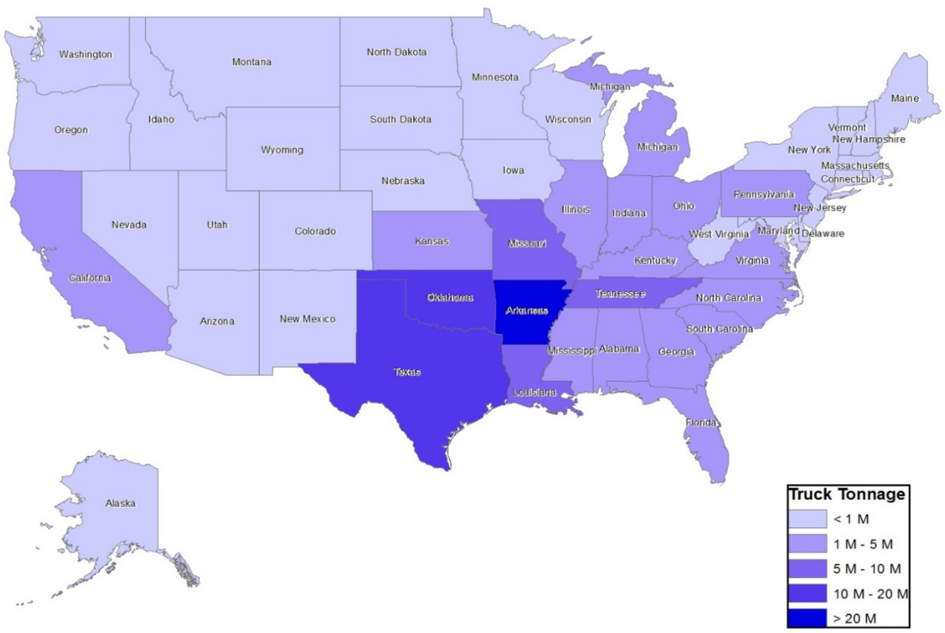
Figure 5 [Freight Dependent Portion of Arkansas' Economy - Jobs]



Relevant to this application is the truck-related freight movements in Arkansas. The following figure shows the top trading partners based on the tonnage of freight shipped by truck. Oklahoma and Texas qualify as the largest tonnage-based trading partners with more than 20 million tons being shipped by truck. The next on the list would be Missouri, Louisiana, and Tennessee. This is important to the proposed project corridor as I-49 provides direct access from Arkansas to Missouri and Louisiana.

Freight traffic forecasts indicate the tonnage of freight shipped to, from, and within Arkansas will nearly double between 2012 and 2040 from 299 million tons to over 439 million tons. This brings with it additional commercial vehicles on the system, additional employees to handle the freight, and additional passenger traffic associated with the additional employees and their families.

Figure 6 [Truck Tonnage]



Structural and Functional Deficiencies of I-30 and I-40

This portion of I-30 was originally constructed in the 1960s with 10-inch jointed concrete pavement over eight inches of aggregate base material. In the early 1980s, this section was overlaid with a one-half inch stress absorbing membrane and 5.5 inches of asphalt. Likewise, the I-40 pavement section was originally constructed in the 1960s with 10 inches of concrete pavement over 9 to 11 inches of aggregate material. In the mid-1980s, the section was overlaid with one inch of asphalt and six inches of continuously reinforced concrete pavement.

Currently, the existing surface shows moderate to severe levels of cracking along both I-30 and I-40, including alligator cracking, joint reflective cracking, longitudinal and transverse cracking, and linear cracking. Other roadway distresses include lane and shoulder separation and patch deterioration. Portions of I-30 and I-40 within the study area will likely require some level of pavement rehabilitation within the expected time frame of this Project in order to meet adequate structural performance for the typical 20-year design life utilized for pavement analysis.

The FAST ACT continues the requirements of MAP-21 for states to have infrastructure condition performance measures to determine how well they perform from year to year. AHTD uses the Pavement Condition Index (PCI) as one of the tools to evaluate the conditions of highways. The PCI is calculated based on International Roughness Index (IRI), rutting, and cracking. The PCI for the project segment along I-30 and I-40 is considered poor. “Figure 7 [I-30 Pavement Condition]” and “Figure 8 [I-40 Pavement Condition]” show the pavement condition along I-30 and I-40.

Figure 7 [I-30 Pavement Condition]

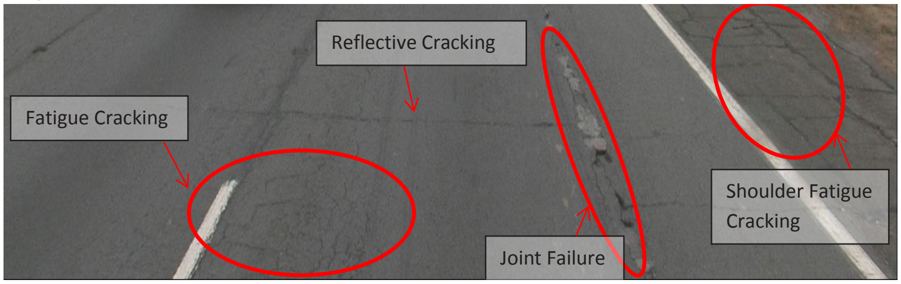
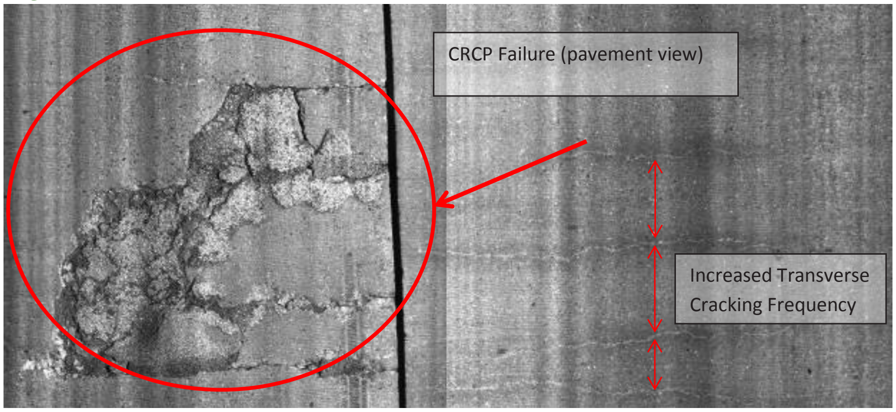


Figure 8 [I-40 Pavement Condition]



The functional deficiencies in the project area are also extremely problematic. The existing I-30 facility contains two horizontal curves that have inadequate stopping sight distance due to the median barrier obstructing the driver’s vision in the inside travel lane, and the vertical profile contains three sag curves that fall short of the recommended rate of vertical curvature for the current 60 miles per hour (mph) speed limit.

The existing interstate facilities within the study corridor contain nine

Figure 9 [Functional Deficiencies]

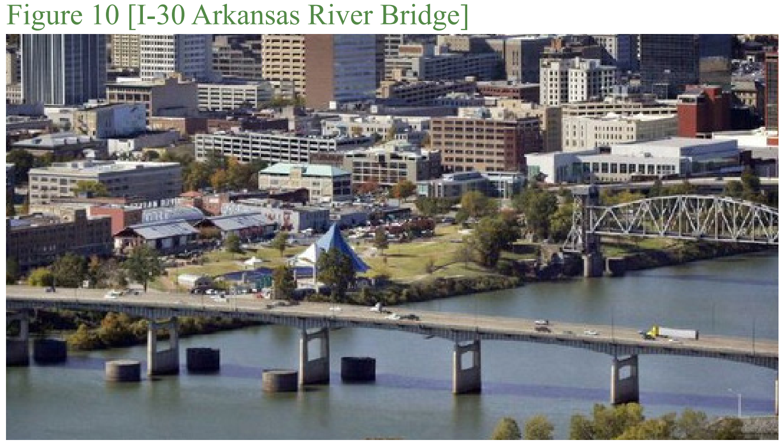
locations where shoulder widths do not meet current design standards. This includes several locations where outside shoulder widths range from zero to four feet, and two locations where the curb and gutter is immediately adjacent to the travel lanes.

Most of the interchange locations do not meet the minimum one-mile spacing that is recommended between urban interchanges. This corridor has 33 ramps within a five-mile section which is 70 percent higher than American Association of State Highway Officials (AASHTO) recommendations. These interchange areas contain inadequate features, including three exit ramps lacking recommended deceleration lane lengths, and 12 locations between entrance and exit ramps that lack the required spacing to safely allow weaving operations. One major weaving area of concern is located between the I-30/I-40 interchange and the I-40/Highway 67 interchange. Traffic wishing to travel from the outside lane of I-30 to Highway 67 and vice versa must make two lane shifts in under a mile. This movement is complicated by the existence of the North Hills Boulevard interchange located within this weaving section, which is approximately a half mile from the adjacent interchanges.

Structural and Functional Deficiencies of I-30 Arkansas River Bridge

The I-30 Arkansas River Bridge is one of six bridge structures that cross the McClellan-Kerr Arkansas River Navigation System (MKARNS) within a 1.4 mile stretch of the Arkansas River in the downtown areas of Little Rock and North Little Rock. The Arkansas River was recently designated Marine Highway 40 from the Mississippi River to the Port of Catoosa near Tulsa, OK. Having a total length of 445 miles, the MKARNS provides a means for the transportation of commodities from Oklahoma through Arkansas to the Mississippi River. According the U.S. Army Corps of Engineers, 12 billion tons of commodities are transported annually via this economically- vital navigation system.

Figure 10 [I-30 Arkansas River Bridge]



Construction of the existing I-30 river bridge began in 1958 and was completed in 1962. It currently has a sufficiency rating of 55.0 and is classified as structurally deficient and is fracture-critical.
The structure has numerous deficiencies including hundreds of fatigue cracks, a large horizontal crack that passes through an entire footing and is visible on both sides, and the steel bent caps have cracks and section loss from corrosion.

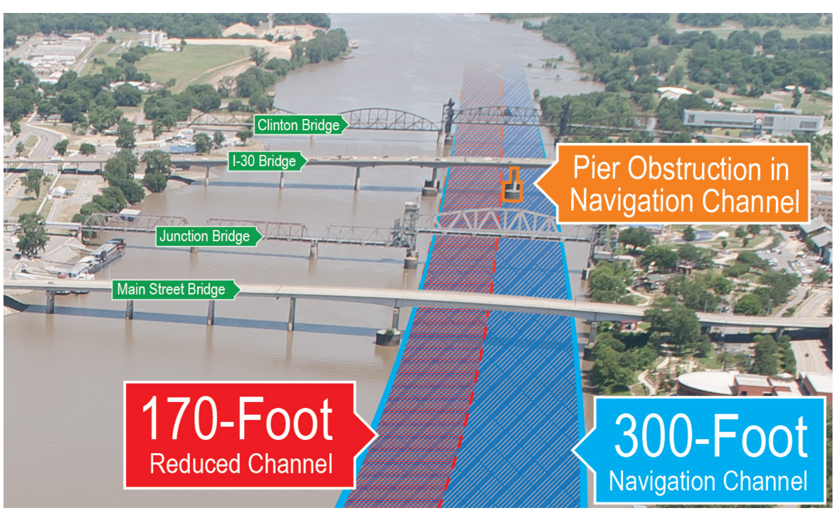
Further, the structure is not designed for seismic resistance, and is located in an area influenced by the New Madrid seismic zone. Extensive modifications required for rehabilitating these structural deficiencies are not cost effective for a bridge of this age. Therefore, the bridge must be replaced. A look at the functional deficiencies of the superstructure show that while the width meets minimum standards, it is less than desirable. The shoulder widths are below current standards. Reduced shoulder width can lead to driver discomfort and in turn result in decreased speed and increased congestion. This reduced bridge width can also lead to an increase in crashes because there is no additional space to maneuver around an obstacle in the roadway. Further, the lack of adequate shoulders does not allow for the storage of disabled vehicles and the passage of emergency response vehicles, causing further congestion following a crash.

Figure 11 [Spalled Bearing Pad]

Figure 12 [Beam Corrosion]

In addition to the structural deficiencies, there are also several functional deficiencies. The configuration of the piers supporting the bridge obstructs river navigation due to the placement of a pier near the middle of the navigation channel. The United States Coast Guard (USCG) prescribes a minimum of 300 feet horizontal clearance between piers. Horizontal clearance between the piers of the I-30 River Bridge is only 174.5 feet in the navigation channel. At times when a pusher craft is attempting to navigate the channel with three barges side-by-side (which is normal), there is only about 32 feet of clearance on either side. The horizontal clearance and pier obstruction is cumbersome to navigate, restricts the operational speed of the barges, poses a danger to workers, and creates a risk of property loss. Barge collision data, provided by the USCG, indicates five barge strikes have occurred at this bridge site since 2001.

Figure 13 [Navigation Channel Obstruction]



Perhaps no element of highway transportation has as great an impact on individual well-being and quality of life as the issue of congestion. These are well documented in any number of studies and reports—from the well-known annual Urban Mobility Report of the Texas A&M Transportation Institute to what are seemingly monthly studies showing adverse effects from congestion. Increased commute lengths from congestion have surprisingly negative impacts. A 2011 study published in the journal BMC Public Health found that commute lengths have adverse physical health costs, with the primary ill-effects being poor sleep quality, exhaustion, and low general health. Stress was understandably apparent as well.

Traffic congestion also has an increasingly negative impact upon the quality of life of families. In a 2005 survey, for example, 52% of Northern Virginia commuters reported that their travel times to work had increased in the past year, leading 70% of working parents to report having insufficient time to spend with their children and 63% of respondents to report having insufficient time to spend with their spouses.

The list could go on and on, from time estimates lost (38 hours per year nationally, on average) to lack of reliability resulting in an inability to know how long a regular trip will take. This project will address one of the most congested areas of the state, and analyses performed show significant improvement to congestion, and hence congestion related quality of life issues, as a result of the recommended improvements.

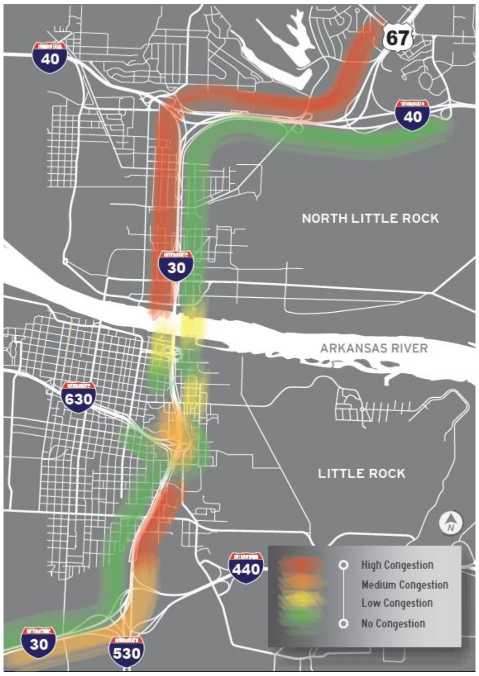
The ease of mobility within the existing PEL study corridor was analyzed using a variety of measures of effectiveness (MOEs), including microsimulation modeling. "Figure 14 [Existing 2014 Peak Hour Mobility]" gives a high-level overview of the levels of service (LOS) in the PEL corridor during the most congested time of each peak hour. In this figure, green represents free-flow conditions (LOS A-C), and red represents high levels of congestion (LOS F). Detailed and precise information for the corridor's existing levels of service can be found in the Planning and Environmental Linkages Traffic and Safety Report Appendices at this location: http://www.arkansashighways.com/FastLane/I30/Interstate30_PELReport.pdf. Stakeholder feedback, field observations, and data revealed a common mobility trend of congestion heading into the Little Rock and North Little Rock downtown areas in the AM and heading away from the downtown areas in the PM.

Another useful measure of mobility relates to speed and duration. Speeds for each peak period are shown throughout the length of the corridor over the entire two-hour period in "Figure 15 [Existing 2014 Peak Hour Speed Profiles]". Colors ranging from green to dark red represent speeds ranging from free-flow to standstill, respectively.

The average speed for vehicles on I-30 eastbound between I-630 and the Arkansas River at 5:00 pm on a typical day is approximately 20-30 mph. The graphs also show the progression of backups and location of bottlenecks on the freeway main lanes. Bottlenecks occur when traffic is congested in a particular section of a roadway segment, causing sizable queues upstream of the congested area. This congestion limits the amount of traffic able to get downstream of the congested area.

Figure 14 [Existing 2014 Peak Hour Mobility]

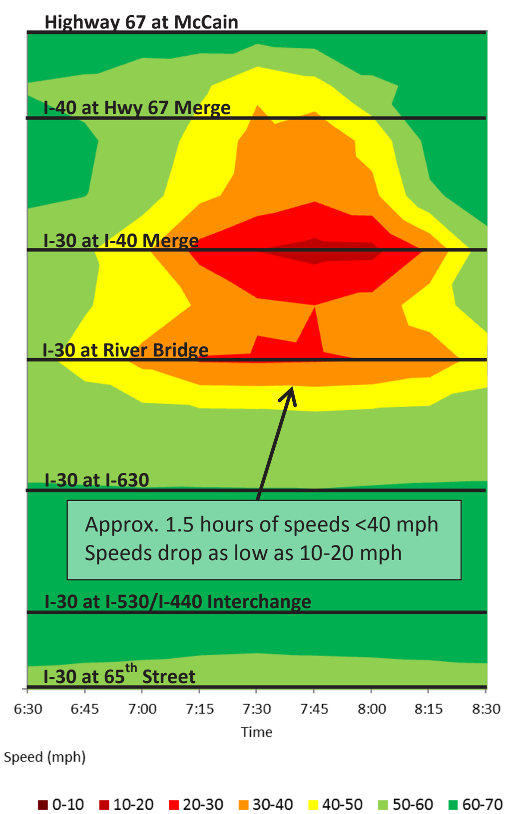
AM Peak Hour



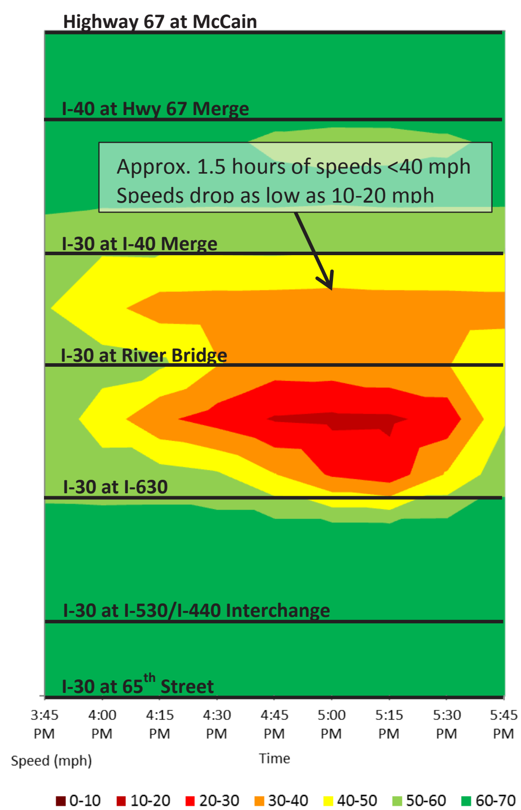
PM Peak Hour

Figure 15 [Existing 2014 Peak Hour Speed Profiles]

AM (Westbound)



PM (Eastbound)



In the westbound direction during the AM peak, it is evident that the Arkansas River Bridge is the location of a bottleneck. North of the bridge, queues related to congestion slowly build from the bridge all the way back to Highway 67. Because of the backup, traffic south of this point is able to move at free flow speed.

Peak direction travel speeds were approximately 30-40 miles per hour on average which resulted in travel times of approximately 11-12 minutes through the study area. Since corridor travel times during free flow conditions are approximately 5-7 minutes, peak hour travel times are almost twice as long as free flow travel. For each 15-minute subdivision within the two-hour study period, at least one segment in the corridor operates at LOS F. Most of the analyzed intersections in the corridor performed at LOS A-D.

"Figure 16 [Future 2041 No Action Peak Hour Mobility]" summarizes the mobility in the PEL corridor during the most congested time of each peak hour in 2041 with no improvements. The problem areas with high congestion that were evident in the existing model are now extending to the model limits and new areas of concern are beginning to emerge as side street congestion causes vehicles to back up onto the freeway in both peak and off-peak directions. It is important to note that in this scenario, severe bottlenecks in certain areas such as westbound I-30 at the Arkansas River Bridge are causing artificial downstream free flow conditions.

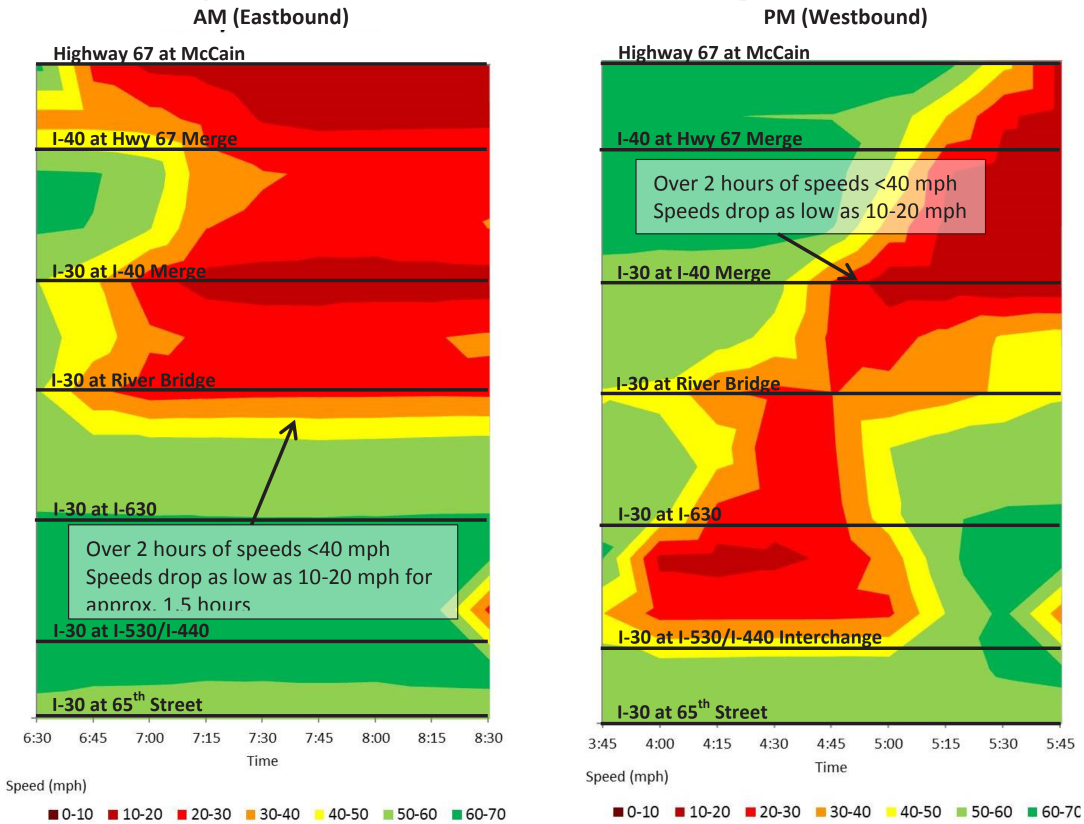
Figure 16 [Future 2041 No Action Peak Hour Mobility]

AM Peak Hour

PM Peak Hour

Occurrences of bottlenecking are more evident in the speed profiles in “Figure 17 [Future 2041 No Action Peak Hour Speed Profiles]” This figure shows bottlenecks in several locations throughout the 6-lane corridor which cause backups to extend outside the model area. In all cases, the congestion lasts through the end of the two-hour simulation. Peak direction travel speeds have decreased to 20-30 mph, and corridor-wide travel time is now 16-18 minutes (nearly three times that of free flow conditions). For each 15-minute subdivision within the two-hour simulation, at least one segment operates at LOS F.

Figure 17 [Future 2041 No Action Peak Hour Speed Profiles]



It was determined that a corridor improvement with a 10-Lane cross section and Downtown C/D system near the Arkansas River Bridge between 3rd Street in Little Rock and Broadway Street in North Little Rock would provide the best mobility and safety solution for the I-30 PEL study corridor. The northern limits of the C/D system are far enough to the south that it creates a longer weaving distance between the C/D system and the I-40 interchange.

“Figure 18 [Future 2041 PEL 10-Lane Recommended Alternative Mobility]”summarizes the 10-Lane Downtown C/D mobility in the PEL corridor during the most congested time of each peak hour. This scenario experiences 5-10 percent congestion. The two areas where reduced speeds are evident are related to constraints outside of the study area. In the AM peak (east-bound) direction, traffic experiences a slowdown just south of I-630. This is because the demand exceeds the capacity for vehicles using the flyover ramp to westbound I-630. In the PM peak (westbound) direction, reduced speeds occur mostly outside of the study area due to demand exceeding capacity on westbound I-30 at 65th street. Both of these areas are slated for additional traffic operations studies.

Figure 18 [Future 2041 PEL 10-Lane Recommended Alternative Mobility]

AM Peak Hour **PM Peak Hour**

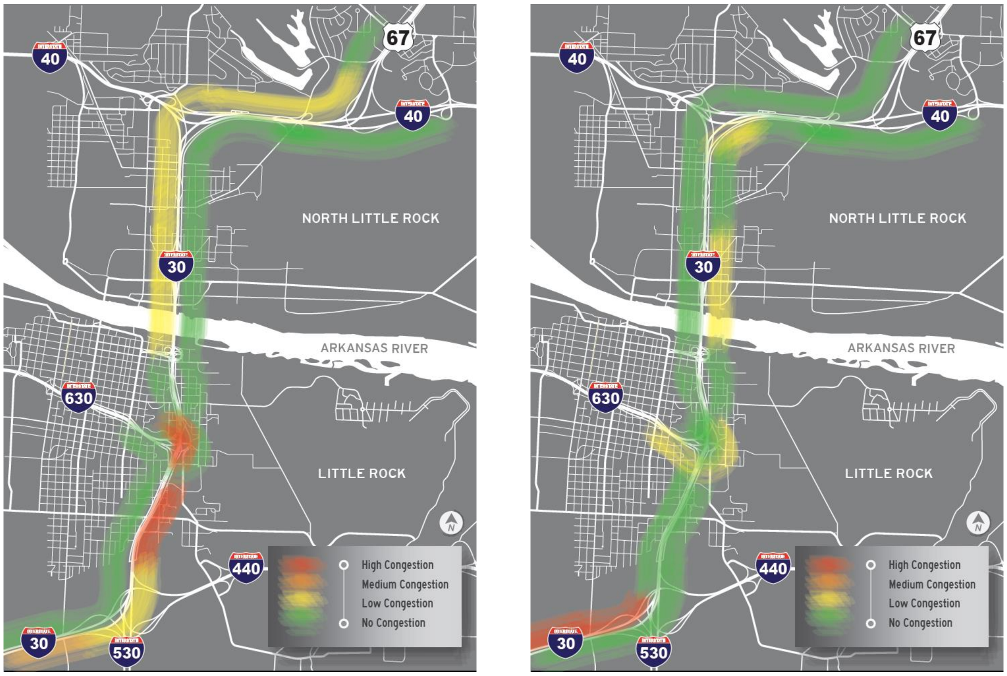


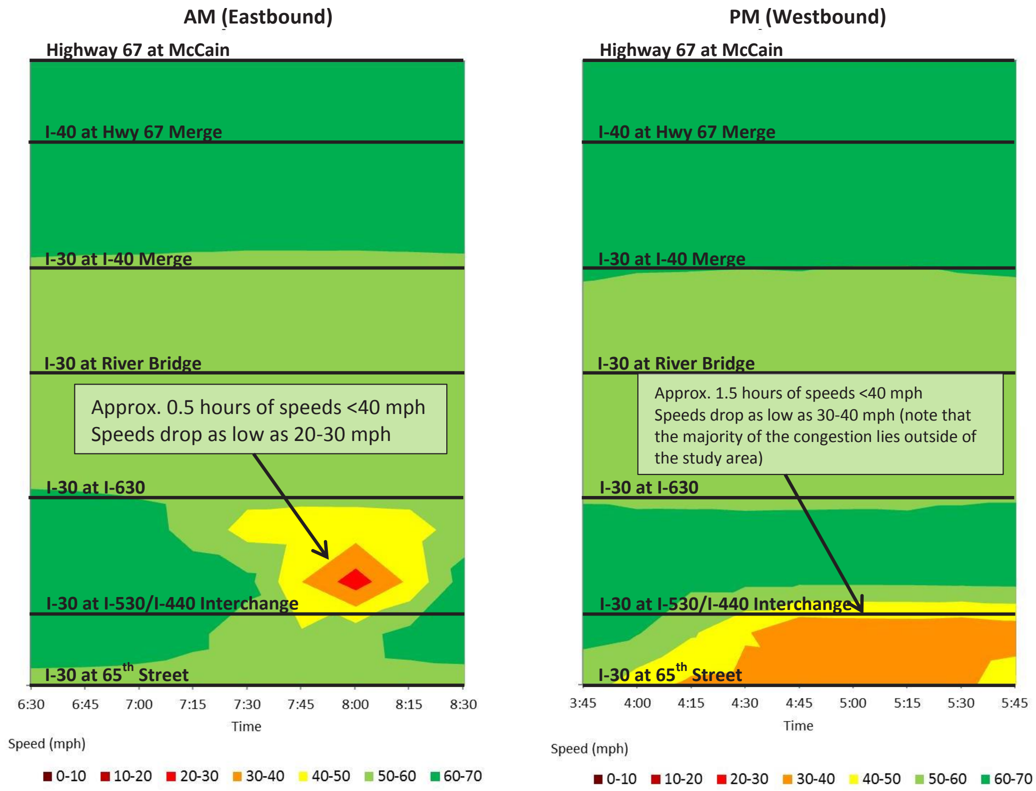
Figure 19 illustrates speeds for each peak period throughout the length of the corridor over the entire simulation duration. The previously mentioned speed reductions only occur for a brief amount of time in the simulation. Compared to the future No Action and even the existing scenarios, the duration and severity of congestion is minimal in this 10-Lane with Downtown C/D scenario.

Only one existing weaving location meets the current minimum standards. The existing placement of ramps throughout the entire corridor creates several areas of weaving with inadequate length to accommodate safe execution of the necessary movements. The recommended alternative will address the weaving length issues that are present throughout the corridor.

Several corridor improvement alternatives were studied in the safety analysis. Ultimately, a 10-Lane with downtown collector/distributor (C/D) alternative was proposed as the PEL Recommendation. This alternative proposes 10 main lanes with a C/D system that serves the downtown area of Little Rock and North Little Rock. It has fewer arterial conflict points per intersection and fewer deficient weaving lengths than the other alternatives considered. Comparison aspects for several of the alternatives are shown in "Table 12 [Improvement Alternatives Comparison]".

In predicting the potential crash reductions from a high level, Crash Modification Factors (CMF) were used for the different design elements of the improvement alternative. For this analysis, the projected crashes for 2041 were developed using the crash rates for 2010-2012 and projected traffic volumes for 2041. These were broken down by segment and location. CMFs were then applied to quantify the potential crash reductions in the proposed alternatives. A more in depth analysis will be performed using the Highway Safety Manual 2010 (HSM) during the NEPA process. Further safety and crash analysis details can be found in the Planning and Environmental Linkages Traffic and Safety Report at this location: http://www.arkansashighways.com/FastLane/I30/Interstate30_PELReport.pdf

Figure 19 [Future 2041 PEL 10-Lane Recommended Peak Hour Speed Profiles]



SAFETY OUTCOMES

The planned improvements to the I-30/I-40 Corridors will have a positive impact on the safety of road users. Crash data from 2010, 2011, and 2012 (the latest three years of available data) were reviewed for the analysis within the PEL study limits. A few key locations between I-630 and I-40 exhibit large clusters of crashes consistently throughout the three year study period, such as I-30 at Broadway Street, I-30 at Markham Street and I-30 at Curtis Sykes Drive.

Crash rates for I-30 and I-40 were calculated and compared to the statewide averages for similar types of corridors. This information is shown in Table 12 on the following page. Crash rates were calculated for total collisions with all severity types as well as collisions with only fatal (K) and severe injury (A) (KA Crash Rate). The fatal and serious injury crash rates on this segment of I-30 are more than double the statewide average crash rates for six-lane controlled access facilities. The overall crash rate on the portion of I-30 between I-630 and I-40 is more than three times the statewide average crash rate for similar facilities. These elevated crash rates are directly linked to congestion and demonstrate a great need for operational improvements along I-30.

A total of 76 KA crashes occurred from 2010-2012 within the study corridor. Rear-end crashes were the predominant type of crash out of all crashes resulting in severe or fatal injury. This type of crash is typically associated with severe congestion as vehicles experience sudden stops in traffic and typically leave less headway between themselves and the vehicle in front of them.

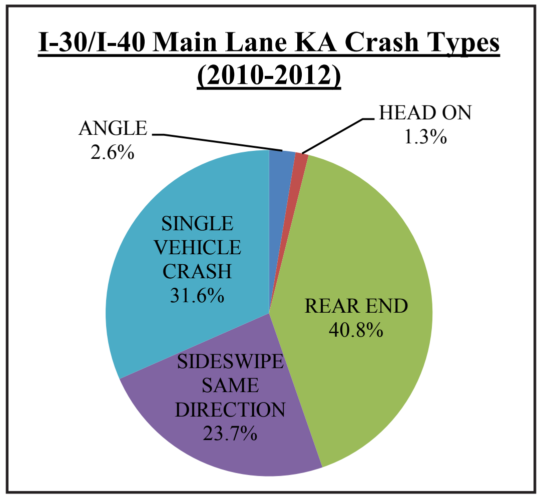
Table 11 [Historic Crash Rates (2010-2012)]

Length (miles)	Weighted ADT	Number of Crashes		Crash Rate (MVMT)*		AR Avg. Crash Rate			PEL Crash Rate/ AR Avg. Crash Rate	
		All Severity Types	KA	All Severity Types	KA	All Severity Types	KA	Type	All Severity Types	KA
I-30, Section 230, Log Mile 138.39-139.67 (I-530/I-440 to I-630)										
1.28	96,000	224	16	1.66	0.12	1.23	0.06	Six-Lane Access Control	1.35	2.2
I-30, Section 230, Log Mile 139.67-142.02 (I-630 to I-40)										
2.35	113,000	1247	44	4.28	0.15	1.23	0.06	Six-Lane Access Control	3.58	2.73
I-40, Section 330, Log Mile 153.25-154.88 (I-30 to Highway 67)										
1.63	116,000	199	16	0.96	0.08	1.23	0.06	Six-Lane Access Control	0.8	1.4

**MVMT – Million Vehicle Miles Traveled*

Single vehicle and sideswipe-same direction crashes also comprised a notable percentage of the total KA crashes. These types of crashes can also be attributed to congestion as vehicles make sudden maneuvers to change lanes and/or avoid another vehicle.

Figure 20 [I-30/I-40 Main Lane KA Crashes]



The existing acceleration and deceleration lengths were measured in order to identify which interchange ramps do not meet the current minimum design standards. There are seven ramps with acceleration lengths that do not meet the current minimum standards and eight existing ramps with no measurable deceleration lane. This causes an interruption to the overall flow on the facility and to the speed of vehicles which are entering and exiting this roadway.

Only one existing weaving location meets the current minimum standards. The existing placement of ramps throughout the entire corridor creates several areas of weaving with inadequate length to accommodate safe execution of the necessary movements. The recommended alternative will address the weaving length issues that are present throughout the corridor.

Several corridor improvement alternatives were studied in the safety analysis. Although the 8-Lane alternative is still being considered, the 10-Lane with downtown collector/distributor (C/D) was proposed as the PEL Recommendation. This alternative proposes 10 main lanes with a C/D system that serves the downtown area of Little Rock and North Little Rock. It has fewer arterial conflict points per intersection and fewer deficient weaving lengths than the other alternatives considered. Comparison aspects for several of the alternatives are shown in "Table 12 [Improvement Alternatives Comparison]".

In predicting the potential crash reductions from a high level, Crash Modification Factors (CMF) were used for the different design elements of the improvement alternative. For this analysis, the projected crashes for 2041 were developed using the crash rates for 2010-2012 and projected traffic volumes for 2041. These were broken down by segment and location. CMFs were then applied to quantify the potential crash reductions in the proposed alternatives.

A more in depth analysis will be performed using the Highway Safety Manual 2010 (HSM) during the NEPA process. Further safety and crash analysis details can be found in the Planning and Environmental Linkages Traffic and Safety Report at this location: http://www.arkansashighways.com/FastLane/I30/Interstate30_PELReport.pdf

Table 12 [Improvement Alternatives Comparison]

	Alternatives				
Comparison Measure	**No Action**	**8-Lane C/D**	**10 Main Lane**	**10-Lane C/D**	**PEL Recommended 10-Lane Downtown C/D**
Potential Crash Reduction	0	175	159	229	197
Total Main Lane Conflict Points	31	20	26	19	21
Total C/D Conflict Points	0	6	0	7	4
Non-standard Weaving Lengths	11	6	6	7	6
Total Arterial Conflict Points	411	515	515	515	483
Total Number of Intersections	21	28	28	28	27
Avg. Conflict Points/Intersection	19.6	18.4	18.4	18.4	17.9

COMMUNITY AND ENVIRONMENTAL OUTCOMES

A Planning and Environmental Linkages (PEL) Study was conducted by AHTD to conduct analysis and planning activities with resource agencies and the public in order to produce transportation planning products to more effectively serve the communities' transportation needs. The PEL Study is being used to inform a subsequent project-specific NEPA process. Linking planning and NEPA is the purpose of the PEL process and is followed in order to minimize duplication of effort, promote environmental stewardship, and reduce delays in project implementation.

The PEL process framework includes: identification of purpose, needs, goals, and objectives; roles and responsibilities of stakeholders; evaluating and screening alternatives; performance measures; environmental impacts; and alternative modes of travel. In addition to these practical objectives, the PEL process in Central Arkansas presented intangible results including opening lines of communication between residents, agencies, and officials.

PARTNERSHIP AND INNOVATION

This Project has been transformative from the beginning. It is Arkansas' first time to incorporate the PEL study process into project development. The PEL process helped to streamline the planning and environmental phases to determine feasible alternatives that will provide long-term solutions that will address the purpose and need of the Project and recommend alternatives that can be carried forward seamlessly into NEPA. Furthermore, this Project will be the first in Arkansas to utilize the design-build-finance method of design and construction. Both of these innovative methods have been proven to save time and money by reducing overall project delivery time by the Federal Highway Administration's (FHWA) Every Day Counts (EDC) initiative.

Design-Build

For the first time in Arkansas history, a project will be constructed using an innovative type of project delivery known as design-build. The design-build method of procurement will be beneficial to the state of Arkansas and developers because, under this construction method, the design build firm has an incentive to reduce costs across a facility's entire lifecycle, such as using innovative design that reduces construction costs, high-quality project delivery that lowers the cost of construction.

Public Outreach

AHTD held a number of public meetings regarding the Project as part of the PEL process, where hundreds of stakeholders expressed concerns including congestion, safety, and mobility. These concerns were integral to planning this Project. The Department also conducted a "visioning workshop" to gain perspective and ideas from multiple, diverse, stakeholders including the Partners in "Table 13 [List of Partners]"

While the foregoing stakeholders brought unique perspectives, project benefits will reach far beyond these individual stakeholders to visitors to the region and all of the citizens of Arkansas. The Interstate 30 corridor serves the Bill and Hillary Clinton National Airport, Little Rock Port facilities and rail facilities including Union Pacific and Amtrak. All Arkansas citizens directly or indirectly depend on the multi-modal facilities served by the Project for the movement of goods and services. Considering the multiple perspectives of stakeholders was imperative to planning the Project. However, the citizens of Arkansas ultimately supported this Project ideally and financially, by voting to allow the state to fund CAP projects such as this one.

Table 13 [List of Partners]

Little Rock, North Little Rock, Pulaski County, and Arkansas State Officials
Mark Stodola - Little Rock Mayor Brad Cazort - Little Rock Board of Directors Dean Kumpuris - Little Rock Board of Directors Bruce Moore - Little Rock City Manager Joe Smith - North Little Rock Mayor Buddy Villines - Pulaski County Judge Fredrick Love - State Representative
Non-Profit, State, and Municipal Organizations
Gretchen Hall - Little Rock Convention and Visitors Bureau Sharon Priest - Downtown Little Rock Partnership Stephanie Streett, Clinton Foundation Bill Worthen - Historic Arkansas Museum Tony Curtis - Little Rock Downtown Neighborhood Association Donna Hardcastle - Argenta Downtown Council Terry Hartwick - North Little Rock Chamber of Commerce Bob Major, North Little Rock Visitors Bureau Ronnie Dedman - The Arkansas Innovation Hub Jeff Hathaway - Little Rock Chamber of Commerce Bobby Roberts - Central Arkansas Library System
Educational Organizations
Gregg Thompson - North Little Rock School District Jerome Green - Shorter College Lawrence Finn - The Village at Hendrix
Transit Organizations
Ann Gilbert - Executive Director of the Arkansas Transit Association Jarrod Varner - Executive Director of the Central Arkansas Transit Association
Business Organizations
Charley Foster - TAGGART Architects Chris East - studioMAIN and Cromwell Architects Engineers Michael Eliason - Acxiom Corporation Clark McGlothin - CBM Construction Sandra Brown - Verizon Arena Mason Ellis, Witsell - Evans and Rasco Architects Jennifer Herron - Herron, Horton Architects Jimmy Moses - Moses, Tucker Real Estate Martie North - Simmons First National Bank
Residents and property owners
Belinda Burney - Resident George Glover - Property Owner

WAGE RATE CERTIFICATION
FOR
FIXING AMERICA'S SURFACE TRANSPORTATION ACT

Pursuant to the Fixing America's Surface Transportation Act (Pub. Law 114-94), I, Scott E. Bennett, Director of Highways and Transportation for the State of Arkansas, certify that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the federal government pursuant to the Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of Chapter 31 of Title 40, United States Code, the Davis-Bacon Act.

I understand that the Arkansas State Highway and Transportation Department may not receive FASTLANE 2016 funding unless this certification is made and posted.

Scott E. Bennett (signature) | 4-11-16

Scott E. Bennett, P.E.
Director of Highways and Transportation

Date