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LORIE H. TUDOR, P.E.
DIRECTOR

April 16, 2021

The Honorable Bruce Ledford
Mayor of Elkins
1874 Stokenbury Road
Elkins, Arkansas 72727

The Honorable Lioneld Jordan
Mayor of Fayetteville
113 W. Mountain Street
Fayetteville, Arkansas 72701

Dear Mayor Ledford and Mayor Jordan:

Reference is made to the enclosed Highway 16 Improvement Study and Highway Commission Minute Order 2021-025, which adopted the study for use as a planning guide for future improvements.

This study determined that widening Highway 16 to four travel lanes is warranted between Stone Bridge Road in Fayetteville and Highway 74 in Elkins. A construction project is currently scheduled for late 2022 to widen Highway 16 between Stone Bridge Road and East Roberts Road in Fayetteville.

Thank you for your interest in and support of Arkansas' transportation system. If any additional information is needed, please advise.

Sincerely,

A handwritten signature in blue ink that reads "Lorie H. Tudor".
Lorie H. Tudor, P.E.
Director

Enclosures

c: The Honorable Lance Eads, Arkansas State Senator
The Honorable Greg Leding, Arkansas State Senator
The Honorable Bruce Coleman, Arkansas State Representative
The Honorable Denise Garner, Arkansas State Representative
The Honorable David Whitaker, Arkansas State Representative
Highway Commission
Deputy Director and Chief Operating Officer
Deputy Director and Chief Engineer
Assistant Chief Engineer – Planning
Environmental
Governmental Relations
Program Management
Transportation Planning and Policy
District 4
The Honorable Joseph Wood, Washington County Judge
Northwest Arkansas Regional Planning Commission

ARKANSAS STATE HIGHWAY COMMISSION

MINUTE ORDER

District: Four
County: Washington
Category: Miscellaneous


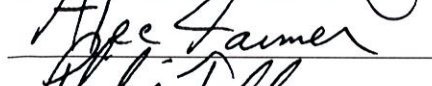
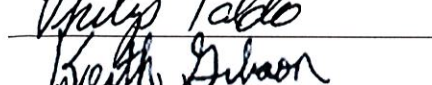
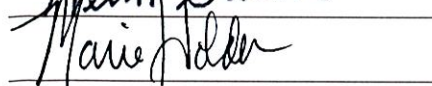

Page 1 of 1 Page

WHEREAS, Minute Order 2014-011 authorized a study to determine the need for and feasibility of improvements to Highway 16 from Highway 265 to Elkins in Washington County; and

WHEREAS, the Highway 16 Improvement Study has been prepared and has identified mobility and capital improvement needs along the study area.



NOW THEREFORE, this study is adopted for use as a planning guide for future improvements to the Highway 16 corridor.

Approved:

	Chairman
	Vice-Chairman
	Member
	Member
	Member

TP&P

Submitted By:

	Assistant Chief Engineer - Planning
	Director
Minute Order No.	2021-0231
Date Passed	MAR 17 2021

HIGHWAY 16 IMPROVEMENT STUDY

HIGHWAY 265 TO ELKINS WASHINGTON COUNTY



HIGHWAY 16 IMPROVEMENT STUDY

HIGHWAY 265 TO ELKINS
WASHINGTON COUNTY

EXECUTIVE SUMMARY

DRAFT



Prepared by the Transportation Planning and Policy Division
Arkansas Department of Transportation
In Cooperation with the Federal Highway Administration

This report was funded in part by the Federal Highway Administration, U.S. Department of Transportation. The views and opinions of the authors expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.

ARKANSAS DEPARTMENT OF TRANSPORTATION

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INTRODUCTION

In January 2014, the Arkansas State Highway Commission adopted Minute Order 2014-011 (Appendix A), authorizing a study of Highway 16 between Highway 265 in Fayetteville and Elkins in Washington County due to increasing traffic demands. The study area is shown in Figure 1.

EXISTING CONDITIONS

Highway 16, a minor arterial route on the Arkansas Primary Highway Network and a Scenic Highway, is the only direct roadway connection between Fayetteville and Elkins. Beyond Elkins, Highway 16 connects with Highway 23, otherwise known as the Pig Trail Scenic Byway, a popular scenic route through the Ozark Mountains.

Although primarily a two-lane route with 11-foot travel lanes, the cross section of Highway 16 varies throughout the study area (Figure 2). Between Highway 265 and Stone Bridge Road, Highway 16 has four travel lanes, bike lanes, and curb & gutter, with a total pavement width of 52 feet. Farther east, the recently built West Fork White River and Middle Fork White River bridges were constructed to this same pavement width. Highway 16 still has two lanes with open shoulders, thus these recently widened bridges have been temporarily striped for two travel lanes with a painted median until the highway is widened. Within Elkins, Highway 16 has two travel lanes with a continuous two-way left-turn lane and open shoulders.

Study Area and Existing & Projected Traffic
Highway 16, Section 3
Vicinity of Fayetteville and Elkins, Washington County

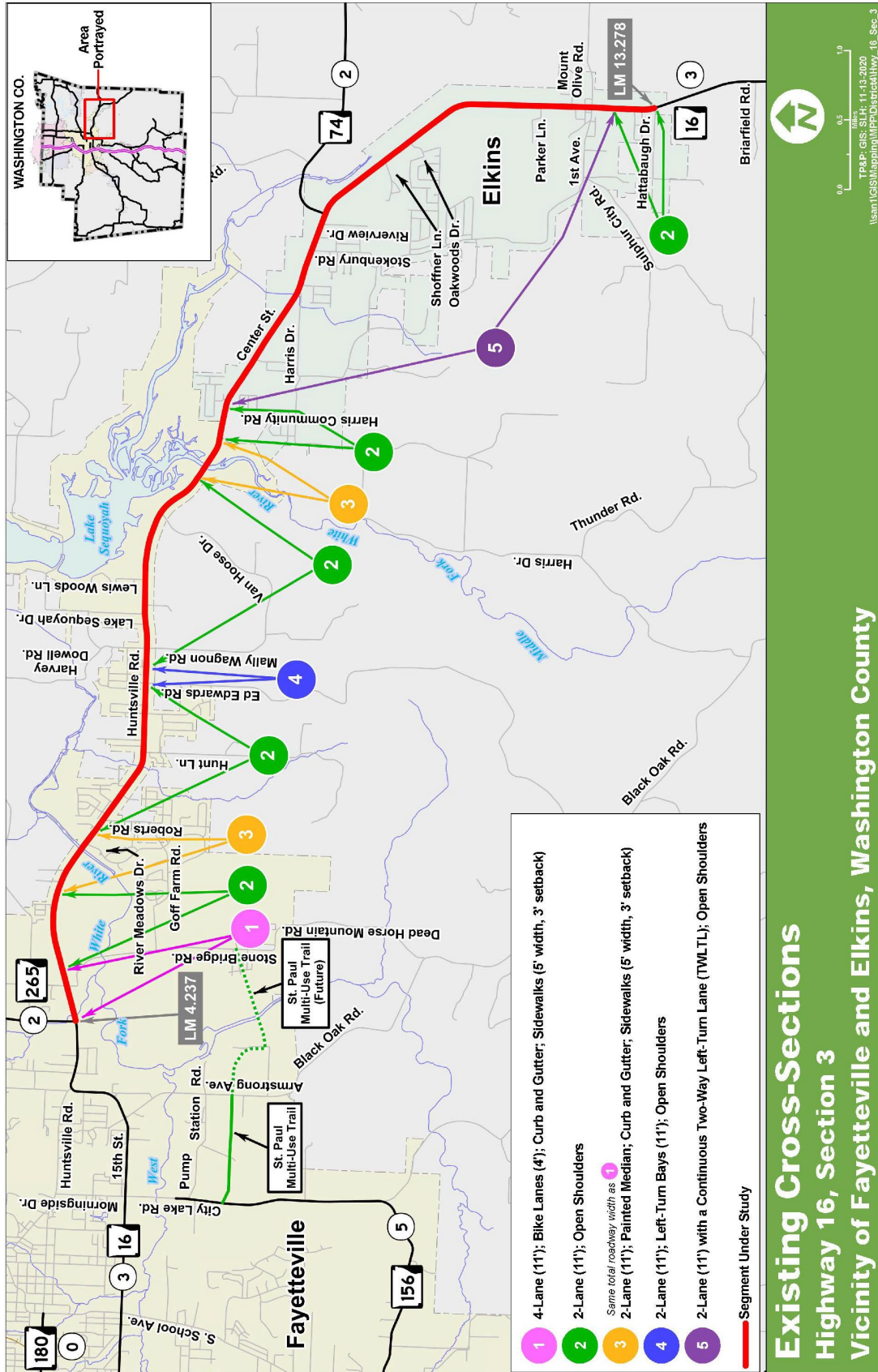
Legend:
 — Segment Under Study
 2020 ADT
 2040 ADT

Map Details:
 The map shows Highway 16, Section 3, with projected traffic volumes for 2020 and 2040 ADT. Key locations include Fayetteville and Elkins. Road segments are labeled with their respective ADT values. Landmarks such as Lake Sequoyah, White River, and Black Oak Rd. are also shown. An inset map indicates the study area's location within Washington County.

Projected Traffic Volumes (ADT):

Segment	2020 ADT	2040 ADT
Segment 1 (Huntsville Rd. to River Meadows Dr.)	21,500	32,500
Segment 2 (River Meadows Dr. to Goff Farm Rd.)	18,500	25,500
Segment 3 (Goff Farm Rd. to Stone Bridge Rd.)	22,500	32,500
Segment 4 (Stone Bridge Rd. to Black Oak Rd.)	21,500	30,500
Segment 5 (Black Oak Rd. to Harris Dr.)	12,000	16,500
Segment 6 (Harris Dr. to Van Hoose Dr.)	12,000	16,500
Segment 7 (Van Hoose Dr. to Ed Edwards Rd.)	16,000	22,500
Segment 8 (Ed Edwards Rd. to Huntsville Rd.)	16,000	22,500
Segment 9 (Huntsville Rd. to Center St.)	12,000	16,500
Segment 10 (Center St. to Harris Dr.)	4,000	5,400
Segment 11 (Harris Dr. to Oakwoods Dr.)	8,300	12,000
Segment 12 (Oakwoods Dr. to Parker Ln.)	8,300	12,000
Segment 13 (Parker Ln. to 1st Ave.)	8,300	12,000
Segment 14 (1st Ave. to Hattabaugh Dr.)	8,300	12,000
Segment 15 (Hattabaugh Dr. to Briarfield Rd.)	8,300	12,000

Figure 2 - Existing Cross-Sections



PLANNING CONSIDERATIONS

The varying cross sections through the study area are the result of recent improvements, highlighting the need for a uniform plan for future improvements. Widening Highway 16 to four travel lanes from Stone Bridge Road to Roberts Road is funded in the current Statewide Transportation Improvement Plan as Job 040785. The Northwest Arkansas Regional Planning Commission (NWARPC), the regional Metropolitan Planning Organization (MPO) for Northwest Arkansas, anticipates further widening of Highway 16 from Roberts Road to the Middle Fork White River by 2040, according to the *Northwest Arkansas 2040 Metropolitan Transportation Plan*. They also see a benefit of further widening Highway 16 to Highway 74.

PURPOSE AND NEED

The *Arkansas Long Range Intermodal Transportation Plan (LRITP)* defines six goal areas that support the Department's mission. These goal areas inform the purpose of and need for improvements to Highway 16.

SAFETY AND SECURITY

Safety

Highway 16 safety performance was reviewed using the most recent crash data available (2014-2018). Crash rates, computed for both total crashes and for fatal and serious injury (KA) crashes, were reviewed. Highway 16 has performed better than similar highways across Arkansas. Four KA crashes (three of them fatal) occurred during the study period, including one head-on, two angle, and one single vehicle crash. Table 1 and Figure 3 present these findings in more detail. A pavement preservation project, that was completed in 2017, included features that will further improve safety,

including new pavement markings and improved surface friction through overlays. Such treatments were performed for the entire length of the study segment.

Table 1 - Highway 16 Crash Rates (2014-2018)

Segment	Log Miles	Weighted ADT ¹	Total Crashes			KA Crashes		
			Number of Crashes	Crash Rate (per mvm) ²	Statewide Average (per mvm) ²	Number of Crashes	Crash Rate (per 100 mvm) ³	Statewide Average (per 100 mvm) ³
Highway 265 to Mally Wagnon Road	3.32 to 6.21	15,000	209	2.64	2.67 ⁴	3	3.79	10.56 ⁵
Mally Wagnon Road to Harris Community Road	6.22 to 8.17	10,500	65	1.74	2.67 ⁴	1	2.68	10.56 ⁵
Harris Community Road to Highway 74	8.18 to 9.70	8,700	18*	1.86*	2.36 ⁴	0*	0.00*	12.00 ⁵
Highway 74 to Hattabaugh Drive	9.71 to 12.35	5,900	15*	1.32*	2.36 ⁴	0*	0.00*	12.00 ⁵

*2013-2014 Data was used (Elkins does not have complete data for 2015-2018)

1 – Average Daily Traffic

2 – Crash rates reported in crashes per million vehicle miles (mvm)

3 – KA crash rates reported in crashes per 100 million vehicle miles (mvm)

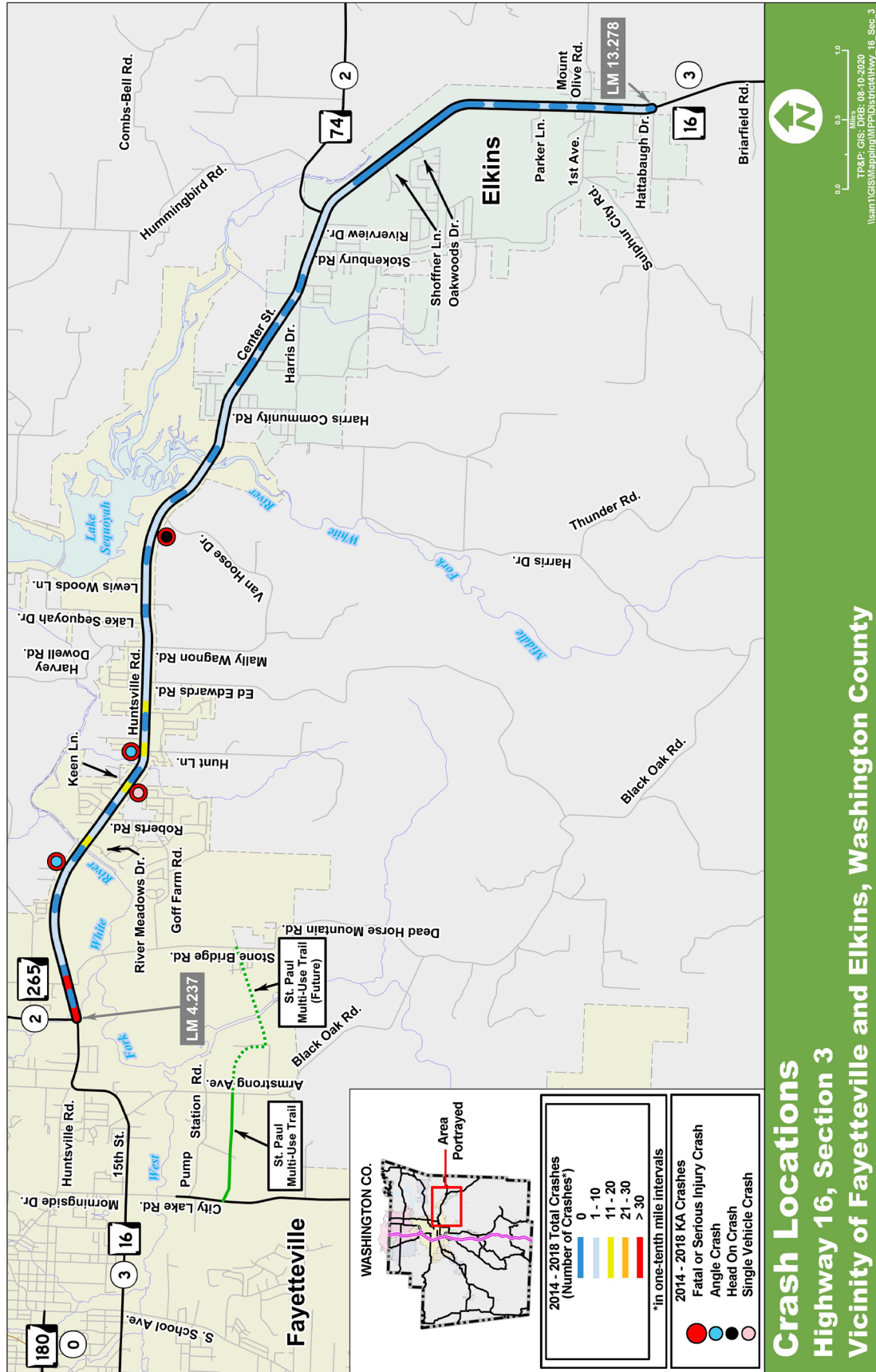
4 – Statewide average crash rate for urban, two-lane highways (no access control)

5 – Statewide average KA crash rate for urban, two-lane highways (no access control)

Security

A secure transportation system is free from harm, natural disasters, and extreme weather events. When security is compromised, the continued movement of people and goods depends upon the resiliency of the system. Resiliency refers to the ability of the transportation system to recover from major disruptions, such as roadway failures, major incidents, work zones, or other roadway closures. A resilient system provides alternate routes to accommodate travelers when their desired route is not available.

Figure 3 - Highway 16 Safety Review



Highway 16 provides one of the only Middle Fork White River crossings in the general area south of Lake Sequoyah. The nearest other crossing is located on County Road 51 south of Highway 16. A failure of the Highway 16 bridge would result in an approximate 11-mile detour. This lack of resiliency would directly affect all corridor travelers, specifically Elkins commuters.

MOBILITY AND SYSTEM RELIABILITY

Highway 16's performance was reviewed with respect to mobility – the ability of a corridor to move people and goods efficiently – and reliability – the corridor's ability to provide consistent, dependable travel times. For this review, the corridor was divided into four segments:

- **Stone Bridge Road to Mally Wagon Road** - Current demand exceeds capacity and multi-vehicle platoons are common during the peak periods. Commuters spend much of their time following other vehicles, with limited passing opportunities. The roadway is unable to recover quickly from disruptions (incidents, weather, etc.). Delays inhibit mobility and, as a result, this route becomes unreliable for commuters.
- **Mally Wagon Road to Harris Community Road** - Current demand does not exceed capacity but will likely do so by 2040. Similar issues, as described between Stone Bridge Road and Mally Wagon Road, will arise as traffic volumes increase.
- **Harris Community Road to Highway 74** - Current demand does not exceed capacity but will likely do so by 2040.
- **Highway 74 to Hattabaugh Drive** - Current demand is below capacity and is expected to remain so through 2040.

INFRASTRUCTURE CONDITION

Four recent construction projects, as detailed in Table 2, have improved the infrastructure condition of Highway 16 to satisfactory levels.

Table 2 - Highway 16 Recent Improvements

Job	Date Completed	Description
040578	2015	Widened to four travel lanes with bike lanes between Armstrong Avenue and Stone Bridge Road
040569	2015	Replaced West Fork White River Bridge and widened the approaches
040641	2017	Replaced Middle Fork White River Bridge and widened the approaches
040727	2017	Placed new asphalt surface throughout the study area.

MULTIMODAL TRANSPORTATION

The bicycle and pedestrian plans from the City of Fayetteville and the NWARPC both show an on-street bicycle facility along Highway 16 within the Fayetteville city limits. Additionally, Fayetteville's *Active Transportation Plan* includes an extension of the St. Paul Trail across the West Fork White River to connect to Dead Horse Mountain Road, which will serve the Highway 16 area. These plans should be consulted as projects along Highway 16 are designed.

ECONOMIC COMPETITIVENESS

Access to Employment Opportunities

Highway 16 is the primary commuting route for Elkins workers. According to Census Transportation Planning Products data, a set of special tabulations designed by transportation planners using surveys conducted by the Census Bureau, over 85 percent of the Elkins working population commutes toward Fayetteville. The ability to access jobs is crucial to Elkins residents.

Freight Connections

As a commuter route serving residential areas of eastern Washington County, Highway 16 has very little truck traffic, and no major freight generators are served. Trucks represent only three percent of all traffic.

ENVIRONMENTAL SUSTAINABILITY AND CONSTRAINTS

A cursory environmental review identified the constraints and concerns warranting planning and design consideration (Figure 4). These constraints and concerns are as follows:

- Lake Sequoyah Park
- Stokenbury Cemetery
- Underground storage tanks
- Historic properties
- Fuel stations

A review of the utilities within the study area showed several potential constraints and concerns. The organizations providing utility services include Fayetteville Water & Sewer, Elkins Water & Sewer, Black Hills Energy, Ozark Electric, Cox Communications, OzarksGo, and AT&T Arkansas.

PURPOSE AND NEED SUMMARY

Highway 16 traffic operations, between Stone Bridge Road and Highway 74, are at or approaching unacceptable levels and will worsen in the future. A safety performance review indicated that crash rates were lower than statewide averages for much of the corridor. However, due to the increasing traffic demands, improvements on Highway 16 are needed to obtain acceptable levels of service through the study period.

Figure 4 - Environmental Constraints



ALTERNATIVES

In order to address the mobility needs identified in the previous section, an improvement alternative was developed.

NO-ACTION ALTERNATIVE

This alternative would retain the existing roadway geometry, providing no improvements to operations or safety. As traffic volumes increase, operations will continue to deteriorate to unacceptable levels. The No-Action Alternative has no associated cost to the Department other than routine maintenance.

IMPROVEMENT ALTERNATIVE

The Improvement Alternative would widen Highway 16 to four travel lanes between Stone Bridge Road and Highway 74. Construction of a median (either a continuous two-way left-turn lane or a raised divided median with breaks at select intersections) should be considered to provide optimal safety performance. It is reasonable to retain the four-lane undivided sections that have already been constructed, particularly in floodplains where adjacent land development will be limited.

The total estimated cost of the Improvement Alternative is approximately \$45.2 million (2020 dollars), of which \$29.0 million are construction costs. The total cost includes preliminary engineering, right of way acquisition, utilities relocation, construction, and construction engineering.

Access management strategies should be considered as a part of any Highway 16 project. Access management could include a raised median to preserve mobility and safety. These strategies should be coordinated with local jurisdictions. As the only

direct route between Fayetteville and Elkins, access management would be especially appropriate for Highway 16.

CONCLUSIONS

Highway 16 serves as the primary route between Elkins and Fayetteville. Since most Elkins residents work to the west, traffic heavily favors one direction during peak periods, resulting in travel delays. To alleviate these delays, the proposed Improvement Alternative would widen existing Highway 16 to four travel lanes between Stone Bridge Road and Highway 74. This would also include any needed geometric modifications along the study corridor. These improvements would improve traffic operations to acceptable levels and enhance safety through the study period.

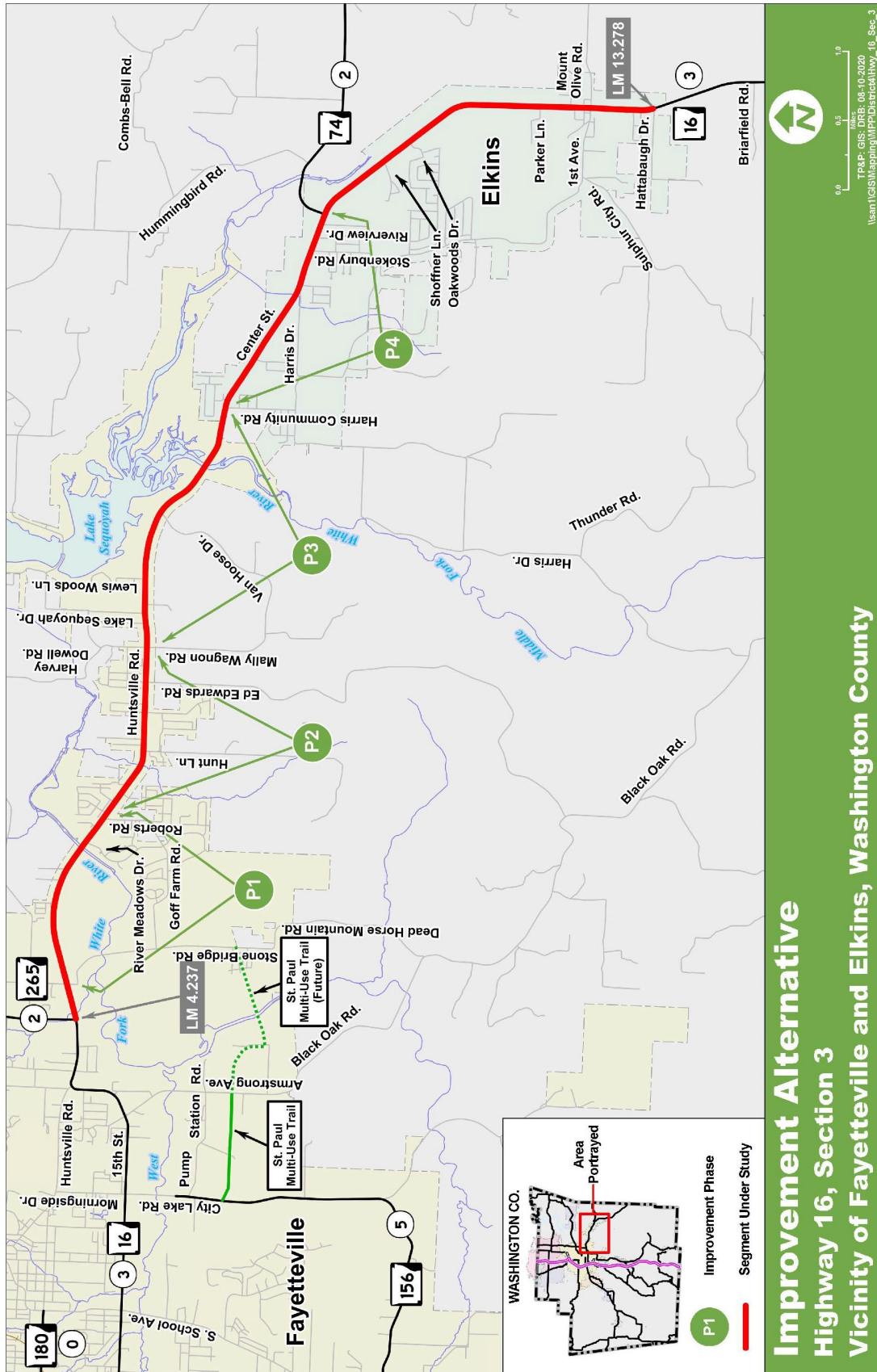
As a supplement to the widening, off-system connectivity improvements and an access management plan will become more important as the area develops. These improvements would ensure efficient and safe traffic operations for future improvement projects on Highway 16. Due to the high costs associated with widening, partnering with local jurisdictions should be considered. At a minimum, possible removal of existing highways from the State Highway System should be considered. Table 3 and Figure 5 provide a phasing strategy to improve Highway 16 as needs warrant and funding becomes available.

Table 3 - Phasing of Improvements

Phase	Segment	Length (miles)	Construction Cost (millions)	Total Cost (millions) ¹
1 ²	Stone Bridge Road to Roberts Road (Job 040785)	0.64 ³	\$4.0	\$6.2
2	Roberts Road to Mally Wagnon Road	1.33	\$8.2	\$12.8
3	Mally Wagnon Road to Harris Community Road	1.36 ³	\$7.8	\$12.1
4	Harris Community Road to Highway 74	1.58	\$9.0	\$14.1

1 – Total cost includes estimates for preliminary engineering, right-of-way, construction engineering and utilities. Actual costs may vary.
2 – \$4.0 million is included in the 2019-2022 STIP for construction of Job 040785.
3 – Length excludes bridge and approach segment.

Figure 5 - Improvement Alternative Phases



APPENDIX A

MINUTE ORDER 2014-011

ARKANSAS STATE HIGHWAY COMMISSION

MINUTE ORDER

District: Four

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County: Washington

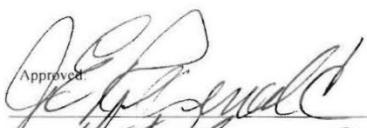
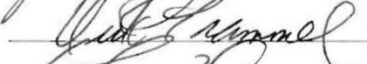
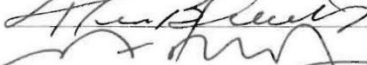
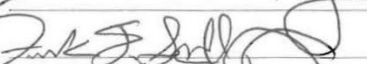

Category: Improvement Project-Arkansas Primary Highway Network (APHN)

WHEREAS, IN WASHINGTON COUNTY, on Highway 16 between Highway 265 and Elkins, traffic volumes continue to increase; and

WHEREAS, a study to determine the need for and feasibility of improvements to this route would be useful as a planning guide in developing future highway construction programs.

NOW THEREFORE, the Director is authorized to conduct a study to determine the need for and feasibility of improvements to Highway 16 from Highway 265 to Elkins in Washington County.

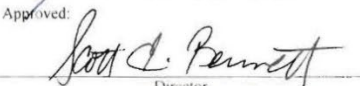
040667, Hwy. 16 Study (Hwy. 265-Elkins) (S)

Approved:  Chairman
 Vice-Chairman
 Member
 Member
 Member

ACE-P

Form 19-456
Rev. 02/12/2013

Submitted By:  Assistant Chief Engineer - Planning

Approved:  Director

Minute Order No. **2014 011**

Date Passed **JAN 15 2014**

RH



HIGHWAY 16 IMPROVEMENT STUDY

HIGHWAY 265 TO ELKINS
WASHINGTON COUNTY