# HIGHWAY 7 WIDENING: Highway 290 – Ouachita River Bridge

# AHTD Job 060432

Environmental Assessment





Arkansas State Highway & Transportation Department



**APRIL 2015** 

# HWY. 290 - OUACHITA RIVER BRIDGE

#### F.A.P. Number STP-0026(27)

Environmental Assessment

Submitted pursuant to: The National Environmental Policy Act (NEPA) 42 U.S.C. §4322(2)(c) and 23 C.F.R. §771

#### Submitted by:

#### FEDERAL HIGHWAY ADMINISTRATION

and

# ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Randal Looney Environmental Specialist Federal Highway Administration

April 27, 2015

Date of Approval



The following people may be contacted for additional information concerning this document:

Randal Looney	John Fleming
FHWA	AHTD
700 W. Capitol, Room 3130	P.O. Box 2261
Little Rock, AR 72201-3298	Little Rock, AR 72203-2261
(501)324-6430	(501)569-2281

In compliance with the National Environmental Policy Act, this Environmental Assessment (EA) describes the plan to widen Highway 7 south of the City of Hot Springs, from Highway 290 to the Ouachita River bridge. The analysis did not identify any significant adverse environmental impacts, and identifies Alternative 1 as the Preferred Alternative.

Comments should be directed to:

Mail: Environmental - Public Involvement AHTD P.O. Box 2261 Little Rock, AR 72203-2261

Email: info@ahtd.ar.gov

This EA is also available for review online at:

http://www.arkansashighways.com/



Arkansas State Highway and Transportation Department

# E

## Title VI

The Arkansas State Highway and Transportation Department (AHTD) ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its federally assisted programs and activities. The AHTD public involvement process did not exclude any individuals due to income, race, color, religion, national origin, sex, age, or disability. For questions regarding the AHTD's Title VI Program, you may contact the Department's EEO/DBE Section Head (ADA/504/Title VI Coordinator) at (501) 569-2298 (Voice/TTY 711), or at the following email address: EEO\_DBE\_Section\_Head@ahtd.ar.gov.

### Americans with Disabilities Act (ADA) Information

Materials can be provided in alternative formats: large print, Braille, or audiotape for people with disabilities by contacting AHTD's EEO/DBE Section Head (ADA/504/Title VI Coordinator) at (501) 569-2298 (Voice/TTY 711), or at the following email address: EEO\_DBE\_Section\_Head@ahtd.ar.gov. Persons who are deaf or hard of hearing may contact the AHTD through the Arkansas Relay Service at 7-1-1.

A federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(I), indicating that one or more federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those federal agency actions will be barred unless such claims are filed within 180 days after the date of publication of the notice, or within such shorter time period as is specified in the federal laws pursuant to which judicial review of the federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the federal laws governing such claims will apply.

# TABLE OF CONTENTS

# **CHAPTERS**

Chapter	2 1 – Purpose & Need
1.1	What is the Highway 7 widening project?1
1.2	What are the existing conditions on Highway 7?1
1.3	How is the project area changing?
1.4	Why does Highway 7 need to be widened?6
1.5	What is the purpose of this project?7
1.6	What is the purpose of this Environmental Assessment?7
1.7	Who is leading this project?
Chapter	2 – Alternative Development
2.1	What are the project limits and how were they chosen?
2.2	What alternatives were evaluated in this EA?
2.3	How has the public been involved?10
2.4	How have tribal governments been involved?11
2.5	Which of these alternatives will be considered?
Chapter	2 3 – Project Effects
3.1	How would the project affect traffic and safety?13
3.2	How much would the proposed project cost?14
3.3	How would economic conditions in the Lake Hamilton community and surrounding areas be affected?
3.4	How would the project affect properties in the area?
3.5	How would the project affect cultural resources?
3.6	Would noise levels change?
3.7	Would utilities be affected?
3.8	How would the project affect views?17
3.9	Would any hazardous materials be created or affected?
3.10	How would water resources, such as streams, be affected?
3.11	Would the project cause flooding in surrounding areas?

3.12	Would any wetlands be impacted by the project?	. 18
3.13	Would any protected species be impacted by the project?	. 18
3.14	How would the project affect other natural resources?	. 19
3.15	What are indirect and cumulative effects, and does the project have any?	. 19
Chapter	4 – Recommendations	21
4.1	What are the results of this EA?	.21
4.2	Is the NEPA process finished?	.21

# **REFERENCE PAGES**

ronyms
--------

## **APPENDICES**

Appendix A:	Level of Service Descriptions
Appendix B:	Public Involvement Meeting Synopsis
Appendix C:	Conceptual Stage Relocation Study
Appendix D:	Cultural Resources Information
Appendix E:	Traffic Noise Report

# FIGURES

1	Hot Springs Area	2
2	Average Daily Traffic Counts	3
3	Project Area	.4
4	Alternative 1 Typical Cross Section	12

# TABLES

1	Average Daily Traffic Counts	3
2	Alternative 1 Land Use Impacts	15
3	Alternative Impact Comparison	21

# Chapter 1 – Purpose & Need

## What's in Chapter 1?

Chapter 1 explains the purpose of the project, why improvements to Highway 7 are needed, and who is leading the project.

#### 1.1 What is the Highway 7 widening project?

The Arkansas State Highway and Transportation Department (AHTD) is proposing to widen Highway 7 south of the City of Hot Springs, from Highway 290 north to the Ouachita River/Lake Hamilton.

#### 1.2 What are the existing conditions on Highway 7?

#### **State of Arkansas**

Highway 7 begins at the Louisiana State Line near the City of El Dorado, and ends north of the City of Harrison near the Missouri State Line. It connects the southern coastal plain of Arkansas to the Ouachita Mountains, DeGray Lake Resort State Park, Hot Springs National Park, the Arkansas River Valley, the Ozark Mountains, and the Buffalo National River. As a State Scenic Byway, Highway 7 is utilized by travelers wishing to experience the scenic values of the byway and the features found along the route.

#### **Hot Springs Area**

In the Hot Springs area, Highway 7 provides access to Lake Hamilton (created by the damming of the Ouachita River), Oaklawn Park Race Track, Hot Springs National Park, the City of Fountain Lake, and the main entrance of Hot Springs Village. Highway 7 is one of only three highways that cross Lake Hamilton. Due to tourists accessing Lake Hamilton, Lake Ouachita, and the Ouachita River, as well as logging operations in both the Ouachita and Ozark-St. Francis National Forests, recreational vehicles and heavy trucks routinely utilize Highway 7. Highway 7 connections in the Hot Springs area can be seen in Figure 1. What does it mean when a highway is designated a State Scenic Byway?

State Scenic Byways are highway corridors with unique scenic, geological, cultural, recreational, or other special characteristics. A State Scenic Byway designation means that the highway will be promoted for tourism and managed in a way that is compatible with the highway's unique qualities. The State Scenic Byway designation does not preclude any highway improvements, but does mean that visual intrusions such as off-premise advertising (e.g., billboards, signage, etc.) and salvage yards are restricted.

#### Hot Springs Area



#### **Project Area**

Highway 7 in the project area, from Highway 290 north to the Ouachita River/Lake Hamilton, is classified as a principal arterial and consists of two 11-foot wide travel lanes with 1-foot wide or 2-foot wide open shoulders, depending on the location. The posted speed limit is 45 mph. There are over 60 access points within the 1.67 mile section of Highway 7, primarily due to commercial driveways. Highway 7 in the project area can be seen in Figure 2.

The traffic volumes on Highway 7 in the project area vary greatly because of heavy seasonal use by tourists going to the popular features and businesses along the highway. Table 1 and Figure 3 show the average daily traffic counts on Highway 7, south of the project area.

#### What is a principal arterial?

Urban principal arterials, such as Highway 7 in the project area, carry high volumes of traffic entering and leaving the urban area or connecting business districts and outlying residential areas. They also provide connections for rural arterials and connectors at the urban boundary.

#### Table 1

Year	Count Date	Average Daily Traffic (vehicles per day)
2002	Wednesday, January 9	10,000*
2003	Monday, January 13	10,100*
2004	Monday, January 12	11,200*
2005	Monday, January 10	10,400*
2006	Tuesday, September 12	7,200
2007	Tuesday, October 2	7,100
2008	Tuesday, September 23	10,000
2009	Tuesday, September 8	6,600
2010	Monday, September 20	6,600
2011	Monday, October 3	6,400
2012	Monday, October 1	6,300
2013	Friday, September 16	6,000

#### Average Daily Traffic Counts

Average Daily Traffic Counts



\*Count taken during Oaklawn racing season (peak)

#### Project Area



As seen in Table 1, traffic during peak travel months can include as many as 3,000 to 4,000 more vehicles per day than off-peak months on Highway 7 in and around the project area. Traffic is typically highest during the Oaklawn Park racing season (January through April) and during summer months when warm weather encourages vacationers and water sport enthusiasts to access the resorts, vacation homes, and access points on Lake Hamilton, Lake Ouachita, Lake Catherine, and the Ouachita River.

Peak travel times during the day are also influenced by tourist and recreational traffic. Tourist and recreational traffic peaks occur within the project area near mid-day and past the typical evening peak traffic and rarely coincide with commuter and school traffic.

Highway 290, at the southern end of the proposed project, is functionally classified as a major collector and provides access around the east side of Lake Hamilton through a connection to Highway 128 (Carpenter Dam Road). This is the only connection around Lake Hamilton east of Highway 7 in Garland County. Amity Road, which intersects Highway 7 near the midpoint of the proposed project at a signalized intersection, is also functionally classified as a major collector.

#### **1.3** How is the project area changing?

Although traffic volumes in the study area have grown only modestly in recent years (Table 1), there is a potential for traffic volumes to increase more rapidly in the future due to development. Garland County continues to grow, and while the City of Hot Springs is relatively land-locked, the Lake Hamilton area still has developable land in and around the project area. Because there are only two other routes that cross Lake Hamilton, there are few corridor options for future commercial development to expand south. The Hot Springs 2010 Comprehensive Plan includes the project area as a commercial development corridor.

The potential for future development along Highway 7 has also lead the proposed project to be included in the Tri-Lakes Metropolitan Planning Organization's (MPO) 2035 Long Range Transportation Plan and recommended by the MPO for inclusion in the 2016-2019 Statewide Transportation Improvement Program.

#### What is a major collector?

Rural collectors, such as Amity Road and Highway 290 in the project area, generally serve travel within counties and of shorter distances than arterials such as Highway 7. Major collectors are distinguished from minor collectors by their links to business and industrial districts, major cities, such as the City of Hot Springs, or roads of higher classifications, such as Highway 7.

#### 1.4 Why does Highway 7 need to be widened?

#### **Traffic Flow**

In the United States, state highway agencies have categorized traffic flow with a qualitative measure called Level of Service (LOS). LOS is calculated for existing traffic volumes and forecasted in the future 20 years to ensure that state highway agencies are taking into account future growth. The LOS calculation results in one of six levels of service (A through F), described in Appendix A.

Highway 7 from Highway 290 to Amity Road currently operates at LOS E during peak travel months and LOS D during off-peak months. If traffic growth continues, this section would operate at LOS E year-round by 2035. LOS E is considered unacceptable, as it is the point where traffic demand is approaching the capacity of the highway. LOS D is considered an acceptable LOS for urban areas.

Highway 7 from Amity Road to the Ouachita River bridge has higher traffic volumes and currently operates at LOS E year-round. This section would continue to operate at LOS E over the 20-year study period.

#### Safety

Crash data from 2009-2011, the most recent years available, showed crash rates that were above the statewide average each year. The majority of the crashes were rear end collisions, with 50% of all crashes north of Amity Road and 67% of all crashes south of Amity Road consisting of rear end collisions. This type of collision occurs most frequently in urban settings with higher traffic volumes and traffic making left turns from the travel lanes (as opposed to a designated left turn lane), resulting in dangerous "stop-and-go" traffic movements.

#### **Bicyclists & Pedestrians**

In the project area, Highway 7 currently has no accommodations for bicycles or pedestrians, with shoulders that are less than three feet wide. Bicyclists are forced to use the single travel lane, while pedestrians use the narrow shoulder or walk off of the roadway. LOS can be calculated for bicycle traffic using factors affecting bicycle safety and travel. Bicyclists using Highway 7 in the project area currently experience LOS E over the entire study segment, which is considered unacceptable. The proposed project is consistent with the City of Hot Springs Master Plan recommendations for bike lanes around Lake Hamilton on Highway 7 and Highway 290.

#### What does LOS take into account?

The LOS calculator uses road and traffic conditions that affect traffic flow, such as:

- peak-hour traffic volume
- free-flow speed (how quickly free-flowing traffic would travel)
- shoulder and lane width
- percent of the daily traffic that consists of trucks, buses, or recreational vehicles
- passing opportunities
- number of traffic signalsdensity of access points
- (intersections & driveways)terrain
- type of highway (commuter & long-distance routes with higher speeds or scenic & recreational routes with slower speeds)

#### What are crash rates?

Crash rates are based on the number of crashes per million vehicle miles traveled. For example, over the 3 year period, Highway 7 north of Amity Road had an average of 16.3 crashes per year, an average traffic volume of 15,800 vehicles per day, and is 0.74 mile long. This translated to a crash rate, per million vehicle miles, of 3.82. These rates are compared to a statewide average crash rate, also per million vehicle miles, for similar highways. In this case, the statewide average crash rate for two-lane undivided urban highways, per million vehicle miles, was 2.8.

#### 1.5 What is the purpose of this project?

The purpose of this project is to address the current and forecasted traffic flow issues as well as vehicle, bicycle, and pedestrian safety concerns.

#### 1.6 What is the purpose of this Environmental Assessment?

This Environmental Assessment (EA) is being prepared to:

- Evaluate the environmental effects of widening Highway 7.
- Inform and receive feedback from the public and decision makers about the environmental effects of the project.
- Determine whether effects are significant and require an Environmental Impact Statement or if the project effects can be sufficiently documented through an EA and Finding of No Significant Impacts (FONSI).

#### 1.7 Who is leading this project?

This project is being led by a partnership between the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD). The FHWA is involved because it is funding a portion of the project and has the primary responsibility for the content and accuracy of this National Environmental Policy Act (NEPA) document.

The project is also being funded through state funds allocated to the AHTD. The AHTD is responsible for administering and maintaining the state highway system, which includes Highway 7. For these reasons, the AHTD is a co-lead agency with the FHWA.

#### What are significant impacts?

NEPA regulations do not provide specific thresholds to determine if project impacts are considered significant, but they do discuss the process that should be used to evaluate impacts.

Consideration is given both to context, where the significance of impacts varies with the setting of the proposed action, and intensity, the severity of the impacts.

# Chapter 2 – ALTERNATIVE DEVELOPMENT

## What's in Chapter 2?

*Chapter 2 identifies the project limits and briefly describes the alternatives evaluated in this EA.* 

#### 2.1 What are the project limits and how were they chosen?

The proposed project begins at Highway 290 and extends north to the Highway 7 bridge over the Ouachita River. The northern end of the project meets up with already widened portions of Highway 7, while Highway 290 at the southern end provides a logical end to the project. Highway 290 is a major collector providing a connection to Highway 128 (Carpenter Dam Road) around Lake Hamilton to the eastern side of the City of Hot Springs. Highway 290 to the Ouachita River bridge is also currently the extent of the more developed, urban section of Highway 7 south of the City of Hot Springs. South of Highway 290, Highway 7 takes on a much more rural aspect, and as such, would likely involve different design standards than the urban setting found throughout the proposed project area.

#### 2.2 What alternatives were evaluated in this EA?

Five alternatives were considered for this project: the No Action Alternative and four build alternatives.

#### **No Action Alternative**

The No Action Alternative would provide only routine maintenance for Highway 7 in the project area. By taking no action other than routine maintenance, the No Action Alternative would not address the current and forecasted traffic flow and safety concerns, which would increase as traffic volumes and commercial and residential development in the corridor increase. Why would you consider an alternative that does nothing?

The National Environmental Policy Act (NEPA) requires decision makers to consider a "no action" alternative in all NEPA studies. This alternative usually does not meet the project's purpose and need, but is used to compare the beneficial and adverse impacts of "action" alternatives and determine their significance.

#### Alternative 1

Alternative 1 would widen Highway 7 on the existing alignment to four travel lanes with a continuous, two-way, left turn lane and bicycle lanes and sidewalks on both sides of the highway.

This alternative would improve Highway 7 in the project area to LOS C, which is acceptable, over the 20-year study period. The improved LOS and left turn lane should correct the "stop-and-go" traffic movements and reduce crash rates, particularly the rear end collisions which are prevalent in the project area.

#### Alternative 2

Alternative 2 would widen Highway 7 on the existing alignment with the addition of a continuous, two-way, left turn lane and bicycle lanes and sidewalks on both sides of the highway, but would not add any travel lanes.

With this alternative, Highway 7 would continue to operate at LOS E, which is unacceptable, between Amity Road and the Ouachita River bridge over the 20-year study period, although safety would be improved by removing left-turning vehicles from the travel lanes. The LOS between Highway 290 and Amity Road would likely improve to LOS D year-round, which is acceptable in urban areas, but would likely operate at LOS E again by 2035 during peak months. If additional development occurs along the corridor and traffic increases more than recent trends, by 2035 the LOS will likely drop to LOS E for off-peak months as well.

#### Alternative 3

Alternative 3, a hybrid of the first two build alternatives, would widen Highway 7 on the existing alignment with the addition of a continuous, two-way, left turn lane and bicycle lanes and sidewalks on both sides of the highway. Two additional travel lanes would be added from Amity Road to the Ouachita River bridge, where traffic volumes are higher and the LOS is worse, but from Highway 290 to Amity Road would remain at only two total travel lanes.

With Alternative 3, safety would be improved within the project area, along with the other enhancements. The LOS would remain acceptable from Amity Road to the Ouachita River bridge over the 20year study period and would improve the LOS between Highway 290 and Amity Road during off-peak months, but by 2035, the LOS between Highway 290 and Amity Road would likely operate at LOS E during peak months. If additional development occurs along the corridor and traffic increases more than recent trends, by 2035 the LOS will likely drop to LOS E for off-peak months as well.

#### Alternative 4

Alternative 4 would have the same mix of cross section as Alternative 3, but would have open shoulders south of Amity Road instead of bicycle lanes, sidewalks, and curb-and-gutter. This alternative provides a viable option for bicycles and pedestrians to be out of the travel lanes on a paved surface, while reducing the future cost of conversion of the segment to an urban cross section with curband-gutter, bicycle lanes, and sidewalks.

Safety would be improved for vehicles with Alternative 4 with the addition of the continuous center left turn lane. Open shoulders can provide safe accommodations for bicycles and pedestrians; however, they may not have the same level of comfort as they would with bicycle lanes and sidewalks. Alternative 4 would have the same LOS as Alternative 3, with acceptable current and forecasted LOS north of Amity, but unacceptable forecasted peak LOS south of Amity.

#### 2.3 How has the public been involved?

A public involvement meeting was held on April 18, 2013, at the Lake Hamilton Baptist Church located at the intersection of Highway 7 and Highway 290. Two separate designs of Alternative 1 were shown to the public: one widening along the existing highway equally on both sides of the road, and the other shifting to one side or the other to avoid as many residential and commercial relocations as possible. The meeting was attended by 85 people, with 50 comment forms and one letter received. A majority (42) of the commenters indicated that they believed that Highway 7 needed to be widened in the project area, but many believed that their personal property would be adversely affected with either of the proposed designs of Alternative 1; however, 22 commenters preferred the minimization design while only seven preferred the design going down the middle of the existing alignment. As the design down the middle of the existing alignment would have likely resulted in as many as 60-70 relocations, it was not considered a reasonable or prudent design, and the minimization alignment was retained for Alternative 1.

As a result of the comments received about adverse property impacts, Alternatives 2, 3, and 4 were developed to examine the impacts and functionality of different project designs and footprints. The public involvement meeting synopsis can be found in Appendix B.

#### 2.4 How have tribal governments been involved?

Section 106 of the National Historic Preservation Act requires federal agencies to consult with tribes where projects could affect tribal areas with historical or cultural significance. The FHWA initiated coordination with the tribes with an active cultural interest in the area during the scoping process for this project. The tribes contacted included the Quapaw Tribe of Oklahoma and the Caddo Nation. The Tribal Historic Preservation Officers were given the opportunity to comment on the proposed project. No objections to the proposed project were received.

#### 2.5 Which of these alternatives will be considered?

All five alternatives considered in this chapter are feasible and able to be constructed. The No Action Alternative does not meet the project's purpose and need of improving current and forecasted traffic flow and correcting vehicle, bicycle, and pedestrian safety concerns; however, the No Action Alternative will be considered in this Environmental Assessment as a baseline comparison of impacts against the build alternative.

Although Alternatives 2, 3, and 4 improve safety with the addition of a center turn lane and with bicycle lanes and sidewalks (for Alternatives 2 and 3), they do not improve the forecasted LOS to acceptable levels for all or part of Highway 7 in the project area. Alternatives 2, 3, and 4 were dropped from further consideration as they do not meet the project's purpose and need and are therefore not considered prudent alternatives. They will not be discussed further in this EA.

The minimization alignment and design developed for Alternative 1 meets the project's purpose and need while lowering the levels of impacts to the community; therefore, Alternative 1 will be the only build alternative considered in the remainder of this EA. Figure 4 shows the typical cross section of Alternative 1.

What does it mean for an alternative to be feasible and prudent?

NEPA defines feasible alternatives as those that can be built using current construction practices, while a prudent alternative is one that is reasonable, or makes sense. For example, alternatives that are not prudent may not meet the project's purpose and need, have severe operational or safety problems, unacceptable impacts, or cause severe community disruption.

Alternative 1 Typical Cross Section



Figure 4

# Chapter 3 – PROJECT EFFECTS

## What's in Chapter 3?

Chapter 3 identifies permanent and construction impacts that are expected as a result of the proposed project. Only elements that would be affected by the project are discussed. The impact areas discussed in Chapter 3 are summarized in Table 3, found at the end of the chapter.

#### 3.1 How would the project affect traffic and safety?

# How would traffic patterns and volumes on Highway 7 and intersecting roads change with the project?

Normal traffic patterns would not change with the construction of either Alternative 1 or the No Action Alternative. Widening Highway 7 with Alternative 1 may result in land use changes as development extends south, but forecasted traffic growth considers future growth in the project area. Crash rates would also be reduced with the additional travel lanes and continuous center left turn lane, lessening the likelihood of traffic disruptions due to collisions. The No Action Alternative would result in increasingly congested traffic flows and higher crash rates as traffic volumes increase over the 20-year study period, and the LOS would remain at unacceptable levels.

#### How would the project affect safety?

Alternative 1 would result in improved roadway safety with the additional travel lanes and a continuous, two-way left turn lane. Bicyclist and pedestrian safety will also be greatly improved with the addition of bicycle lanes and sidewalks on both sides of Highway 7.

The No Action Alternative would not address any of the safety hazards or reduce the crash rates. Bicyclists and pedestrians would also have no improvements in safety, and actually encounter more dangerous conditions as traffic volumes increase on Highway 7 over the 20-year study period.

#### How much traffic congestion would be caused by construction?

While Highway 7 traffic would likely experience minor delays during the construction of Alternative 1, traffic would be maintained in both directions during construction. Because Alternative 1 involves constructing additional lanes on Highway 7, traffic can more easily be shifted to either side of the highway throughout construction. The No Action Alternative would not involve any highway construction.

#### 3.2 How much would the proposed project cost?

Using 2015 dollars, Alternative 1 is estimated to have \$8 million in construction costs, \$5.2 million in acquisition costs, \$625,000 in business relocation costs, and \$1.0 million in utility relocation costs. The total project cost is estimated to be \$14.8 million. The No Action Alternative would not result in any construction and would only involve routine maintenance costs.

# **3.3** How would economic conditions in the Lake Hamilton community and surrounding areas be affected?

Development along the route through the project area is primarily small businesses north of Amity Road, with a mix of residential and commercial south of Amity Road. Alternative 1 would require the relocation of 11 businesses, one non-profit organization, and three landlord businesses. The relocation of these businesses would negatively affect the local economy in the project area due to permanent and/or temporary loss of jobs and income, but would not negatively affect the overall economic conditions of the local community or the City of Hot Springs. A conceptual stage relocation study, found in Appendix C, determined that suitable locations could be found to relocate all 15 businesses. Alternative 1 would benefit the local economy by making the area more attractive to commercial development with safer, less congested travel and improved access for bicycles and pedestrians.

The No Action Alternative would not have any direct negative impacts on local businesses or economic conditions, but would also not alleviate the existing and forecasted traffic flow and safety concerns, hindering the potential for development in the project area. What is a relocation?

Relocations occur when a residence, business, or nonprofit is impacted severely enough by a proposed project that they cannot continue to live or do business at their current location. This is usually due to the proposed right of way limits requiring acquisition of a structure (house or business), taking most of a business's parking, or severing access to the property.

#### 3.4 How would the project affect properties in the area?

Land cover in the immediate project area was historically mixed oakpine forest, but old-growth vegetation was removed through logging, then clearing for pasture, and finally for development. Lake Hamilton was created by the Arkansas Power and Light Company in 1932 when the Carpenter Dam was constructed on the Ouachita River to generate electricity. The 7,460 acre lake in close proximity to Hot Springs is one of Arkansas's most popular recreational and residential lakes, which has encouraged residential development along the lake and commercial development along the Highway 7 corridor. The land uses affected by Alternative 1 can be found in Table 2.

Development is anticipated to occur through the proposed project corridor and surrounding areas, regardless of the implementation of this project, and would result in cumulative land use impacts outside of the direct land use conversions outlined above. Indirect impacts as a result of the proposed project include the additional utility right of way required for existing utilities that have to be relocated.

The No Action Alternative would not result in any right of way acquisition or relocations, and would not encourage any additional development in or around the project area. No indirect or cumulative impacts would be expected with the No Action Alternative

Cost estimates, a conceptual stage relocation study, and an available housing inventory are provided in Appendix C. The right of way acreage and number of relocations identified in the conceptual stage relocation study for each alternative can be found in Table 3. Relocation assistance would be provided to all property and business owners relocated as a result of this project. Right of way acreages and relocation counts are based on the latest design plans, but are subject to change as a result of comments received at the Location and Design Public Hearing.

#### 3.5 How would the project affect cultural resources?

Section 106 of the National Historic Preservation Act requires agencies to consider the effects of Federal actions to historic properties. In compliance with Section 106 requirements, AHTD cultural resource specialists consult with the State Historic Preservation Officer (SHPO) and Native American tribes.

#### Table 2

Alternative 1 Land Use Impacts

Land Use Type	Acres
Commercial	3.4
Wooded	2.9
Pasture/Field	1.7
Residential	1.1
Vacant	0.5
Total	9.6

#### What is a historic property?

Cultural resources include elements of the built environment (buildings, structures, or objects) or evidence of past human activity (archeological sites). Those that are listed on or eligible for inclusion in the National Register of Historic Places (NRHP) are defined as historic properties. Preliminary checks with the Arkansas Archeological Survey and Arkansas Historic Preservation Program, as well as early maps of the project area, were checked for records of known archeological sites or historic structures. A cultural resources specialist also performed a survey of the project area to check for historic structures and completed an archeological survey of the areas that would be impacted by Alternative 1.

From these records checks, field observations, and surveys, it has been determined that Alternative 1 and the No Action Alternative do not impact known historic properties and have a very low likelihood of impacting undiscovered cultural resources. Additional information about the cultural resources studies and SHPO clearance can be found in Appendix D.

#### 3.6 Would noise levels change?

Noise modeling indicates that a minor increase in noise levels will occur along the existing route from the projected traffic volume increase during the planning period. Three sensitive receptors will be impacted by noise for the No Action Alternative due to future traffic volume increases. Ten sensitive receptors will be impacted by noise for Alternative 1 due to the increase in traffic volumes and the design that brings the highway closer to some receptors. A noise barrier would be ineffective because of the gaps needed along the route for driveways and streets.

Construction noise on Alternative 1 would be temporary and relatively minor. The traffic noise report detailing the methods used and the results of the noise study can be found in Appendix E.

#### 3.7 Would utilities be affected?

Impacts to utilities in the project area will be avoided and minimized as much as possible. Several utilities, including television, gas, electricity, sewer, telephone, and water, would need to be relocated to accommodate widening Highway 7 with Alternative 1, but significant impacts to area residents and business owners are not anticipated. Alternative 1 is estimated to have \$1.02 million in utility relocation costs, which are included in the right of way cost estimates in Table 3. The No Action Alternative would not affect any utilities.

#### What is noise?

Sound is anything we hear, while noise is unwanted or undesirable sound. Traffic noise is a combination of the noises produced by vehicle engines, exhaust, and tires.

# What are sensitive noise receptors?

Residences are considered sensitive noise receptors along with businesses that have a special sensitivity to noise, such as schools, churches, libraries, and parks.

#### 3.8 How would the project affect views?

The viewshed from Highway 7 in the project area is largely residential and commercial development, tree-lined overhead utilities, and old fields. Trap Mountain is a positive visible resource for southbound traffic on a section of Highway 7 south of Amity Road. Lake Hamilton is a positive visible resource for travelers near the north end of the project, especially northbound traffic. The immediate project area does not currently contribute to the positive scenic aspect of Highway 7, although users of the road may be traveling the Highway 7 corridor to experience its scenic qualities. Construction of Alternative 1 would have no predictable impact on the viewshed other than unavoidable temporary negative visual impacts on the view of the highway during construction.

#### 3.9 Would any hazardous materials be created or affected?

A visual assessment and database search were performed to determine if any hazardous materials were located in the project area. Three underground storage tanks (USTs) were identified at an old fuel station in the southwestern corner of Highway 7 and Amity Road. Design plans indicate that the building and canopy would be impacted under Alternative 1. Because the pumps and fuel lines would be impacted, the USTs must be removed by an Arkansas Department of Environmental Quality (ADEQ) licensed contractor qualified for UST removal operations.

The No Action Alternative would not impact any hazardous materials sites. Neither of the alternatives would involve the creation of hazardous materials.

If hazardous materials are identified, observed or accidentally uncovered by any AHTD personnel, contracting company(s), or state regulating agency, it would be the AHTD's responsibility to determine the type, size and extent of contamination. The AHTD would identify the type of contaminant, develop a remediation plan and coordinate disposal methods to be employed for the particular type of contamination. All remediation work would be conducted in conformance with the ADEQ, Environmental Protection Agency (EPA), and Occupational Safety and Health Administration (OSHA) regulations.

#### What is a viewshed?

A viewshed is simply the area that is visible from a specific location. The viewshed could be from the point of view from a vehicle, pedestrians, bicyclists, or even river users.

#### What are hazardous materials?

A hazardous material is any item or chemical that can cause harm to people, plants, or animals when released into the environment. An asbestos survey by a certified asbestos inspector will be conducted on each building identified for demolition. If the survey detects the presence of any asbestos-containing materials, plans will be developed for the safe removal of these materials prior to demolition. All asbestos abatement work will be conducted in accordance with ADEQ, EPA, and OSHA asbestos abatement regulations.

#### 3.10 How would water resources, such as streams, be affected?

Two box culverts would have to be lengthened to accommodate the wider proposed cross section of Alternative 1, and would require the relocation of approximately 156 linear feet of an unnamed ephemeral stream. The results would be an impact to less than 0.1 acre of Waters of the United States. The construction of the proposed project should be allowed under the terms of a Nationwide Permit 14 for Linear Transportation Projects as defined in Federal Register 77(34) 10183-10290. The AHTD will obtain all waterway and stormwater permits before construction begins.

The No Action Alternative would not affect any water resources.

#### 3.11 Would the project cause flooding in surrounding areas?

The project was reviewed to identify any encroachments into special flood hazard areas, also known at the 100-year floodplain, as shown on the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency. No areas of special flood hazard were identified within the project area. No direct, indirect, or cumulative impacts to floodplains are expected as a result of this project.

#### 3.12 Would any wetlands be impacted by the project?

There were no jurisdictional wetlands identified within the project area.

#### 3.13 Would any protected species be impacted by the project?

A records check of the Arkansas Natural Heritage Commission (ANHC) database of sensitive species indicated that no tracked species are known to occur within the project area. The ANHC tracks federally designated threatened or endangered species, as well as those that are considered sensitive species within Arkansas.

What is an ephemeral stream?

Ephemeral streams hold water only during and immediately after rain events.

#### What is a floodplain?

Floodplains are land areas that become covered by water in a flood event. 100-year floodplains are areas that would be covered by a flood event that has a 1% chance of occurring (or being exceeded) each year, also known as a 100-year flood. This is the floodplain commonly used for insurance and regulatory purposes.

#### What is a wetland?

Wetlands are areas typically inundated or saturated by surface or groundwater to the extent that they can support vegetation adapted for life in wet soil conditions. Historic and current records have identified six federally listed freshwater mussel species and one listed species of aquatic plant from within the Ouachita River. All potential suitable habitat for these species in the project area was lost a result of the damming of the Ouachita River. All streams within the project area are tributaries to Lake Hamilton; therefore, any potential secondary and or cumulative effects related to increases in sedimentation and urban runoff will be diluted in Lake Hamilton and Lake Catherine.

#### 3.14 How would the project affect other natural resources?

The project is located within the Ouachita Mountains Ecoregion. The Ouachita Mountains are characterized by tilted, folded, and fractured layers of shale, sandstone, chert, and novaculite. The softer shales, cherts, and impure sandstones are more susceptible to erosion and have formed most of the basins, valleys floors, and lower hills, while the harder novaculites and pure sandstones form the mountains, ridges, and peaks.

The landforms in the project area generally consist of rugged mountains with steeply sloping parallel ridges divided by narrow to wide valleys, although in the immediate project area, the Ouachita River basin is rolling to relatively flat. Soils in the project area consist of shallow to moderately deep, gently sloping to steep, well drained, gravelly soils

Neither the No Action Alternative nor Alternative 1 would disturb any landforms or geological features, as the project area has been previously disturbed for logging, pasture, and the current commercial and residential developments.

# **3.15** What are indirect and cumulative effects, and does the project have any?

#### **Indirect Effects**

An indirect effect is a reasonably foreseeable effect that may be caused by a project but would occur in the future or outside of the project area. Widening Highway 7 could induce additional development south of the City of Hot Springs, but this area is currently experiencing growth which is likely to continue under either Alternative 1 or the No Action Alternative. The No Action Alternative involves no work other than regular maintenance and would not result in any indirect effects other What is the difference between threatened and endangered species?

An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. Endangered species receive the highest level of protection. A threatened species is one that is likely to become endangered in the near future. threatened species. than worsening traffic flow and safety concerns as traffic volumes increase over the 20-year planning period.

Neither Alternative 1 nor the No Action Alternative are expected to result in adverse indirect impacts on any natural, cultural, social, or economic resources.

#### **Cumulative Effects**

Cumulative effects result from the total effects of a proposed project, when added to other past, present, and reasonably foreseeable future projects or actions. Cumulative effects are studied so that the public, decision-makers, and project proponents take time to consider the "big picture" effects a project could have on the community and environment.

The AHTD does not have any other programmed jobs in the Lake Hamilton community that would impact businesses or result in additional impacts to the local economy. AHTD Job 061309 is programmed to improve Highway 7 from the Garland County Line to Highway 290. The density of commercial and residential development declines south of Highway 290. AHTD Job 061309 is also unlikely to contribute cumulatively to impacts on the local economy.

No other reasonably foreseeable public or private projects are known to be in development in the project area. Neither Alternative 1 nor the No Action Alternative are expected to cumulatively contribute to any adverse impacts on any natural, cultural, social, or economic resources.

# **Chapter 4 – Recommendations**

# What's in Chapter 4?

Chapter 4 contains the results and conclusions of this Environmental Assessment.

#### 4.1 What are the results of this EA?

The environmental analysis of the proposed project did not identify any significant impacts to the natural and social environment as a result of the No Action Alternative or Alternative 1. A summary of the impacts of these alternatives can be found in Table 3.

Alternative 1, on the minimization alignment, has been identified as the Preferred Alternative, because it meets the project's purpose and need and minimizes impacts.

#### Table 3

Alternative	Total Project Cost (2015 dollars)	Construction Cost (2015 dollars)	Right of Way Cost* (2015 dollars)	Right of Way (acres)	Relocations	Noise Receptors Impacted	Stream Impacts (linear feet)
No Action	0	0	0	0	0	3	0
Alternative 1	14.8 million	8 million	6.8 million	9.6	15	10	156

Alternative Impact Comparison

\*Right of way cost includes right of way acquisition costs, business, non-profit, and landlord relocation costs, and utility relocation costs.

#### 4.2 Is the NEPA process finished?

After this EA is signed by the FHWA and approved for public dissemination, a Location and Design Public Hearing will be offered.

After a review of comments received from citizens, public officials, and public agencies, a FONSI document will be prepared by the AHTD and submitted to the FHWA. Approval of the FONSI by the FHWA will identify the Selected Alternative and conclude the NEPA process.

# **Reference Page**

# Acronyms

ADEQ	Arkansas Department of Environmental Quality
AHTD	Arkansas State Highway and Transportation Department
ANHC	Arkansas Natural Heritage Commission
EA	Environmental Assessment
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impacts
LOS	Level of Service
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
OSHA	Occupational Safety and Health Administration
SHPO	State Historic Preservation Officer

# **Level of Service Descriptions**

#### Two-lane Highway (Vehicles)

#### LOSA

At LOS A, motorists experience high operating speeds and little difficulty in passing. A small amount of platooning would be expected. Drivers should be able to maintain operating speeds close or equal to the free-flow speed (FFS) of the facility.

#### LOS B

At LOS B, passing demand and passing capacity are balanced. Platooning becomes noticeable. It becomes difficult to maintain FFS operation, but the speed reduction is still relatively small.

#### LOS C

At LOS C, most vehicles are traveling in platoons. Speeds are noticeably reduced on all three classes of highway.

#### LOS D

At LOS D, platooning increases significantly. Passing demand is high but passing capacity approaches zero. A high percentage of vehicles are now traveling in platoons, and percent time-spent-following (PTSF) is quite noticeable. The fall-off from FFS is now significant.

#### LOS E

At LOS E, demand is approaching capacity. Passing is virtually impossible, and PTSF is more than 80%. Speeds are seriously reduced. Speed is less than two-thirds the FFS. The lower limit of this LOS represents capacity.

#### LOS F

LOS F exists whenever demand flow in one or both directions exceeds the capacity of the segment. Operating conditions are unstable, and heavy congestion exists on all two-lane highways.

#### Two-lane Highway (Bicycle)

Bicycle LOS is based on a *bicycle LOS score* model. The models uses variables determined from research that related to bicyclists' comfort and perceived exposure while riding on highways, such as separation from traffic, motorized traffic volumes and speeds, heavy vehicle percentage, pavement quality, and on-highway parking.

Higher vehicle volumes, a greater proportion of trucks and buses, and higher vehicle speeds all act to decrease a bicyclist's perceived comfort and traffic exposure. Striped bicycle lanes or roadway shoulders add to the perceived sense of traffic separation and improve the LOS. Pavement quality affects bicyclists' ride comfort. The presence of on-highway parking negatively affects bicycle LOS because bicyclists tend to leave a buffer between themselves and parked vehicles, resulting in less separation between them and moving vehicles. The bicycle LOS score on two-lane highways in based, in order of importance, on the following five variables:

- Average effective width of the outside through lane
- Motorized vehicle volumes
- Motorized vehicle speeds
- Heavy vehicle (truck) volumes
- Pavement condition

#### PUBLIC INVOLVEMENT MEETING SYNOPSIS

#### Job Number 060432 Hwy. 290 – Ouachita River Bridge (Hwy. 7) Garland County Thursday, April 18, 2013

An open forum Public Involvement Meeting was held for the proposed project at the Lake Hamilton Baptist Church in Hot Springs from 4:00 - 7:00 p.m. on Thursday, April 18, 2013. Efforts to inform the public and involve minorities in the meeting included:

- Display advertisement placed in *The Sentinel-Record* on Sunday, April 7, 2013 and Sunday, April 14, 2013.
- Distribution of flyers in the project area.

The following information was available for inspection and comment:

- One copy each of the preliminary design of both alternatives at a scale of one inch equals 50 feet.
- Two copies of an aerial photograph display at a scale of one inch equals 200 feet.

Handouts for the public included a comment sheet and a small-scale map that was identical to the aerial photograph display. Copies of these are attached.

Table 1 describes the results of the public participation at the meeting.

TABLE 1				
Public Participation Totals				
Attendance at the meeting (including AHTD staff)	85			
Total comment forms received	50			
Total letters received	1			

AHTD staff reviewed all comments received and evaluated their contents. The summary of comments listed below reflects the personal perception or opinion of the person or organization making the statement. The sequencing of the comments is random and is not intended to reflect importance or numerical values. Some of the comments were combined and/or paraphrased to simplify the synopsis process.

#### Job Number 060432 - Public Involvement Meeting Synopsis April 18, 2013 Page 2 of 3

An analysis of the responses received as a result of the public survey is shown in Table 2.

TABLE 2			
Survey Results	Totals		
Believes a need exists to widen Highway 7	42		
Does not believe a need exists to widen Highway 7	5		
No answer to the "need to widen" question	3		
Preferred Alternative 1	7		
Preferred Alternative 2 (Minimization)	22		
Preferred No Build Alternative	6		
Did not indicate a preferred alternative	15		
Has knowledge of cultural resources in the project area	8*		
Has knowledge of environmental constraints in the project area	2		
Believes the proposed project would have beneficial impacts	24		
Believes the proposed project would have adverse impacts	17		
Did not indicate beneficial or adverse impacts	9		

\*Comments mentioned an old Ouachita ferry landing and the Caddo Nation trail.

Other comments concerning issues associated with the proposed project were as follows:

- Bike lanes are not needed.
- The design needs to be shifted to minimize property impacts.
- Businesses and residences should be equally impacted.
- Project limits should be shortened to avoid property impacts.
- Traffic should be slowed down.
- Sidewalks are not needed.
- Only widening needed is a center turn lane.
- More traffic signals would help to slow traffic at Highway 7 and Highway 290.
- The project will increase noise levels.
- The project will help ease traffic backups.
- The project will improve safety and service for businesses, residents, and commuters.
- Bike lanes will improve safety for bicyclists.
- The project will help bring new development to the area.

Job Number 060432 - Public Involvement Meeting Synopsis April 18, 2013 Page 3 of 3

- The grass berm between the curb and sidewalk is unnecessary.
- The project should extend to the Hot Springs county line.
- Construction should begin as soon as possible.
- The project will improve travel for emergency vehicles.
- The highway is in bad repair and too narrow to handle existing traffic.
- Access should be managed to limit number of business entrances.
- The project would make entering and leaving Highway 7 dangerous for property owners.
- There have been several accidents and fatalities in the project area.

Attachments: Blank comment form Small-scale project location map

RJ: AS DN: DN

SS:ym

#### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT (AHTD) CITIZEN COMMENT FORM

#### AHTD JOB NUMBER 060432 Hwy. 290-Ouachita River Bridge (Hwy. 7) GARLAND COUNTY

#### LOCATION:

LAKE HAMILTON BAPTIST CHURCH FELLOWSHIP HALL 5963 CENTRAL AVENUE HOT SPRINGS, AR 4:00 – 7:00 p.m. THURSDAY, APRIL 18, 2013

Make your comments on this form and leave it with AHTD personnel at the meeting or mail it within 15 days to: Arkansas State Highway and Transportation Department, Environmental Division, Post Office Box 2261, Little Rock, Arkansas 72203-2261. Email: **environmentalpimeetings@ahtd.ar.gov**.

Yes	No

 $\square$ 

| |

Do you feel there is a need for the proposed widening of Highway 7 from Highway 290 north towards the Ouachita River Bridge in Hot Springs? Comment (optional)

Which Alternative Alignment would you consider to be your preferred alternative for the proposed widening of Highway 7?

Alternative 1

Alternative 2 (Minimization)

NO BUILD Alternative

Why is that your preference?

Do you know of any historical sites, family cemeteries, or archaeological sites in the project area? Please note and discuss with staff.

Do you know of any environmental constraints, such as endangered species, hazardous waste sites, existing or former landfills, or parks and public lands in the vicinity of the project? Please note and discuss with AHTD staff.

Yes	No	Does your home or property offer any limitations to the project, such as septic systems, that the Department needs to consider in its design?
		Do you have a suggestion that would make this proposed project better serve the needs of the community?
		Do you feel that the proposed widening project will have any impacts ( Beneficial or Adverse) on your property and/or community (economic, environmental, social, etc.)? Please explain.
It is oft you are provide Name Addres	en neo e a pro e inform : ss:	cessary for the AHTD to contact property owners along potential routes. If operty owner along or adjacent to the route under consideration, please nation below. Thank you(Please Print)Phone: ()
E-mail:		
Please	make	additional comments here

For additional information, please visit our website at www.arkansashighways.com



# **General Statement of Relocation Procedure**

Persons displaced as a direct result of acquisition for the subject project will be eligible for relocation assistance in accordance with Public Law 91-646, and the Uniform Relocation Assistance Act of 1970. The Relocation Program provides advisory assistance and payments to minimize the adverse impact and hardship of displacement upon such persons. It is AHTD policy that adequate replacement housing will be made available, built if necessary, before any person is required to move from their residence. All replacement housing must be fair housing and offered to all affected persons regardless of race, color, religion, sex, or national origin. No lawful occupant shall be required to move without receiving a minimum of 90 days advance written notice.

All displaced residential occupants are eligible for replacement housing payments and reimbursement of actual reasonable moving costs. Replacement housing payment are made to qualified owners and tenants, while moving expense payments are made to all who are required to move their property from the proposed right of way or from a property which is being acquired for a project.

Businesses, farms, and nonprofit organizations are also eligible for reestablishment payments, not to exceed \$10,000.00. Reestablishment payments are made in addition to Moving Expense payments. A business, farm, or nonprofit organization may be eligible for a fixed payment in lieu of the moving costs and reestablishment costs if relocation cannot be accomplished without a substantial loss of existing patronage. The fixed payment will be computed in accordance with the Code of Federal Regulations and cannot exceed \$20,000.00.

If the displace is not satisfied with the amounts offered as relocation payments, they will be provided a form to assist in filing a formal appeal. A hearing will be arranged at a time and place convenient for the displace and the case will be promptly and carefully reviewed.

Relocation services will be provided until all persons are relocated or their relocation eligibility expires. The Relocation Office will have listings of available commercial properties. Information is also maintained concerning other Federal and State Programs offering assistance to displaced persons. Based on an on-site inspection and aerial photographs, it is estimated that the project could cause the following displacements and costs:

	Total	\$361,080
Services		\$55,080
5	Personal Property Owners	\$11,000
3	Landlord Businesses	\$30,000
1	Non-profit Organization	\$15,000
11	Businesses	\$250,000

Alternative 1

The general characteristics of the displacees to be relocated are listed on the Conceptual Stage Inventory Record forms in the back of this report. The general characteristics have been determined by a visual inspection of the potential displacees by a Relocation Coordinator. The Relocation Coordinator utilizes past experiences and knowledge in making this determination.

In the project area, 35 commercial properties are currently for sale and 30 commercial properties are for lease. A breakdown of the properties is as follows:

Commerci Fo	ial r S	Properties ale	Number of Units	Commercia For	al P Lea	roperties se	Numbe of Units
\$0	-	\$50,000	0	100 sf*	-	500 sf	1
\$50,001	-	\$100,000	4	501 sf	-	1,000 sf	4
\$100,001	-	\$150,000	2	1,001 sf	-	2,000 sf	8
\$150,001	-	\$200,000	5	2,001 sf	-	3,000 sf	7
\$200,001	-	\$300,000	3	3,001 sf	-	5,000 sf	8
\$300,001	-	\$500,000	12	5,001 sf	-	7,000 sf	1
\$500,001	-	\$750,000	6	7,001 sf	-	10,000 sf	0
\$750,001	-	\$2,000,000	3	10,001 sf	-	25,000 sf	1
-	Tot	al	35	Т	otal		30
				*sf = squai	re f	eet	

The businesses and non-profit organization affected by the project may not be able to relocate in the immediate area of their displacement, resulting in termination of the operation; however, in order to assist the displaced businesses and non-profit organization in relocating, the AHTD will explore all possible sources of funding or other resources that may be available to the businesses and non-profit organization. Sources that will be considered include State and Local entities, the Department of Housing and Urban Development, the Economic Development Administration, the Small Business Administration, and other federal agencies. Emphasis will be given in providing relocation advisory services to the business. Appropriate measures will be taken to ensure that each entity displaced is fully aware of their benefits, entitlements, courses of action that are open to it, and any special provisions designed to encourage business and nonprofit organizations to relocate within the same community.

#### Conceptual Stage Relocation Inventory

#### Alternative 1

Type Relocation	Number	Large Family Households	Disabled Person Households	Minority Households	Elderly Households	Low Income Households	Employees Affected (Range)
Residential Owners	0	0	0	0	0	0	
Residential Tenants	0	0	0	0	0	0	
Businesses	11						80-90
Partially- displaced Businesses	0						0
Landlord Businesses	3						1-5
Non-profit Organizations	1						1-5
Personal Properties	5						
Total	20	0	0	0	0	0	82-100

#### C-4 Highway 7 Widening EA

## **Cultural Resources Information**

Cultural resources include elements of the built environment (buildings, structures, or objects) or evidence of past human activity (archeological sites). Those that are listed, or eligible for inclusion, in the National Register of Historic Places (NRHP) are defined as historic properties (36 CFR §800.16(l)). Impacts to historic properties are avoided, minimized, or mitigated through a variety of methods that vary depending on the nature of the property. Those that are not eligible for inclusion in the NRHP do not require protection.

The cultural resources survey consisted of a review of appropriate records and a visual survey of the proposed alternatives by an AHTD staff archeologist. The survey was conducted in order to identify any obvious archeological sites or historic properties that might be affected by the project and to see if any of the alternatives were located within areas having a high probability for the occurrence of undiscovered cultural resources.

In accordance with federal regulations (36 CFR §800.4a through 800.6) regarding the identification and treatment of historic properties, the Federal Highway Administration (FHWA) has initiated consultation regarding the project with the Quapaw Tribe of Oklahoma and the Caddo Nation. Consultation will remain open throughout the duration of the project.

A variety of records were checked to determine if previously documented cultural resources were known in the project area. These include the archeological site files kept by the Arkansas Archeological Survey (AAS) in Fayetteville and the historic structure database kept by the Arkansas Historic Preservation Program (AHPP) in Little Rock. Several early maps were also reviewed to gather information regarding early historic settlement in the project area. The windshield survey consisted of driving to as many public access points as possible to determine if any unrecorded historic structures were present.

A review of the AAS site files revealed no sites within the proposed alternatives. Site 3GA116 is located south of the project area. The site consisted of a lithic scatter and abandoned domestic structure. The construction of a trailer park in this location has destroyed the site. Several sites are recorded outside of the project area around Lake Hamilton.

A review of the AHPP historic structure file shows no known historic structures within or near the project area. A Request for Technical Assistance was submitted to the State Historic Preservation Officer (SHPO) on existing structures that appeared to be at least 50 years old. Of the 13 structures submitted, SHPO found none eligible for inclusion in the NRHP.

No new cultural resources were identified during the windshield survey. Several early maps were reviewed to gather information regarding early historic settlement in the project area. These included copies of the 1841 and 1845 General Land Office (GLO) maps for Township 3 South, Range 20 West and Township 4 South, Range 20 West, and the 1936 Garland County Highway Map. The 1841 GLO map showed no cultural indicators such as fields, houses, or

roads. The 1845 GLO map showed a field in the far eastern part of Section 1, Township 4 South, Range 20 West. This field is now covered by Lake Hamilton. The 1936 Garland County Highway map showed Highway 7 in the same location. Several structures are shown along the highway.

Alternative 1 was also plotted on the most recent Hot Springs South topographic quadrangle map in order to preview existing landforms for areas considered to have a high probability for Native American and historic settlements. An analysis of the Hot Springs South topographic quadrangle map shows that Alternative 1 crosses mainly hills and depressions.

A Phase I archeological survey has already been conducted for the project and no new archeological sites were found. An AHTD Project Identification Form was submitted to the SHPO, and a no adverse effect finding by SHPO has been issued for this project, as seen on the following page. No cultural resources will be impacted by Alternative 1.

## ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett Director Telephone (501) 569-2000 Voice/TTY 711



P.O. Box 2261 Little Rock, Arkansas 72203-2261 Telefax (501) 569-2400 www.arkansashighways.com

84752 FHWA NE

November 26, 2012

Mr. George McCluskey Section 106 Review Officer 1500 Tower Building 323 Center Street Little Rock, Arkansas 72201

> RE: AHTD Job Number 060432 Hwy. 290-Ouachita River Bridge (S) Garland County

Dear Mr. McCluskey:

A Project Identification Form for the referenced project is enclosed. Please review for concurrence with the findings of my staff. If you have any questions or require additional information, please contact Kristina Boykin of my staff at 501-569-2079.

Sincerely,

Sym P. MAlliny (

Lynn P. Malbrough Division Head Environmental Division

Enclosure Project Identification Form

LPM:DW:KB:fc

RECEIVED AHTD DEC 7 2012

ENVIRONMENTAL DIVISION Date DEC 0 6 2012 No known historic properties will be affected by this undertaking. This effect determination could change

Frances McSwain, Deputy State Historic Preservation Officer

This her interved of some to both

#### D-4 Highway 7 Widening EA

# **Traffic Noise Report**

#### Introduction

This report documents the results of a noise analysis performed as part of the Environmental Assessment for AHTD Job 060432. The project is approximately 1.47 miles long and consists primarily of widening Highway 7 to four travel lanes with a center median and bike lanes.

The primary purposes of the analysis were to identify any noise impacts created by the project and to evaluate the feasibility and reasonableness of providing noise abatement to mitigate those impacts.

#### **Noise Evaluation**

This study has been prepared in accordance with the FHWA noise standards, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772 [1], and the Arkansas Highway and Transportation Department's *Policy on Highway Traffic Noise Abatement* [2] and includes the following tasks:

- Identification of noise sensitive land uses;
- Determination of future sound levels with and without the project;
- Determination of traffic noise impacts;
- Evaluation of noise abatement for areas determined to be impacted by the project;
- Discussion of construction noise; and,
- Information for local officials.

Each of these analysis steps is discussed below following a discussion of AHTD's criteria for determining noise impacts.

#### Traffic Noise Terminology

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A sound level represents the level of the rapid air pressure fluctuations caused by sources such as traffic that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear.

The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. Figure 1 shows some typical indoor and outdoor sound levels.

A 9-10 dB increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dB reduction is judged to be half as loud. Doubling the number of sources (i.e. vehicles) will increase the hourly equivalent sound level by approximately 3 dB, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (Leq). The Leq is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time-period. The Leq averages the louder and quieter moments, but gives



much more weight to the louder moments in the averaging. For traffic noise assessment purposes, Leq is typically evaluated over the worst one-hour period and is defined as Leq (1h).

Figure 1

The term insertion loss (IL) is generally used to describe the reduction in Leq (1h) at a location after a noise barrier is constructed. For example, if the Leq (1h) at a residence before a barrier is constructed is 75 dBA and the Leq (1h) after a barrier constructed is 65 dBA, then the insertion loss would be 10 dB.

#### Noise Abatement Criteria (NAC)

Noise impacts are determined by comparing future project sound levels: (1) to a set of Noise Abatement Criteria (NAC) for a particular land use category, and (2) to existing sound levels.

The FHWA noise standards (contained in 23 CFR 772) and AHTD's noise policy state that traffic noise impacts require consideration of abatement when worst-hour equivalent sound levels approach or exceed the NAC listed in Table 1. AHTD's noise policy defines "approach" as one decibel below the NAC.

The FHWA noise standards and AHTD's noise policy also define impacts to occur if there is a substantial increase in design year equivalent sound levels above the existing equivalent sound levels. "Substantial" is defined by AHTD as an increase of 10 or more dBA as shown in Table 2.

#### Table 1

#### Noise Abatement Criteria

Activity Category	Activity Critieria <sup>1</sup> Leq dBA	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B <sup>2</sup>	67	Exterior	Residential
C <sup>2</sup>	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, recreation areas, Section 4(f) sites <sup>4</sup> , schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E <sup>2</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities, (water resources, water treatment, electrical), and warehousing.
G³			Undeveloped lands that are not "permitted".

1. The Leq dBA Activity Criteria values are for impact determination only, and are not design standards for noise abatement.

2. Includes undeveloped lands that have been permitted for this Activity Category.

3. Indicates no building permits on or before the date of public knowledge.

4. Section 4(f) property means publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance, as initially defined in Section 4(f) of the Department of Transportation Act of 1966 and addressed in 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites.

#### Table 2

#### Noise Level Increase Categories

Increase in Existing Noise Level (dBA)	Subjective Descriptor
0 - 5	Minor
6 - 9	Moderate
10 or more	Substantial

#### Table 3

#### Noise Study Area

Description of Noise Study	Activity	NAC
Area	Categories	(dBA)
Residences, churches, restaurants, and hotels within 500 feet of the centerline of Highway 7	B, C, E and G	67 and 72

#### **Identification of Noise Sensitive Land Uses**

Review of available electronic mapping revealed one area with noise sensitive land uses that may be impacted by the proposed project. This area is called a noise study area and is described in Table 3.

Noise impacts will be identified and noise abatement will be considered if design year sound levels at the Category B and C land uses are 66 dBA or higher or if design year sound levels at the Category E land uses are 71 dBA or higher.

There are tracts of Activity Category G undeveloped lands in the project area. These undeveloped lands are not noise-sensitive and have not been included in the noise analysis; however, noise impacts could occur in the future if noise-sensitive land uses are constructed near Highway 7. A discussion of future sound levels and the need for noise compatible land use planning is provided later in this report.

#### **Determination of Existing Sound Levels**

Noise modeling of existing conditions was completed using the FHWA Traffic Noise Model (TNM 2.5) computer program, existing and proposed roadway cross sections, existing traffic data, and projected traffic data for the design year of 2034. The program calculated existing worst hour sound levels for the noise-sensitive land uses in the project area.

Traffic data provided by AHTD were used for the noise analysis. These volumes indicate 15% total trucks on Highway 7. The existing posted speed of 45 mph was modeled.

The locations of modeled receivers are shown in Figure 2. Three sensitive noise receptors are currently impacted.

#### **Determination of Future Sound Levels**

Sound levels for the No Action Alternative were modeled using the FHWA Traffic Noise Model (TNM 2.5) computer program. The program calculated design hour equivalent sound levels for the design years of 2014 and 2034. Design year 2034 traffic volumes on Highway 7 are predicted to be approximately 30% higher than existing volumes.

As a result, existing sound levels were increased by 1 to 3 dB at design year for the No Action Alternative and 1 to 6 dB for Alternative 1. All modeled receivers in the No Action Alternative are shown in Figure 2.



#### **Impact Determination Analysis**

As noted previously, a location is impacted if 1) the predicted worst hour noise level approaches or exceeds the NAC or 2) there is a substantial increase in design year noise levels above existing noise levels.

Design year sound levels for Alternative 1 are predicted to be 1 to 6 dB higher than existing sound levels. These increases are minor to moderate in accordance with AHTD's Noise Policy; therefore, no receivers are predicted to be impacted by a substantial increase in sound level.

As shown in Table 4, Alternative 1 will result in higher noise impacts than the No Action Alternative for design year 2034. Three receptors will see a 1 to 3 dB(A) increase for the No Action Alternative while a total of 9 receptors will see a 1 to 6 dB(A) increase for Alternative 1. This is a direct result of the proposed alignment shifting and the increase in traffic. This shift either increased or decreased the distance between traffic and noise sensitive land uses on both sides of Highway 7 depending on the location of the shift and its proximity to sensitive noise receptors.

#### **Noise Abatement Evaluation**

Abatement is generally evaluated when impacts are predicted to occur. Noise include abatement measures may alteration of horizontal and vertical alignment and traffic management measures (such as reducing speed limits, prohibition of heavy trucks, etc.). These forms of mitigation were found not to be reasonable for this project.

Noise barriers are the most common noise abatement technique for roadway projects; however, Highway 7 is not a limited access roadway, so the construction of noise barriers is not possible since the barriers would limit access from adjacent properties. As a result, noise abatement is not feasible for this project.

#### Table 4

Summary of Impacted Properties

Receiver	Existing Leq (1h) (dBA)	No Action Leq (1h) (dBA)	Alternative 1 Leq (1h) (dBA)
R3	61	62	67
R5	67	68	68
R15	65	65	66
R17	67	68	68
R25	66	67	68
R38	63	64	67
R51	65	65	67
R52	64	64.	67
R53	64	65	68
R55	65	65	68

\*Impacts are bolded and highlighted in yellow

#### **Construction Noise**

The major construction elements of this project are expected to consist of bridge building, land clearing, earth moving, hauling, grading, and paving. General construction noise impacts for passing traffic and those individuals living or working near the project can be expected particularly from clearing, earth moving, and paving operations. Motorized equipment shall be maintained with appropriate mufflers to minimize construction noise levels. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial. Yet, for brief periods of time, some construction noise impacts could be substantial (an increase in existing noise levels by 10 dBA or greater). These episodes usually occur during daytime work hours. As a result, these impacts will be minimized to adjacent residents. Additionally, nearby structures usually contribute to transmission loss and a resulting moderation of intrusive construction noise.

#### **Coordination with Local Officials**

There are tracts of undeveloped land adjacent to Highway 7. AHTD encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands to practice noise compatibility planning in order to avoid future noise impacts. Two guidance documents on noise compatible land use planning are available from FHWA. [3,4].

Table 5 presents design year sound levels for areas along Highway 7 where vacant and possibly developable lands exist. Noise predictions were made at distances between 50 and 250 feet from the centerline of the roadway for the design year 2034. As indicated, sound levels within approximately 100 feet of the proposed centerline of Highway 7 will approach or exceed the NAC of 66 dBA. Noise-sensitive land uses should generally not be constructed in these areas unless noise mitigation measures are provided.

The values in Table 5 do not represent predicted levels at every location at a particular distance back from the roadway. Sound levels will vary with changes in terrain and will be affected by the shielding of objects such as buildings. This information is being included to make local officials and planners aware of anticipated highway noise levels so that future development will be compatible with these levels.

In compliance with Federal guidelines, a copy of this analysis will be transmitted to the West Central Arkansas Planning and Development District for possible use in present and future planning.

#### Table 5

Design Year (2034) Sound	Levels
for Undeveloped Land	

Distance from Hwy 7 <sup>(1)</sup>	Leq (1h)(dBA) <sup>(2)</sup>
50	71
100	67
150	63
200	62
250	60
300	59

 Perpendicular distance to edge of pavement
 At-grade

#### References

[1] Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772, Federal Highway Administration.

[2] Policy on Highway Traffic Noise Abatement, Arkansas Highway and Transportation Department, July 13, 2011.

[3] The Audible Landscape: A Manual for Highway Noise and Land Use, FHWA, November, 1974. http://www.fhwa.dot.gov/environment/audible/index.htm

[4] Entering the Quiet Zone: Noise Compatibility Land Use Planning, FHWA, May, 2002. http://www.fhwa.dot.gov/environment/noise/quietzone