



TIGER₂₀₁₆

HWY 10 GRANT APPLICATION



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
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Project Description

“Well I left my job about 5 o'clock, it took fifteen minutes go three blocks, Just in time to stand in line with a freeway looking like a parking lot. Damn this traffic jam, how I hate to be late, it hurts my motor to go so slow. Damn this traffic jam, time I get home my supper'll be cold, damn this traffic jam.”

-James Taylor

Highway 10 in west Little Rock, Arkansas, is the primary travel and commuting route for tens of thousands of people daily. Expansion of the city has slowly begun to move down Highway 10 to the west, steering people and the businesses that serve them towards this boundary of the city. One study by the Metropolitan Planning Organization for the Central Arkansas Regional Transportation Study (CARTS) identified the area as the third largest percentage of population change, ranging between a 75%-126% increase over the decade beginning in 2000 as shown in Figure 1.

Due to retail developments such as the 11 acre, 315,000 square foot Pleasant Ridge Town Center, numerous multi-family dwellings and new public schools, the growth has began to take its toll on Highway 10. The route also remains a primary route for many out-of-town commuters making their way in to work in the central Little Rock area.

Figure 1 – Population Change

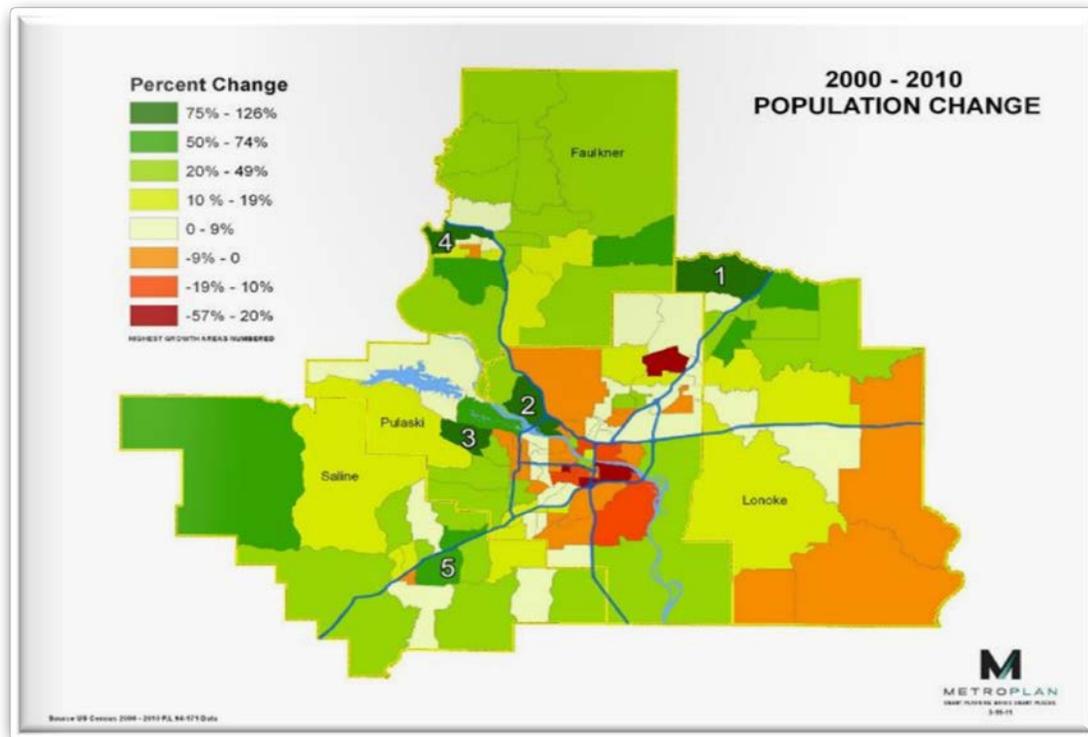
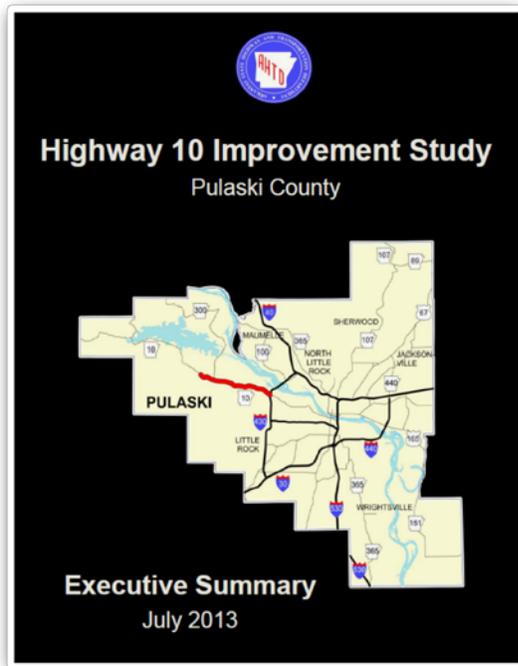


Figure 2 – Highway 10 Improvement Study Cover



The importance of Highway 10 becomes even more apparent when you take into consideration the limited connectivity of the surrounding street network. Limited east-west routes coupled with local growth and rural commuters has contributed to the need for expansion of this important route.

In 2013 a highway improvement study was conducted on approximately 8.3 miles of what was then, and remains now, the most highly congested principal arterial in the state of Arkansas. This portion of Highway 10, running west from Pleasant Valley Road to Ferndale Cutoff, lies almost completely within the western city limits for the City of Little Rock, Arkansas, and is one of only two National Highway System (NHS) routes south of the Arkansas River and west of Interstate 430 which services the largest metropolitan statistical area in the state. The study concluded that significant

improvements throughout the corridor are necessary. Levels of service (LOS) during peak times are currently borderline adequate or, in places, inadequate with today’s traffic. When traffic is projected to 2035, the LOS shows a substantial deterioration, with all segments reaching an unsatisfactory level. Traffic flows within the project area breakdown between Pleasant Ridge Road and Taylor Loop Road. (See Table 1, below).

Table 1 – Levels of Service at Signalized Intersections (No-Build) Project Area Highlighted

Intersection	Synchro			
	2013		2035	
	AM	PM	AM	PM
Chenal Parkway	C	C	E	C
The Divide Parkway	B	B	B	B
Chenonceau Blvd.	C	A	E	B
Ranch Blvd.	B	B	B	C
Ranch Drive	A	B	C	C
La Marche Drive	B	A	D	B
Taylor Loop Road	D	C	F	F
Pinnacle Valley Road	D	D	D	F
Kroger Marketplace	C	C	C	D
Sam Peck Road	B	C	F	F
Pleasant Ridge Road	E	B	F	F
Southridge Drive	D	B	E	F
Pleasant Ridge Town Center	B	B	F	F
Rodney Parham Road	F	F	F	F
Interstate 430 NB	C	C	F	D

Based on the recommendations of the study, a plan was developed to implement the necessary changes. The study identified over \$50 million worth of improvements in the first mile, between Pleasant Valley Road and Pleasant Ridge Road. As a demonstration of the Arkansas State Highway and Transportation Department's (AHTD) commitment to improve Highway 10, \$58.3 million is included in the 2016-2020 Statewide Transportation Improvement Program (STIP). This work will include reconfiguration of the Interstate 430 and Highway 10 interchange. Due to limited funding, the improvements programmed stop after the first mile, terminating at Pleasant Ridge Road, despite the pressing current and anticipated need for improvements farther west.



While \$58.3 million is substantial, it is not enough to address the needs of widening this corridor. This application seeks funding to extend the project an additional 2.13 miles west to the intersection of Highway 10 and Taylor Loop Road. Any awarded TIGER funds will be used to convert the existing five lane road to six lanes with a raised median and a reconfiguration of the Taylor Loop intersection. Figure 3 shows the existing 5 lane road.

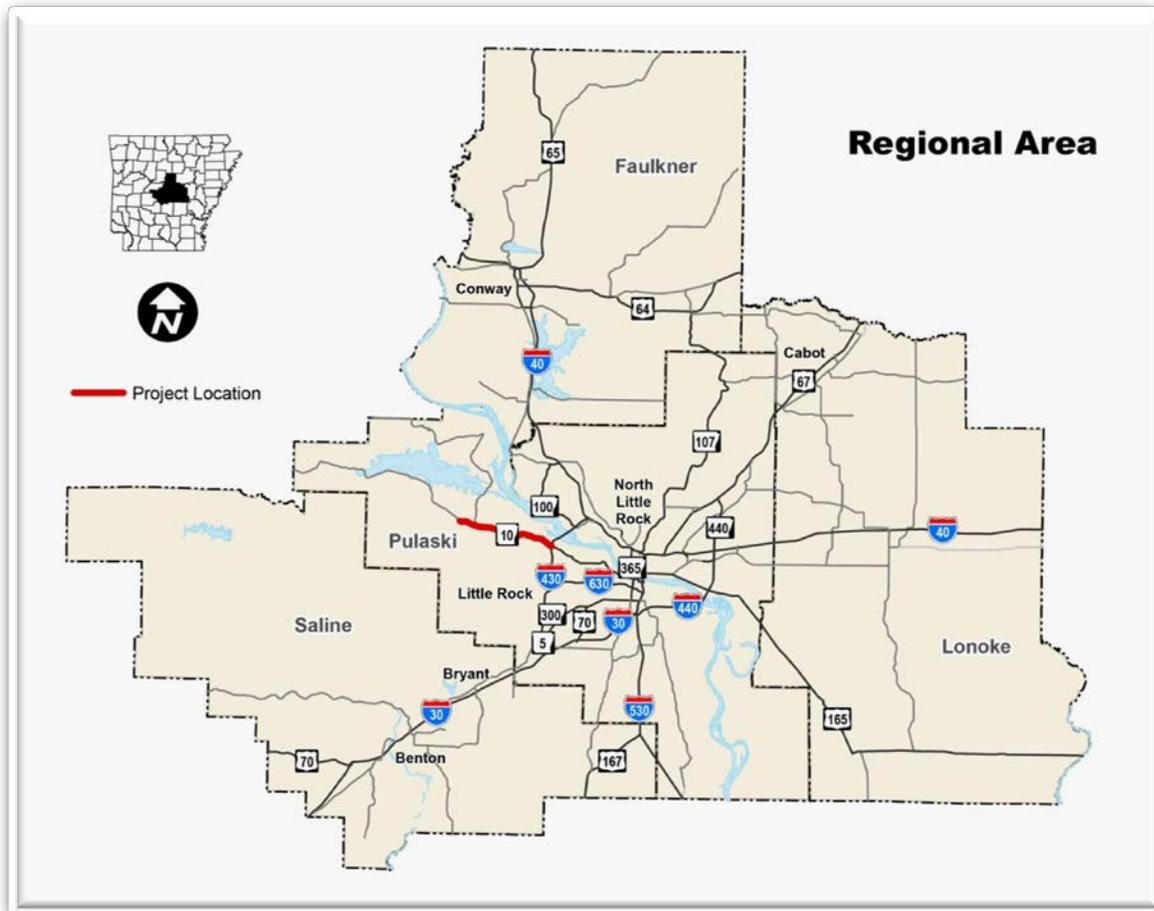
Figure 3 – Highway 10 Project Area (Existing 5-Lane)



Project Location

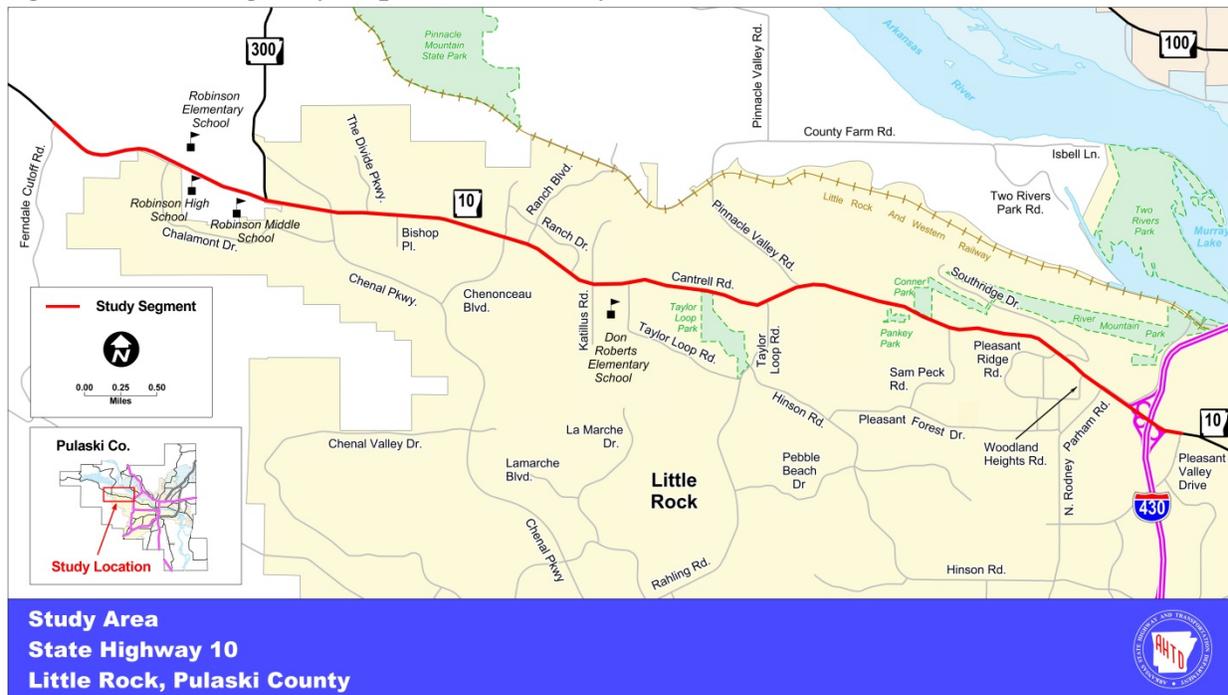
To understand the issues plaguing the project area, it is necessary to have an understanding of where the project area lies in relation to the city of Little Rock and the surrounding area as shown below in Figure 4.

Figure 4 – Regional Area



Highway 10 is an east-west highway between Little Rock and western Arkansas. Within the Little Rock metropolitan area, it is a principal arterial that provides access to the northern and western portions of Little Rock and Pulaski County. In recent years, Highway 10, within the urban boundary of Little Rock, has become a heavily developed urban corridor. It was widened in the 1990's between Interstate 430 and Highway 300 from a two-lane highway to a four-lane highway with a continuous two-way, left turn lane. The 2013 Highway Improvement Study Area is shown in Figure 5 on the following page.

Figure 5 - 2013 Highway Improvement Study Area



Between Ferndale Cut-Off Road and Highway 300

Highway 10 between Ferndale Cut-Off Road and Highway 300 currently has two through lanes. A continuous, two-way left turn lane is also provided between Chalamont Drive and Highway 300. While this area is mostly rural, some suburban development has been initiated, and ample land is available for future development. In addition, Robinson Public Schools are located along Highway 10 between Chalamont Drive and Highway 300. Due to its location at the edge of the urbanized area, a high percentage of the trips on this part of Highway 10 are commuter trips. The characteristics of these trips consist of high peak directional volumes and relatively low volumes during the off peak periods. This produces poor operating conditions over relatively short time periods.

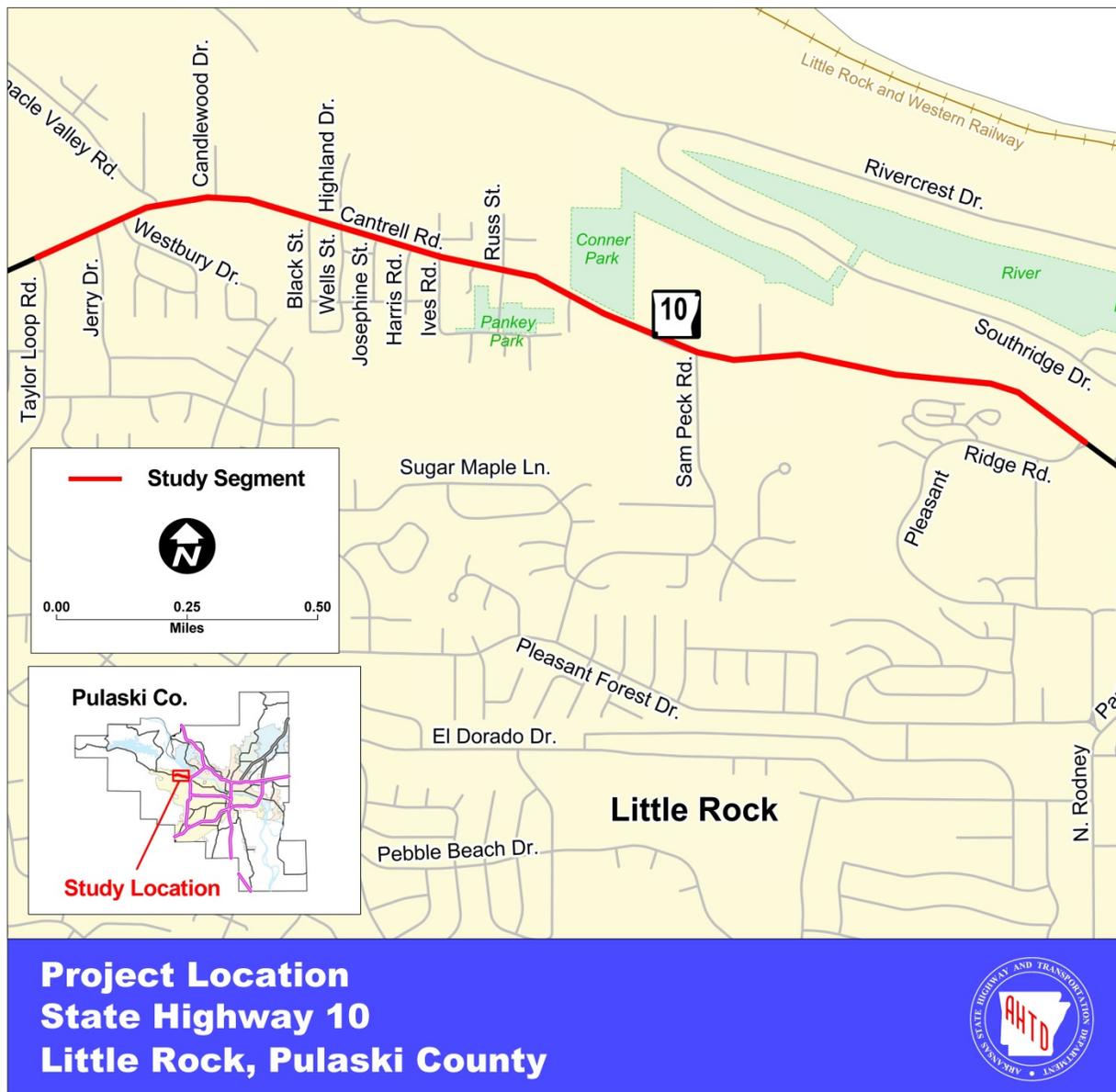
Between Highway 300 and Taylor Loop Road

Multiple office complexes and subdivisions have been constructed along this section in recent years. But, large amounts of land are still available for development. It is only a matter of time before this section develops into a urbanized area. Traffic volumes are relatively modest for a four-lane roadway, and the roadway currently operates with minimal congestion.

Between Taylor Loop Road and Pleasant Valley Road (project area)

This is the portion of Highway 10 that is included in this application for additional funding. Between Taylor Loop Road and Pleasant Ridge Road, there has been intense development over the past twenty years. However, land still exists for further development throughout the project area. This segment operates with a high level of congestion during both the morning and afternoon peak hours. Numerous traffic lights are needed to provide access for side street traffic. Congestion is most severe in the eastbound direction during both the morning and the afternoon peaks. This is due to the high volume of westbound vehicles turning left at several of the cross streets including, Rodney Parham Road, Pleasant Ridge Road, Sam Peck Road and Taylor Loop Road. This portion of the project area is outlined below in Figure 6.

Figure 6 – Project Location



Project Parties

The Arkansas State Highway and Transportation Department is the sole party seeking award of the grant benefits sought.

Grant Funds and Sources/Uses of Project Funds

The CARTS concurs on the need to improve Highway 10 between Pleasant Ridge Road and Taylor Loop Road. Designated by the Governor as the Metropolitan Planning Organization for this region, CARTS is responsible for the preparation of the CARTS Transportation Improvement Program (TIP) and the Metropolitan Transportation Plan. The TIP contains all short-term commitments for state and federal transportation funding in the metropolitan area. The TIP includes improvements for Highway 10 between Pleasant Ridge Road and Taylor Loop Road.

AHTD is requesting \$42.0 million in TIGER 2016 funds for this project. AHTD has dedicated \$10.5 million of state funds to match the TIGER funds. Project Funding Sources and Project Funding Activities are shown in Tables 2 and 3 below.

Table 2 – Project Funding Sources

SOURCES	COSTS	FUNDING STATUS	PERCENT
TIGER 2016 Funds	\$42.0	Applied For	80%
State	\$10.5	Committed	20%
TOTAL PROJECT FUNDS	\$52.5		100%

Table 3 – Project Funding Activities

ACTIVITIES	COSTS
Construction	\$26.9
Right-of-way	\$10.8
Utilities	\$9.2
PE	\$2.9
CENG	\$2.7
TOTAL PROJECT FUNDS	\$52.5

Primary Selection Criteria/ Quality of Life

The project seeks to make a huge difference in the quality of life for the residents of Central Arkansas. The primary vehicle for this difference will be increased capacity, with corresponding reduced congestion, which is ultimately the overarching goal of the project. In addition to the benefits that come from reduced congestion, other features will be incorporated that will increase the effectiveness of local access; will increase connectedness of vibrant retail districts; and set the groundwork for future and continued implementation of pedestrian and bicycle connectivity within the local community. An example of project area improvements are shown in Figure 7.

Figure 7 – Example of Project Area Improvements



Traffic Congestion

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. The A&M study showed that Cities of all sizes are experiencing the challenges seen before the start of the recession – increased traffic congestion resulting from growing urban populations and lower fuel prices are outpacing the nation’s ability to build infrastructure.

The report predicts urban roadway congestion will continue to get worse without more assertive approaches on the project, program, and policy fronts. By 2020, with a continued good economy:

- Annual delay per commuter will grow from 42 hours to 47 hours.
- Total delay nationwide will grow from 6.9 billion hours to 8.3 billion hours.
- The total cost of congestion will jump from \$160 billion to \$192 billion.

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.

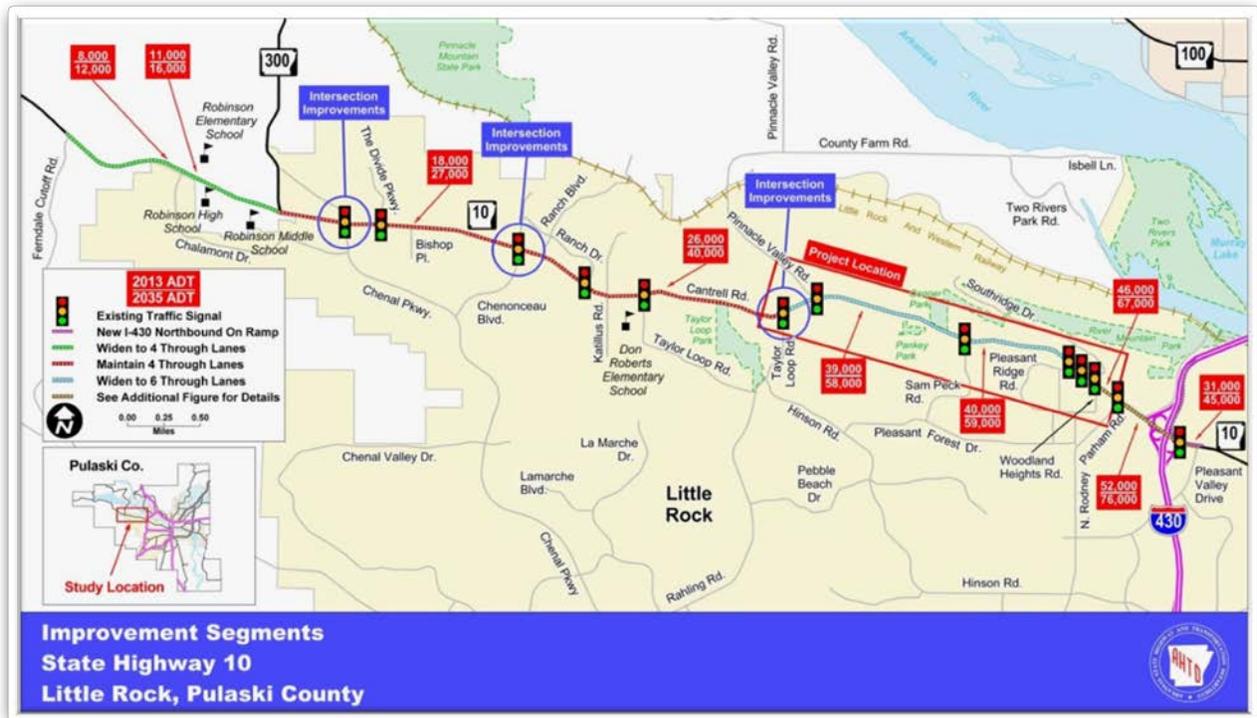
Traffic congestion also has an increasingly negative impact upon the quality of life of families. In a 2005 survey, for example, 52% of Northern Virginia commuters reported that their travel times to work had increased in the past year, leading 70% of working parents to report having insufficient time 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. The project will address the most congested primary arterial in 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.

Those improvements include a six-lane section with a raised median or a continuous, two-way, center left turn lane. The six-lane section should extend far enough west of Taylor Loop Road to allow full utilization of all lanes at the Taylor Loop Road intersection. The following intersection improvements (Figure 8) are proposed on Highway 10 east of Taylor Loop Road:

- Maintain the existing eastbound right turn lane (in addition to six through lanes) at Taylor Loop Road.
- Construct a westbound dual left turn lane at Taylor Loop Road.
- Maintain the existing eastbound right turn lane (in addition to six through lanes) at Sam Peck Road.
- Maintain the existing eastbound right turn lane (in addition to six through lanes) at Pleasant Ridge Road
- Provide parallel left turn lanes to accommodate westbound left turns at Pleasant Ridge Road and eastbound left turns at Southridge Drive.
- Stripe the center lane of the northbound approach of Pleasant Ridge Road to accommodate both left turn and through movements.

Figure 8 – Improvement Segments



As is shown in Table 4, the proposed improvements greatly improved traffic conditions between Taylor Loop Road and Pleasant Ridge Road, both in the present year and in 2035. The analysis allows for a reasonable amount of growth throughout the area over the next twenty years but does not account for an unusually high amount of new traffic at any single intersection.

Table 4 – Levels of Service at Signalized Intersections, Project Area Highlighted

Intersection	No-Build				Improve Highway 10			
	2013		2035		2013		2035	
	AM	PM	AM	PM	AM	PM	AM	PM
Taylor Loop Road	D	C	F	F	B	B	C	C
Pinnacle Valley Road	D	D	D	F	A	A	A	C
Kroger Marketplace	C	C	C	D	A	B	A	C
Sam Peck Road	B	C	F	F	B	B	B	C
Pleasant Ridge Road	E	B	F	F	B	B	B	B
Southridge Drive	D	B	E	F	A	A	B	B
Pleasant Ridge Shopping Center	B	B	F	F	A	A	D	B

While a raised median and a continuous two-way left turn lane would both provide an acceptable LOS along most of Highway 10, there are two locations where a raised median is crucial to achieving acceptable traffic operations. The first essential median location is to the east of

Taylor Loop Road. A dual westbound left turn lane with several hundred feet of storage will be required to accommodate left-turning traffic from Highway 10 onto Taylor Loop Road in 2035.

Motorists turning left from eastbound Highway 10 into the shopping center northeast of this intersection will be required to wait to turn left either from the oncoming dual left turn lane (thus preventing left turning traffic at Taylor Loop from using the turn lanes) or from the eastbound through lane (thus impeding flow in the eastbound left through lane), in either case greatly reducing the capacity of the Taylor Loop Road intersection. Additionally, turning left across up to five lanes of traffic (three through lanes and two left turn lanes) would be a very difficult maneuver that could lead to an increased number of crashes.

With the recommended improvements, including construction of a six lane section, Highway 10 between Taylor Loop Road and Pleasant Ridge Road would be expected to operate at LOS C or better in 2035.

Other Quality of Life

In addition to congestion reduction, the project plans would add to overall quality of life as the entire route is considered a Bike Lane in Little Rock's Master Bike Plan, and the recommendations for the project area include a ten foot shared use path along its length. At the project's westernmost point is Pinnacle Valley Drive, a longstanding favorite of cycling enthusiasts, and corrections to the intersection areas in that locale would create a better and safer flow for bicycle traffic as it crosses Highway 10.

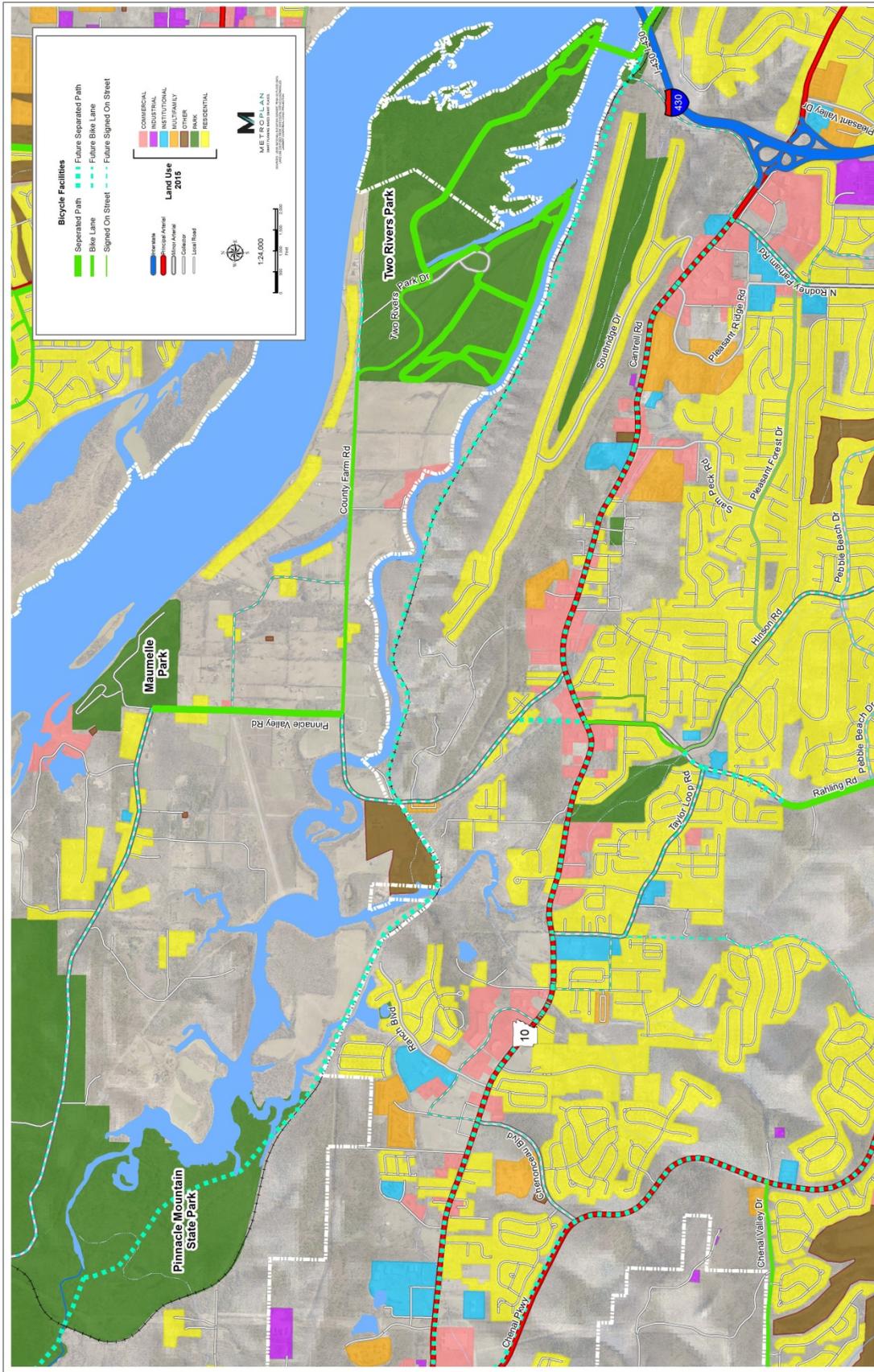
On the following page, a land use map provided by Metroplan provides an excellent view of the area and all it has to offer, all of which would be benefitted by the project. The Highway 10 corridor provides access to three major park areas—Pinnacle Mountain State Park, Maumelle Park, and Two Rivers Park—and acts as a western access to the Arkansas River Trail System. From the Trail System's website:

The Arkansas River Trail System is a tribute to outdoor recreation, conservation, wellness and the diverse geographies of Central Arkansas that creates an expansive 88-mile loop through the Natural State, including Little Rock, North Little Rock, Maumelle and Conway. A loop from the Clinton Presidential Bridge via NLR to the Big Dam Bridge and back to the Clinton Bridge via LR is 15.6 miles.

This award-winning community effort winds its way across the entire metropolitan area, through Little Rock and North Little Rock, connecting 38 parks, six museums and 5,000+ acres of federal, state and local parkland. Thousands of hikers, cyclists, skaters, joggers and other outdoor recreation enthusiasts flock to the trail to explore its diversity of habitats, landscapes and activities. Expansive and of primarily flat-terrain, the trail offers recreational opportunities for people of all ages, fitness levels, interests and health conditions.

In addition, a half-dozen public and private schools rely on the project area for access, along with the extensive commercial development (shown in pink) along the corridor length. All of this is available for the thousands of people who call the area home, highlighted in yellow on the map (Figure 9 on the following page).

Figure 9 – Land Use Map



Results of Benefit Cost Analysis

Table 5 summarizes the approach used for conducting the benefit-cost analysis (BCA) for widening Highway 10 in Little Rock, Arkansas. Based on travel time cost savings during peak hours, crash reduction cost savings, vehicle emissions cost savings, and the project cost, the project benefit-cost ratio ranges from 1.65 to 3.59, depending on the discount rate applied.

Table 5: Summary of Benefit-Cost Analysis

Benefit/Cost Category	No Discount	Discounted at 3%	Discounted at 7%
Travel Time Benefits	\$135,107,666	\$85,970,338	\$49,644,174
Safety Benefits	\$51,319,000	\$33,917,866	\$20,738,323
Emissions Reduction Benefits	\$2,124,039	\$1,355,323	\$793,113
Sum of Benefits	\$188,550,704	\$120,943,527	\$71,175,610
Project Life Cycle Costs	\$52,500,000	\$48,124,181	\$43,055,204
B/C Ratio	3.59	2.51	1.65

Project Readiness

A preliminary field review has been conducted for this Highway 10 project. Twenty-five environmental constraints were identified: two historical structures, four parks, two cemeteries, two schools, one wetland area, four stream sections, and ten environmentally sensitive areas. A Request for technical assistance for the structures identified was sent to the State Historic Preservation Office and none were eligible for the National Register of Historic Places. Environmental assessment for this project is scheduled for April 2018. The entire project schedule for Highway 10, Pleasant Ridge Road to Taylor Loop Road, is shown below in Table 6.

Table 6 – Project Schedule

Task	Completion Date
Design Surveys	March 2017
Roadway Design	December 2017
Environmental	April 2018
Right of Way	September 2018
Utilities	September 2019
Project Obligation	September 2019
Mobilization of Project	October 2019
Open to Traffic	September 2021
Job Duration	September 2022 (3 Years)

**WAGE RATE CERTIFICATION
FOR
THE CONSOLIDATED APPROPRIATIONS
ACT OF 2016**

Pursuant to the Fiscal Year 2016 Consolidated Appropriations Act (Pub. Law 114-113 (December 18, 2015), 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 TIGER 2016 funding unless this certification is made and posted.



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



Date