



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Arkansas Division
700 West Capitol Avenue, Room 3130
Little Rock, AR 72201-3298



June 9, 2005

IN REPLY REFER TO:
AHTD Job Number R60140
FAP Number NCPD-9210(16)
Hwy 70 E-Hwy 7 N
Garland County

Mr. Dan Flowers, Director
Arkansas State Highway and
Transportation Department
Little Rock, Arkansas 72203-2261

Dear Mr. Flowers:

As requested in Mr. Marion Butler's letter of June 8, 2005, we have determined that this project will have no significant impact on the human environment.

This finding of no significant impact (FONSI) is based on the environmental assessment (EA) you submitted and the additional information you provided in your request for a FONSI. The EA has been independently evaluated and determined to adequately and accurately discuss environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. You may proceed to final design.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Randal J. Looney".

Randal J. Looney
Environmental Specialist

RECEIVED
AHTD.

JUN 10 2005

ENVIRONMENTAL
DIVISION

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000



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

June 8, 2005

Ms. Sandra Otto
Division Administrator
Federal Highway Administration
3128 Federal Office Building
Little Rock, Arkansas 72201

Re: AHTD Job Number R60140
FAP Number NCPD-9210(16)
Hwy. 70 East-Hwy. 7 North (Gr. & Strs.)
Garland County

Dear Ms. Otto:

An Environmental Assessment for the referenced project was prepared by the Environmental Division and submitted to FHWA for your approval. The document was signed by FHWA and approved for public dissemination on February 22, 2005. Subsequently, a Location Public Hearing was held at Fountain Lake High School on April 7, 2005.

There have been two changes to the project since the document was signed. The cross-section now includes a 60-foot (18.3-meter) grass median instead of a Type A concrete barrier wall and the project's northern terminus has been moved to the west approximately 300 feet (91.4 meters) from its original Highway 7 and Highway 5 intersection.

A review of the project and its impacts indicate that its construction will have no significant impact on the environment. We request a Finding of No Significant Impact (FONSI). Two copies of the Environmental Assessment are enclosed along with the Public Hearing transcript and Public Hearing summary. If you have any questions or require further information, please contact the Environmental Division at (501) 569-2282.

Sincerely,

Marion Butler
Division Head
Environmental Division

Enclosures

MB:TWT:dfs

ENVIRONMENTAL ASSESSMENT

AHTD JOB NUMBER R60140

FAP NUMBER NCPD-9210(16)

HWY. 70 EAST-HWY. 7 NORTH (Gr. & Strs.) (Hot Springs)

GARLAND COUNTY

Submitted Pursuant to 42 U.S.C. 4332(2)

by the

U. S. Department of Transportation

Federal Highway Administration

and the

Arkansas State Highway and Transportation Department

February 2005

2/22/05

Date



Randal Looney

Environmental Specialist
Federal Highway Administration

Table of Contents

DESCRIPTION OF THE PROPOSED PROJECT	1
PURPOSE AND NEED	1
DISCUSSION OF ALTERNATIVES	8
The Corridor Study Process.....	8
Alternatives Considered and Discarded using the Quantm Approach.....	8
No-Build Alternative	11
New Location Alternatives A and B.....	11
Alternative A	13
Alternative B.....	13
IMPACT ASSESSMENT	13
Natural and Visual Environment	13
Secondary Impacts.....	16
Wetlands and Waters of the United States	16
Cultural Resources.....	19
Floodways and Floodplains	22
Relocation.....	23
Environmental Justice.....	24
Social / Economic.....	24
Hazardous Waste	25
Prime Farmland	31
Endangered Species.....	31
Water Quality	31
Hydrogeology	32
Public / Private Water Supplies	39
Wild and Scenic Rivers	39
Public Lands	40
Air Quality.....	40
Noise.....	40
COMMENTS AND COORDINATION	42
Public Involvement Overview	42
Public Involvement Comments	42
Interagency Coordination	44
COMMITMENTS.....	45
Caves and Cave Resources	45
Cultural Resources.....	45
Hazardous Materials	46
Pollution Prevention Measures.....	46
Relocation Procedures	48
Terrestrial Fauna.....	48
Water Quality	48
Water Supplies and Groundwater Protection	49
Wetlands and Waters of the United States	50
Floodplains	51
Federal Procedures and Permits Required before Construction	51
RECOMMENDATION	51
REFERENCES.....	54
REFERENCES.....	53

Figures

Figure	Page	Description
1	2	Project Corridor Map
2	3	Typical Sections Of Improvement
3	5	Average Daily Traffic
4	7	Current Crash Rates
5	12	Alternatives Map
6	17	Middle Branch Gulpha Creek
7	17	South Fork Saline River
8	18	Farmed wetland (pasture) located east of Alternative A
9	26	GIS Query Results
10	27	Tire dump near Alternative A
11	27	Illegal dump found on top of Indian Mountain near Alternative A
12	28	Discarded boat found on top of Indian Mountain near Alternative A
13	29	Northeastern boundary of city dump
14	29	Old city dump
15	30	Old city dump
16	30	Old city dump and Middle Branch Gulpha Creek
17	32	The location of Hot Springs in the Zig Zag Mountains of the Ouachita Region
18	35	Meteoric water percolates through the Big Fork Chert
19	35	Thermal springs in the contiguous United States
20	37	Thousand Dripping Springs
21	38	Up close picture of Thousand Dripping Springs
22	39	Unnamed spring located along Denise Lane

Tables

Table	Page	Description
1	6	Crash Rates
2	24	Relocation Summary
3	33	Generalized section of sedimentary rocks in the vicinity of Hot Springs
4	41	Results of ambient noise readings
5	53	Alternative Comparisons

Appendices

Appendix A	Level of Service Descriptions
Appendix B	Quantm Progress Reports for March and April 2004
Appendix C	Relocation Study
Appendix D	Arkansas Geological Commission Coordination
Appendix E	Public Involvement Materials
Appendix F	Scoping Letters

DESCRIPTION OF THE PROPOSED PROJECT

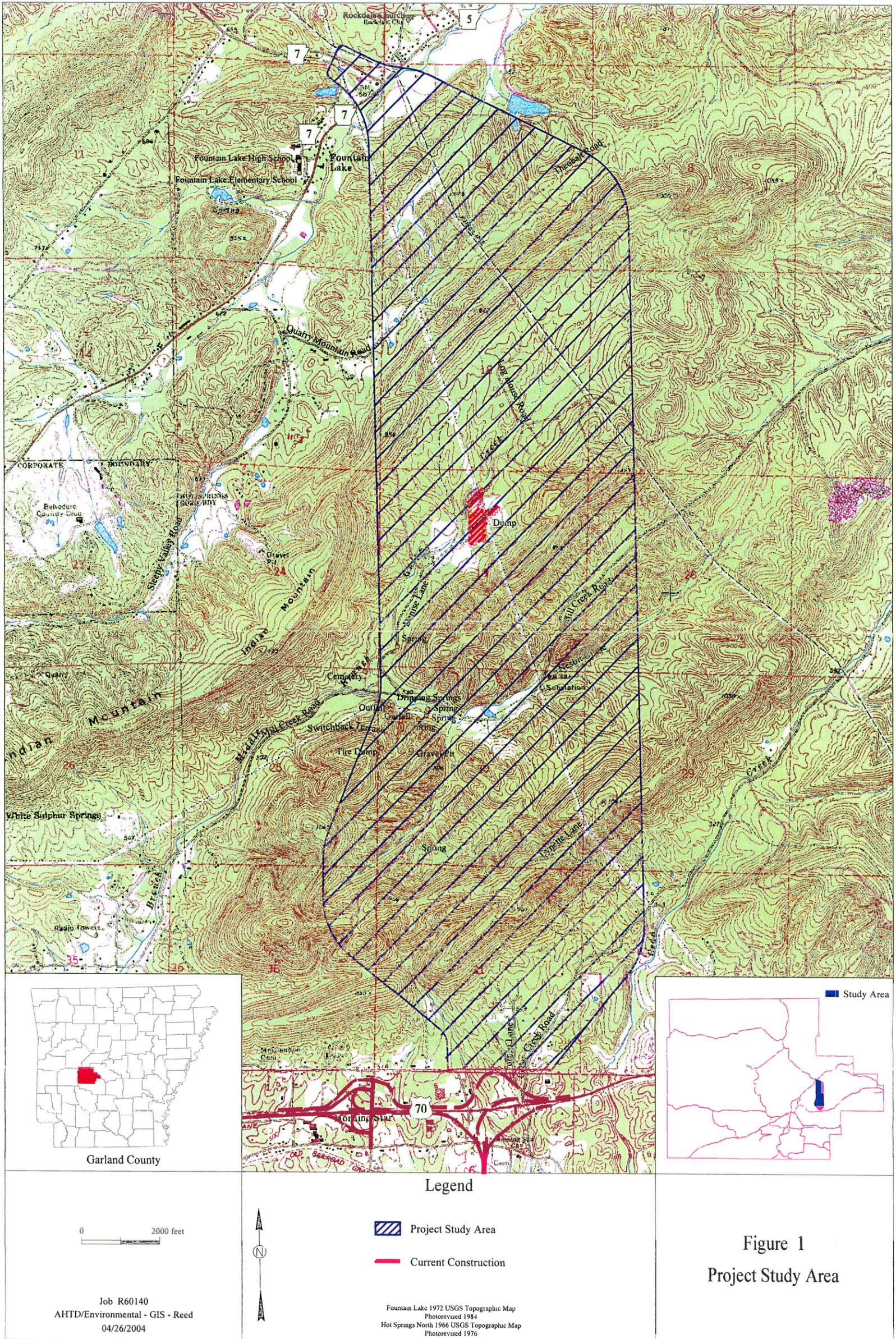
The Arkansas State Highway and Transportation Department (AHTD) is proposing to construct an addition to the Hot Springs East-West Arterial in Garland County, Arkansas, from Highway 70 east of the City, to Highway 7 north of the City. The project study area is shown in Figure 1. The proposed project would consist initially of two 12-foot (3.6-meter) travel lanes with eight-foot (2.4-meter) shoulders with the planned future addition of two 12-foot (3.6-meter) travel lanes separated by a median barrier wall and resulting in the project meeting Interstate System standards (Figure 2). The proposed project is an extension of the existing Hot Springs East-West Arterial. This project will be a fully controlled access facility. This project will accommodate traffic that currently must travel through the Hot Springs Central Business District (CBD) between Highway 70 and Highway 5.

PURPOSE AND NEED

A study of the Hot Springs East-West Arterial Extension in 1994 determined that the construction of this extension is needed. Arkansas Highway Commission Minute Order 94-299 adopted this study and authorized surveys, design and construction as funds become available.

The Hot Springs East-West Arterial begins at Highway 270 west of the City and ends at Highway 270 east of the City and is currently under construction from that point north to Highway 70. Once complete, the arterial will provide an alternate east/west route around the City for through traffic and will relieve congestion and improve travel times along Highway 7, Highway 70, and Highway 70B through the downtown area.

The proposed extension would provide for the continuation of the Hot Springs East-West Arterial from Highway 70 east of the City to the intersection of Highway 5 and Highway 7 north of the City. Highway 7 is currently the only north/south arterial that provides a route for through traffic in Hot Springs. This route runs through the Hot Springs National Park (HSNP), an urban national park with historical significance. As a result of the attractions along this section of Highway 7, there are numerous pedestrians and increasing traffic that creates congestion, especially on the weekends during the peak tourist season. In order to avoid this area, some motorists use Highway 70 and Highway 70B.



0 2000 feet

Job R60140
AHTD/Environmental - GIS - Reed
04/26/2004

Legend

 Project Study Area

 Current Construction

Fountain Lake 1972 USGS Topographic Map
Photorevised 1984
Hot Springs North 1966 USGS Topographic Map
Photorevised 1976

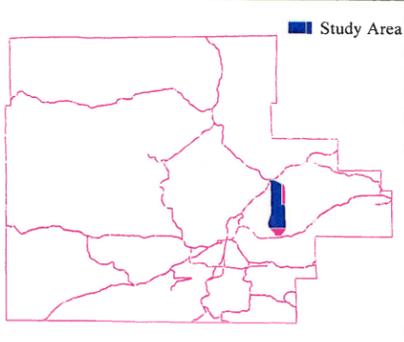
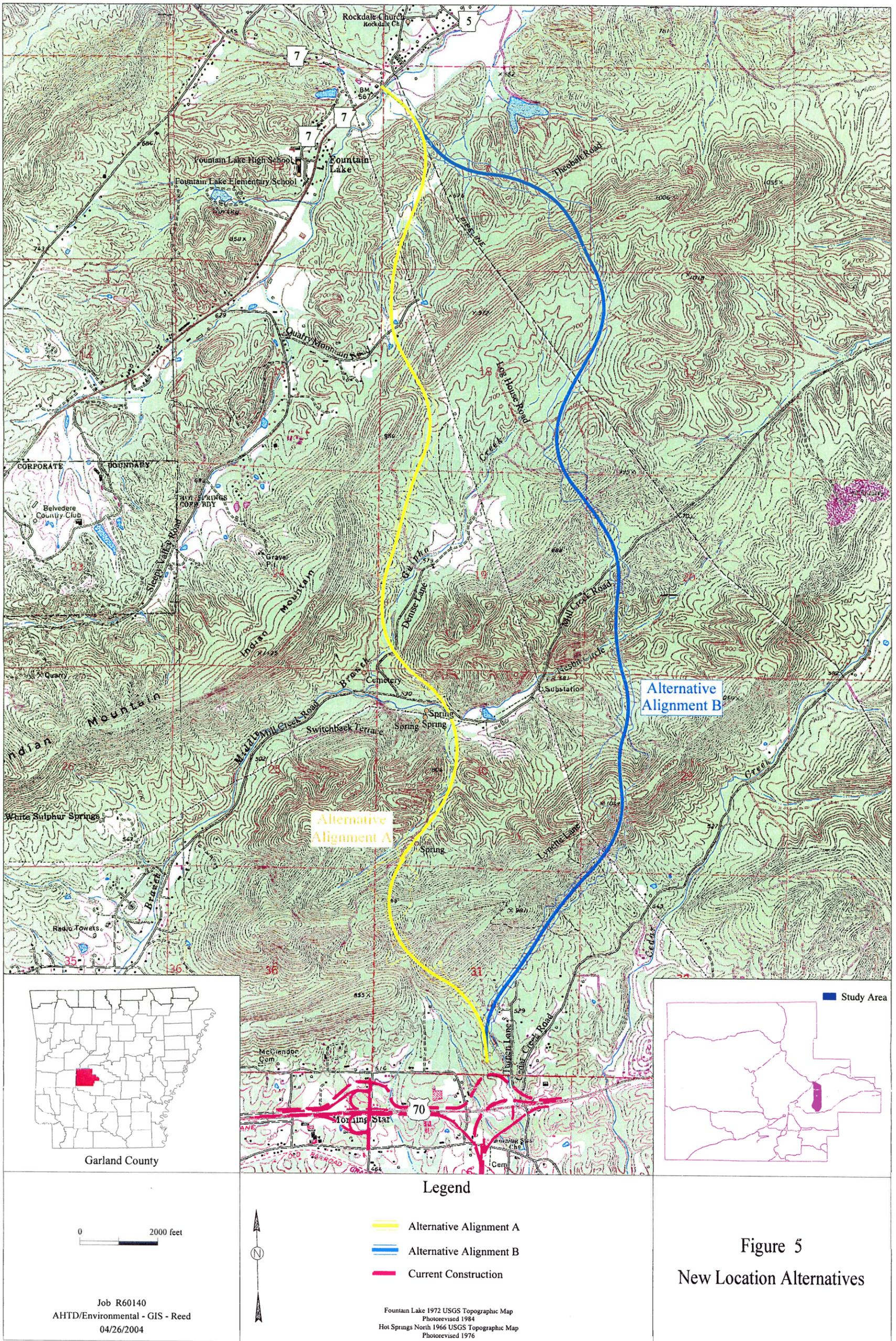


Figure 1
Project Study Area



Alternative Alignment B

Alternative Alignment A

Study Area

Garland County

Legend

- Alternative Alignment A
- Alternative Alignment B
- Current Construction

0 2000 feet

Job R60140
AHTD/Environmental - GIS - Reed
04/26/2004

Fountain Lake 1972 USGS Topographic Map
Photorevised 1984
Hot Springs North 1966 USGS Topographic Map
Photorevised 1976

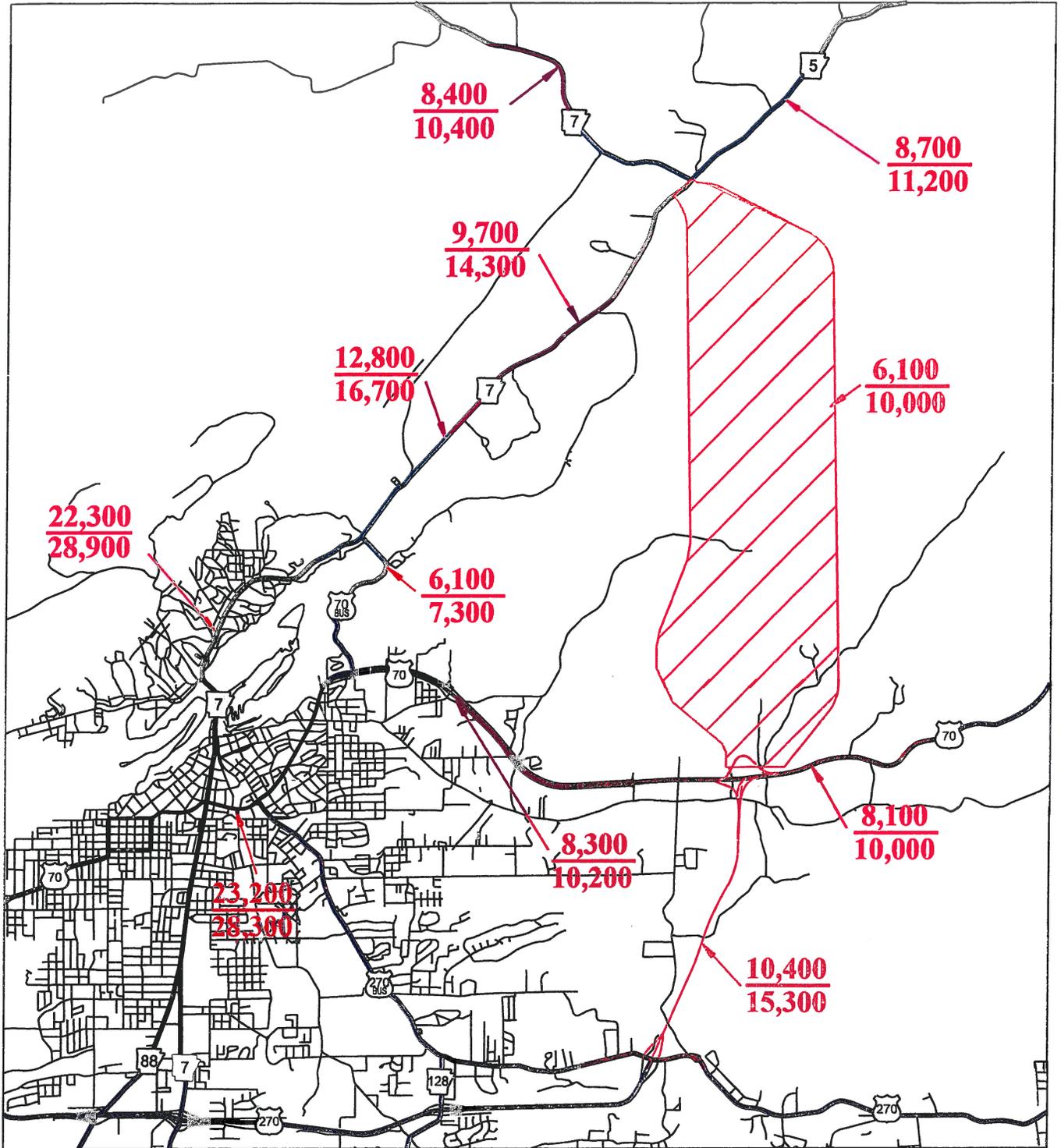
Figure 5
New Location Alternatives

Highway 7 has four travel lanes from the East-West Arterial (Highway 270) to Highway 70. From Highway 70 north for 0.3 mile (0.5 kilometer), Highway 7 has a two-lane section with on-street parking. The two-lane section ends south of the HSNP boundary where a four-lane section continues to the north for 1.75 miles (2.8 kilometers) where it reverts to two lanes to the intersection with Highway 5. The current average daily traffic along Highway 7 between Highway 70 in the downtown area and Highway 5 ranges from 9,700 vehicles per day (vpd) to 22,300 vpd (see Figure 3).

The study area for the East-West arterial extension extends approximately 5.5 miles (8.8 kilometers) from the Highway 70 interchange north to the Highway 5/Highway 7 intersection. The two-lane (ultimate four-lane) extension will provide an alternative north/south arterial with improved travel times for through traffic and motorists traveling between the Hot Springs Village area and the major shopping centers, medical facilities and recreational areas located along Highway 7 and the East-West arterial. The extension is estimated to carry approximately 6,100 vpd if constructed today, and 10,000 vpd by the year 2024. As a result, traffic will be diverted from many of the major routes in Hot Springs with significant reductions in traffic congestion anticipated along Highway 7 (Central Avenue) from its intersection with Highway 5 north of the City to the Highway 270 interchange, along Highway 70B between Highway 7 and Highway 70, and along Highway 70 between Highway 7 and the section of the East-West arterial that is currently under construction.

Crash rates for a four-year period from 1999 to 2002 were calculated along three segments of highways: Highway 7 from Highway 270 north to Highway 5, Highway 70 from Highway 7 eastward to the future interchange location for the East-West arterial and Highway 70B from Highway 70 to Highway 7. These are shown on Table 1 and presented on Figure 4.

Crash rates above the statewide average occur along Highway 7, the only north/south arterial for through traffic in Hot Springs. The HSNP attracts many pedestrians and tourists that increase the level of congestion along Highway 7. The extension of the Hot Springs East-West Arterial will relieve congestion by diverting traffic from many of the major routes in Hot Springs, particularly Highway 7.



Job R60140
 Hwy. 70 East - Hwy. 7 North
 City of Hot Springs East/West Arterial Extension

Figure 3: Average Daily Traffic

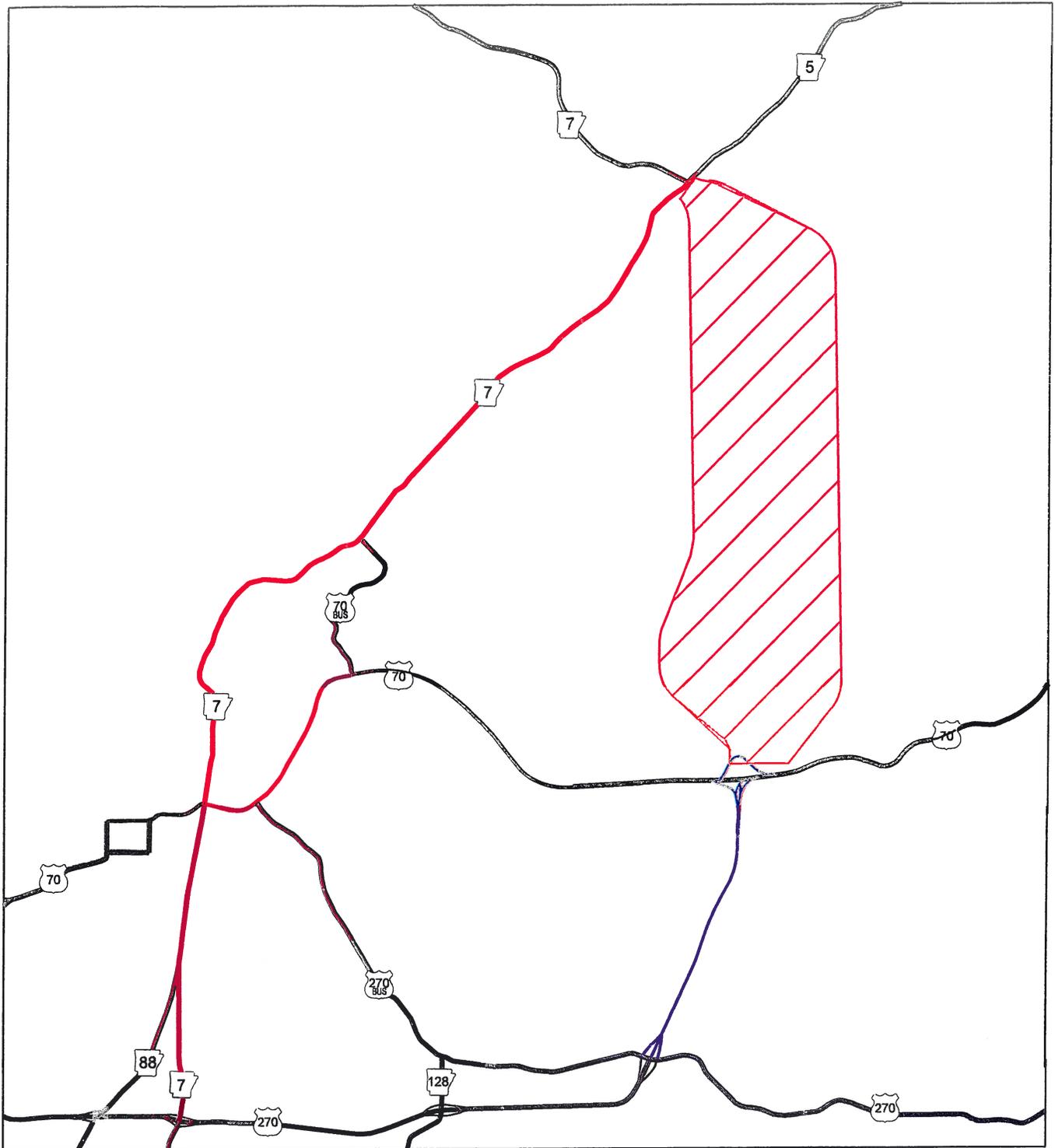
2004 ADT for Existing 2004 ADT for Under Construction or Programmed
2024 ADT for Existing 2024 ADT for Under Construction or Programmed



Table 1: Crash Rates

Highway 7			
Urban 4-lane Undivided Section from Highway 270 to Highway 70B (Section 9, Log Mile 7.66 to Log Mile 12.39)			
<i>Year</i>	<i>Number of Crashes</i>	<i>Crash Rate (Crashes Per Million Vehicles Traveled)</i>	<i>Statewide Average (Crashes Per Million Vehicles Traveled)</i>
1999	488	15.79	7.65
2000	468	13.93	7.59
2001	470	13.87	7.71
2002	545	14.35	7.78
Rural 2-lane Section from Highway 70B to Highway 5 (Section 9, Log Mile 12.39 to Log Mile 17.59)			
1999	39	2.20	1.33
2000	58	3.08	1.34
2001	41	2.04	1.24
2002	36	2.20	1.25
Highway 70			
Urban 4-lane Divided Section, No Control of Access from Highway 7 to Highway 70B (Section 9, Log Mile 0.00 to Log Mile 1.59)			
1999	86	7.83	4.54
2000	103	8.57	4.48
2001	95	8.21	4.44
2002	83	7.33	4.94
Urban 4-lane Divided Section, Partial Control of Access from Highway 70B to Future Interchange (Section 9, Log Mile 1.59 to Log Mile 10.00)			
1999	13	0.55	2.15
2000	11	0.42	2.11
2001	20	0.80	1.88
2002	32	1.23	1.93
Highway 70B			
Rural 2-lane Section from Highway 70 to Highway 7 (Section 9C, Log Mile 0.00 to Log Mile 1.62)			
1999	0	0	1.33
2000	4	1.11	1.34
2001	1	0.29	1.24
2002	0	0	1.25

Note: Numbers in red represent crash rates that are higher than the statewide average.



Job R60140
 Hwy. 70 East - Hwy. 7 North
 City of Hot Springs East/West Arterial Extension

Figure 4: Current Crash Rates

- *Crash Rates Higher than Statewide Average*
- ▨ *Study Area*
- *Current Construction*



DISCUSSION OF ALTERNATIVES

The identification, consideration, and analysis of alternatives are key to the National Environmental Policy Act (NEPA) process and are a goal of objective decision-making. Consideration of these alternatives satisfies the transportation needs and should protect environmental and community resources. The AHTD explored and evaluated all reasonable alternatives and eliminated alternatives that did not meet the stated purpose and need. The AHTD approached each alternative as a stand-alone proposal so that the reviewer may evaluate their individual merits. In consideration of a No-Build Alternative, reasonable efforts are included to explore viable alternatives to not build the bypass.

The Corridor Study Process

The purpose of the Corridor Study Process was to develop alternatives within the project corridor that could be evaluated for feasibility. The alternatives were developed on the following criteria:

- To meet the purpose and need of the project
- To meet the required design criteria
- To avoid or minimize impacts to known sensitive resources
- To address input from the public, local officials, Federal and state agencies.

Alternatives Considered and Discarded using the Quantm Approach

The AHTD undertook an advanced approach to select alternatives presented in this document. The AHTD entered into a research contract with Quantm Limited to provide route optimization technology via the internet to generate data, figures, and computer-aided design (CAD) mapping demonstrating impacts with the help of an AHTD design team. The AHTD entered digital data relevant to the project area, (i.e., material costs, turning radii, road grade, typical roadway construction costs, geometric input data, environmentally sensitive sites, historical/archeological sites, landfills, cemeteries, and geological constraints).

During the alignment selection stage, all reasonable alternatives were created, compared and discussed at a comparable level of detail to avoid bias towards a particular alternative. The Quantm system showed in detail how and at what level impacts of a particular alternative had upon the environment. In addition, the Quantm system showed the AHTD intricate and detailed maps of each alternative giving a better insight into which alternatives to retain and which ones to discard.

The Quantm system made it clear what criteria were used to eliminate erroneous or off-base alternatives, at what point in the process the alternatives were removed, how the AHTD was involved in establishing the criteria for assessing these alternatives, and the measures for assessing the alternatives' effectiveness.

The major benefits of using the Quantm system were reduced time in mapping alternatives, a better estimation of costs, receiving project construction limits and having inputs from key personnel immediately put into action. The Quantm system allowed environmental personnel the opportunity to look at the project limits in the office and especially in the field. If environmental constraints were found in the field, global positioning systems (GPS) were used by AHTD personnel to map these constraint areas. This Geographic Information System (GIS) data was incorporated into the Quantm Integrator Program, sent to the system and results were quickly received. In addition, a cost analysis of these environmental changes was taken into account to give the AHTD a better idea on how modifications could affect the cost of the alignment.

Many alignments were submitted within the first few weeks of field surveys. Further refinements occurred and different scenarios were used in the system. Details about those refinements and changes in different scenarios are noted in Appendix B, Quantm Progress Reports for March 2004 and April 2004. In these reports, a breakdown of the constraints used in the system and how the Quantm system devised additional routes is evident. However, the final alignments are not illustrated in these reports.

Many alternatives were eliminated from consideration based upon the amount of extreme cuts and volume of fill. Many tunnel scenarios were generated by the program. To keep tunnel scenarios from coming into play, tunnel costs were doubled from \$25,000 to \$50,000 per running foot. Tunnels were excluded from the alignment selection process because of the added expense of a tunnel consulting engineering firm, high maintenance costs and the possibility of impacting unknown cold water or hot water springs that could be in the area. Extensive geophysical determinations would have been

required if the tunnel(s) were selected as an alternative. This would have required more time, money and consulting engineering services to fully evaluate tunnel(s) scenario impacts.

Upgrading existing Highway 7 through downtown Hot Springs was eliminated from future consideration in reference to this proposal because of substantial impacts to area businesses, residences and the Hot Springs National Park.

Initially, a study corridor was introduced for the eastern bypass of Hot Springs. This corridor approach identified the needs of the area residents and traveling motorists, considered the feasibility of the project and identified any environmental constraints that could affect the project. The corridor was approximately 1.25 miles (2.01 kilometers) wide and 5.5 miles (8.8 kilometers) long. The corridor had two points of termination. The southern terminus is the interchange under construction at the intersection of Highway 70 and Highway 270. The northern terminus is the intersection of Highway 7 and Highway 5. The project corridor was presented at the first Public Involvement Meeting held at the Fountain Lake High School on April 29, 2003. Subsequently, three alternative alignments were developed within the corridor and shown at a second Public Involvement Meeting on December 9, 2003, at Fountain Lake High School. Studies outside the proposed corridor were not carried forward and were eliminated from further consideration due to increased costs and the lack of public support.

By using the Quantm system, the AHTD was able to evaluate and discard 1,338 different alternatives and choose two for further consideration. In developing these alternatives, the AHTD considered the purpose and need, the improvement itself and the scope of the environmental analysis. In developing an alternative that could be advanced through the planning, environmental, design, and construction stages, the AHTD needed to consider an integrated approach. This approach satisfied an identified need, such as safety and capacity improvement. In addition, the approach considered local economics, public opinion, topography, future travel demand, and other infrastructure improvements. The AHTD was aware of the problem of "segmentation." Segmentation occurs when a transportation need extends throughout an entire corridor, and the AHTD discusses the environmental issues and transportation needs of only a segment of the corridor. This was not the problem for this project. This project has always been evaluated in a complete approach to the traffic problems and needs of the area and in meeting those concerns.

No-Build Alternative

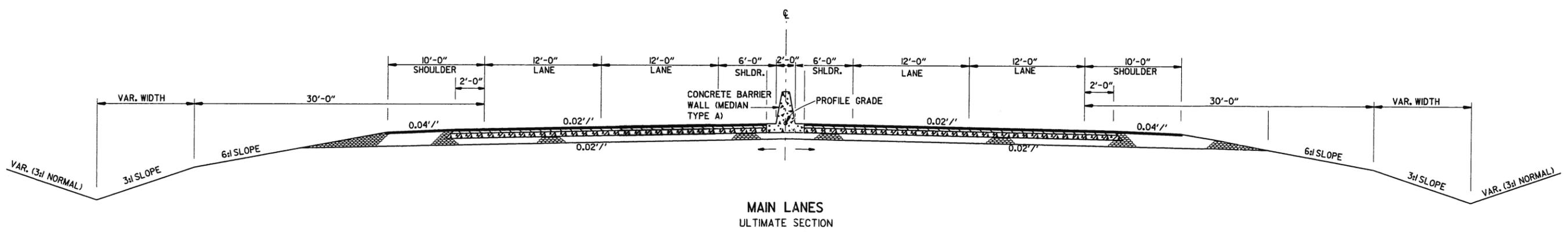
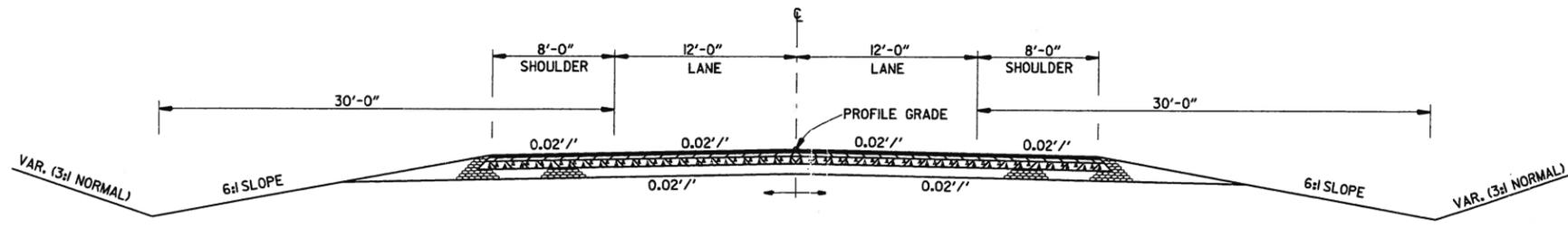
The No-Build Alternative would not construct the proposed project. The No-Build Alternative would instead leave Highway 70, Highway 70B, Highway 7 and Highway 5 as they now exist, considering no improvements, and involving only routine maintenance. This alternative would result in no further consideration being given to the proposed connector between Highway 70 and the intersection of Highways 7 and 5. Traffic congestion and travel times would continue to increase and safety would decrease. Capacity is projected to be reached over much of the existing route by 2024, even without the anticipated addition of traffic from proposed development. Because the No-Build Alternative is a consideration, it also serves as a baseline against which the other alternatives can be compared.

As traffic volumes increase, the need for widening existing Highway 7 will also increase. Widening along the route will impact existing tourist related businesses such as gift shops, hotels, restaurants, and the Hot Springs National Park. Widening along the existing route is not a financially feasible option due to numerous historical properties, high property values and impacts to a Federally protected national park.

New Location Alternatives A and B

Both Alternatives A and B begin at the intersection of Highway 70 and Highway 270 and extend approximately 5.5 miles (8.8 kilometers) north to the intersection of Highway 7 and Highway 5 (see Figure 5). Alternative A (yellow line) is proposed along the western edge of the proposed corridor, whereas, Alternative B (blue line) is along the eastern edge of the corridor. The development of the Martin Luther King Expressway and its interchange at Highway 70 established the project corridor and the alternatives southern logical termini. This area has been clearly defined as a rational end point for the southern part of the project. The Purpose and Need Section showed that the logical termini for the northern end should be the intersection of Highway 7 and Highway 5, due to traffic needs, motorist indirection and anticipated economic benefits to the communities of Fountain Lake, Northern Hot Springs, Hot Springs Village and citizens of northern Garland County.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	R60140			
② TYPICAL SECTIONS OF IMPROVEMENT								



04-20-2004 RR60140.T01

FIGURE 2: TYPICAL SECTIONS OF IMPROVEMENT

Alternative alignments were developed for the project area and refined through public involvement meetings and environmental analysis. Because the route will eventually be widened and two additional travel lanes constructed, either alternative will serve the residents and traveling public of the area.

Alternative A

Alternative A is located in the western part of the project corridor study area. The total distance for Alternative A is approximately 5.47 miles (8.80 kilometers). The estimated cost for this route is \$113,432,000 with a maximum 5% grade. For motorists traveling between Highway 7 and Highway 70 east of Hot Springs, this alignment reduces the length of the trip by approximately 5.50 miles (8.85 kilometers).

Alternative B

Alternative B is located in the eastern part of the project corridor study area. The total distance for Alternative B is approximately 5.66 miles (9.1 kilometers) at an estimated cost of \$158,004,000 with a maximum 5% grade. For motorists traveling between Highway 7 and Highway 70 east of Hot Springs, this alignment reduces the length of the trip by approximately 5.31 miles (8.55 kilometers).

IMPACT ASSESSMENT

Natural and Visual Environment

The City of Hot Springs is located in the central Ouachita Mountains in west-central Arkansas. Parallel mountain ridges with steep slopes and open high hills characterize this region. This area forms the rugged core of the Ouachita Mountains, which includes the Cossatot and Caddo mountains and the ridges east of Lake Hamilton. It has some of the most rugged topography in Arkansas. The area is underlain by Silurian sandstone and shale, Ordovician chert and shale, Mississippian novaculite, fine sandstone, and siltstone. Cretaceous igneous intrusions also occur and are associated with Hot Springs. Elevations are often 1500-2000 feet (457-610 meters) with maximum local relief exceeding 1000 feet (305 meters).

Soils in the project area are mapped on the general soils map (*Soil Survey of Garland County, Arkansas, 1989, USDA*) into three soil associations.

Yanush-Avant-Bigfork soils comprise the majority of the study area and are found on sides and tops of ridges and mountains. They are deep and moderately deep, gently sloping to very steep, well-drained, very gravelly and stony soils that formed in residuum and colluvium of chert and novaculite under mixed hardwoods and pines. Bismark-Sherless-Clebit soils are found on the sides and tops of ridges, hills, and mountains. These are shallow and moderately deep, gently sloping to steep, somewhat excessively drained and well drained, gravelly and very gravelly soils that formed in residuum of shale and sandstone under mixed hardwoods and pines. Ceda-Spadra-Avilla soils are found on floodplains and terraces and are associated with streams in the study area. These are deep, level to gently sloping, well-drained, gravelly and loamy soils that formed in alluvial sediment.

Water resources in the project area include Middle Branch Gulpha Creek, two unnamed tributaries to the South Fork Saline River and Cedar Creek. Both creeks are tributaries to Lake Catherine whereas the South Fork Saline River is a tributary of the Saline River. Alignment A crosses Middle Branch Gulpha Creek and two unnamed tributaries of the South Fork Saline River. Alignment B is positioned between Middle Branch Gulpha Creek and Cedar Creek but crosses the South Fork Saline River.

Natural vegetation consists of oak-hickory-pine forests. Common trees in the oak-hickory communities include post oak (*Quercus stellata*), black oak (*Q. velutina*), southern red oak (*Q. falcata*), white oak (*Q. alba*), and black hickory (*Carya texana*). Natural mixed oak-pine communities are characterized by a predominance of shortleaf pine (*Pinus echinata*). Loblolly pine (*P. taeda*) has been introduced into the area and forms stands in disturbed areas or where planted. Other common trees include sweetgum (*Liquidambar styraciflua*) and black walnut (*Juglans nigra*). In the floodplains, sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*), river birch (*Betula nigra*), and Chinese privet (*Liqustrum sirense*) are also common. Modern pastures consist largely of bahia grass (*Paspalum notatum*). Forestry is the predominant land use in the area. Mining of novaculite is also an important land use. Novaculite was mined for centuries by the Native Americans for making stone tools and is mined in modern times for the famous “Arkansas Stone” wet stones used for sharpening knives.

The invasive species noted in the project area were Johnson grass (*Sorghum halepense*), Japanese honeysuckle (*Lonicera japonica*), Chinese privet and mimosa (*Alibizia julibrissin*), species that are already extensively invasive throughout Arkansas. Empress tree (*Paulownia tomentosa*) was also found in the study area and is potentially invasive.

The region was settled early during Arkansas' history due to the springs at Hot Springs, a natural attractant since pre-historic times. The springs created enough interest that in 1832 the Federal Government set aside four sections of land as a reservation to preserve the springs. In 1921, the area was designated a national park. In 1907, most of western Garland County and several other counties were designated the Ouachita National Forest. The damming of the Ouachita River to form Lake Catherine (1925), Lake Hamilton (1932), and Lake Ouachita (1952) increased the potential for recreation and tourism in the area.

Visually sensitive locations in the project study corridor include Thousand Dripping Springs and the Panther Valley Ranch. Thousand Dripping Springs was a popular picnic area in the early days of Hot Springs. There is an Indian legend that explains the origin of the spring. According to the legend, the Great Spirit gave his people the right to partake of all the bounty he had provided but denied them one large cave on the far side of a peaceful stream to test their loyalty. Eventually, the young men became curious about what was inside the cave and convinced the tribe to explore the cave. When the last canoe entered the cave, there was a great earthquake that sealed the cave forever, formed the Ouachita Mountains, and turned the peaceful stream into the Ouachita River. The Indians were imprisoned within the cave and felt great remorse. Eventually their tears filled the caverns and seeped through the rocks of the mountains where people can see them dripping sadly to this day.

Panther Valley Ranch is located on 120 acres in an Ouachita Mountain Valley surrounded by acres of timberland. There are numerous lodging facilities and recreational activities, including horseback riding, fishing, and camping. In addition, Arkansas' Musical Passion Play, *The Witness*, is located at the Ranch. An Off Road Vehicle Park is located adjacent to the Ranch. Magic Springs and Crystal Falls amusement parks are located two miles (3.2 kilometers) away.

There are numerous illegal dumps pocketed throughout the project study area comprised mainly of scrap metal, appliances, mattress frames, abandoned vehicles and tires. There is one dump location that allegedly served as a medical waste disposal site as well.

Road use on existing Highway 7 is primarily local and commuter traffic. The construction of the extension of the east-west arterial will reduce congestion by lessening

truck and commuter traffic through the historic district. The view from the arterial road should be excellent, due to the rolling terrain and forests. There are some residential developments in the project area that currently have high visual quality. The project will have a negative effect on their view by converting forest into right of way.

The principle impacts to the natural environment will be conversion to right of way and restructuring of the physical landscape through extensive clearing, cuts and placement of fill. The proposed Alternatives A and B will be predominantly on new location. The two alternatives do differ substantially in regard to impacts to the natural and visual environment. Alternative B will have a substantially larger amounts of cuts and fills. Alternative A will have lesser cuts and fills, but will require more bridging of waterways.

Secondary Impacts

Secondary impacts to existing land use are expected to occur due to increased development at the Highway 70 and Highway 270 Interchange and along sections of the proposed project. At the Highway 70 and Highway 270 interchange, conversions from residential to commercial land use will likely occur. The project will be a controlled access facility.

Wetlands and Waters of the United States

A preliminary corridor survey of wetlands and stream crossings was conducted along the proposed alternatives in order to assess and then minimize wetland and stream impacts. Construction of this project will cross Middle Branch Gulpha Creek (Figure 6) and numerous headwater tributaries of South Fork Saline River (Figure 7). There is one farmed wetland (pasture) located east of Alternative A (Figure 8). The wetland will not be impacted by the construction of this alignment.

Alternative A will cross five headwater streams. Two of these streams are classified as intermittent, and the other three are classified as perennial streams. Both of the intermittent streams are unnamed tributaries to the South Fork Saline River. One of the perennial streams crossed is the Middle Branch Gulpha Creek, and the other two perennial streams are unnamed tributaries to Middle Branch Gulpha Creek and South Fork Saline River. Each of these perennial streams crossings will require the construction of a bridge to span the floodplain. Some channel relocation may be required on the two intermittent streams within Alternative A. Total stream channel relocation is estimated at less than 3,000 linear feet.



Figure 6: Middle Branch Gulpha Creek



Figure 7: South Fork Saline River



Figure 8: Farmed wetland (pasture) located east of Alternative A.

Alternative B will cross four headwater streams. Two of these streams are intermittent and the other two are perennial streams. Both of the intermittent streams are unnamed tributaries to the South Fork Saline River, and no channel relocation will be required. The perennial streams that will be crossed include the Middle Branch Gulpha Creek and an unnamed tributary to the South Fork Saline River. Both of these streams will require construction of bridges spanning their floodplain

Construction in and across the headwater streams is unavoidable due to the topography of the project area. Three perennial streams of Alternative A will be bridged avoiding any channel relocations. Two intermittent streams of Alternative A may require some stream relocations. Alternative B follows more along the ridge tops and does not

parallel any stream channels. Construction of Alternative B would have the least stream impacts. With context sensitive design and prompt implementation of best management practices, impacts from construction should be minimal and functional integrity of the stream ecosystems maintained.

A Section 404 Permit application will be submitted once an alternative has been selected and appropriate design is complete.

Cultural Resources

AHTD staff archeologists conducted a reconnaissance level cultural resources survey of the project area over a combined period of six weeks in 2003. The survey consisted of a review of all appropriate site records, Federal Highway Administration (FHWA) consultation with the Caddo Tribe of Oklahoma, and a relatively intensive pedestrian survey of Alignments A and B. In addition, areas outside of and near Alignments A and B were surveyed in order to locate possible alternatives in areas where potentially significant historic or Native American sites were found along the primary alignment. The survey was conducted in order to identify any obvious archeological sites or historic properties that might be affected by the project and to determine if any of the alternatives were located within areas having a high probability for the occurrence of undiscovered cultural resources.

A variety of records were checked to determine if previously documented cultural resources were known in the project area. No previous recorded sites were found in the project area. These include the States archeological site files that are maintained by the Arkansas Archeological Survey (AAS) in Fayetteville and the States historic structures files at 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. These included copies of the 1823 General Land Office (GLO) map for Township 2 south, Range 18 west, and the 1936 Garland County road map. The primary alternatives were plotted on the 1984 (revised from 1972) Fountain Lake, ARK topographic quadrangle map and was reviewed to see if any obvious high probability areas could be identified along the routes.

Many public access points as possible along the alternative were used to determine if any unrecorded historic structures were present. No unrecorded historic structures were found in the pedestrian survey. The pedestrian survey was comparatively intense with regards to this stage due to the relatively high probability for the presences of Native American quarry sites in the study area. The Ouachita Mountains contain extensive outcrops of novaculite, chert and silicified sandstone; all of which were used for thousands of years by the Native Americans for the manufacture of chipped stone tools. Novaculite is still mined today for whetstone manufacture and many of the aboriginal quarries have been impacted by historic mining activities. Lithic outcrops occur in a wide variety of topographic settings, many of which would normally be considered as poor environments for archeological sites. Unlike most habitation sites, which occur on relatively level terrain usually near a water source, quarry sites can occur on near vertical slopes, sharp ridge tops or even consist of boulders in a stream.

Although many quarries have been documented throughout the Ouachita Mountains, few have been extensively studied. Diagnostic artifacts associated with those that have been documented point to the heaviest use during the Archaic and Woodland periods. Finished tools made of novaculite have been found at sites across the entire eastern United States indicating its importance as a trade item. Due to the fact that virtually all of the proposed project area could contain novaculite quarries at any elevation, and that virtually any quarry with the possible exception of extremely small ones or those severely impacted by historic activities would likely be determined eligible for the National Register of Historic Places, an effort was made to locate any and all in or near the project area. This means that not only were stream channels, terraces, benches, ridge tops and spurs surveyed, but steep slopes were also surveyed.

Several previously recorded novaculite quarries were identified during the records check but none of these are within the project's impact area and they will not be affected by the undertaking. Sixteen additional undocumented quarries were identified during the field survey. Several appear to be historic; some are obviously aboriginal in origin. Judging from the proposed alternative alignments, most of these can be avoided. Two will be directly impacted and one will be within about 98 feet (30 meters) of the proposed

construction limits of Alternative A. At least three other Native American sites have been identified within or very near the proposed western alignment. Historic sites were sparse, due largely to the relatively extreme topography, and none were found that should pose any significant problems if impacted. To date, the Caddo tribe has not responded to the initial consultation letter.

Alternative Alignment B was not as intensively surveyed for cultural resources as was Alternative A. Posted markers, no trespassing signs, and locked gates prevented access to nearly all of this proposed alignment and alternate access points were almost non-existent.

The review of 7.5' topographic maps containing Alignment B shows very similar terrain and waterway types as those encountered in Alignment A. It can be assumed, based upon elevation of mountain ridges and typical outcroppings of novaculite found in and around Alternative A, that Native American and historic novaculite quarries will be very likely in and around Alternative B as well. Native American lithic reduction/refinement sites associated with the novaculite quarries may be found on lower elevations and benches above drainages.

No Native American or historic sites have been recorded in or around Alternative B and no early maps indicated any settlement or habitation. The potential for significant historic sites is believed to be relatively low due to steep terrain.

Once a final alignment has been selected, a final intensive cultural resources survey will be conducted to ensure all areas of the proposed project have been evaluated. A report documenting the results of the survey and stating the AHTD's recommendations will be prepared and submitted to the State Historic Preservation Officer (SHPO) for review. If sites are identified within the proposed impact zone, consultation with the Caddo Tribe will be elevated and the site or sites should be evaluated to determine if Phase II testing is necessary. Should any of the sites be found to be eligible or potentially eligible for nomination to the NRHP and avoidance is not possible, then site-specific data recovery plans will be prepared and data recovery will be carried at the earliest practicable time. To date, no Section 4(f) properties have been identified.

Floodways and Floodplains

The Hydraulics Section of AHTD reviewed the proposed alignments for possible encroachments into areas of Special Flood Hazard as indicated on the Garland County Flood Insurance Rate Maps, and offers the following assessment of each alignment:

Alternative Alignment A

County	Map Panel	Encroachment Type, Length, and Location
Garland	100	Zone A Special Flood Hazard Area across an unnamed tributary to the South Fork of the Saline River, approximately 300' (91m) wide, located just south of the Highway 7 and Highway 5 intersection at Fountain Lake.

Alternative Alignment B

County	Map Panel	Encroachment Type, Length, and Location
Garland	100	Zone A Special Flood Hazard Area across an unnamed tributary to the South Fork of the Saline River, approximately 300' (91m) wide, located just south of the Highway 7 and Highway 5 intersection at Fountain Lake

Garland County participates in the National Flood Insurance Program. The floodplain encroachments identified above will be designed to comply with the county's local flood damage prevention ordinance. During the project design, hydraulic data and construction plans will be submitted to the county for review, approval, and/or permitting as specified by their ordinance.

The local ordinance requires that the cumulative effects of all construction within any identified 100-year floodplain, or Zone A Special Flood Hazard Area, since the community's entry into the National Flood Insurance Program, may not cause more than one-foot (0.3-meter) increase in flooding depths anywhere within the community.

This project will serve as a principle arterial and, as such, will serve emergency vehicles in time of disaster. This project will be designed to avoid roadway overtopping by the 50-year flood and, therefore, will not have a significant potential for interruption

or termination due to flooding. The project will be on new location where detours for the construction or reconstruction of existing bridges will not be required.

The No-Build Alternative would not affect floodways and floodplains at this time. However, if future development of Highway 7 through downtown Hot Springs were implemented, an encroachment or expansion into the existing floodplain of downtown Hot Springs could be a problem. The City of Hot Springs has had an ongoing problem with drainage through this part of the city. The No-Build Alternative would not address this problem and would only increase drainage problems.

Bridges and/or drainage structures will be sized sufficiently to minimize impacts on natural and beneficial floodplain values. These values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, forestry, natural moderation of floods, water quality, maintenance, and groundwater recharge.

The design measures to minimize floodplain impacts include (1) avoiding longitudinal encroachments, (2) sufficient bridging and/or drainage structures to minimize adverse effects from backwater, (3) sufficient bridging and/or drainage structures to minimize increases in water velocity, (4) minimizing channel alterations, (5) adequate and timely erosion control to minimize erosion and sedimentation, and (6) utilizing standard specifications for controlling work in and around streams to minimize adverse water quality impacts.

The final project design will be reviewed to confirm that the design is adequate and that the potential risk to life and property are minimized. The project will not support incompatible use and development of the floodplain. Adjacent properties should not be impacted nor have a greater flood risk than existed before construction of the project. None of the encroachments will constitute a significant floodplain encroachment or a significant risk to property or life.

Relocation

Table 2 details the relocations for each alternative. Alternative A will displace two residential owner occupants and three businesses. Alternative B will displace four

residential owner occupants and the same three businesses. A Conceptual Stage Relocation Analysis is contained in Appendix C.

Table 2: Relocation Summary

Relocation Type	A	B
Residential Household Owner	2	4
Elderly	0	0
Minority	0	0
Low Income	0	0
Residential Household Tenants	0	0
Elderly	0	0
Minority	0	0
Low Income	0	0
Businesses Displaced	3	3
Employees Affected	13	13
Personal Property	0	0
Total Relocations	5	7

Environmental Justice

A review of Executive Order 12898 and information obtained from the Right of Way Division’s Conceptual Stage Relocation Analysis did not reveal any environmental justice issues associated with this project. A windshield survey did not involve any Environmental Justice issues associated with the project. Census block data was consulted but covered too large of an area to be specific. The proposed project will not have disproportionate adverse impacts to low income or minority populations. There are no minority neighborhoods in the project area.

Social / Economic

The proposed alternatives are in an area that is considered low density rural and will not affect any large neighborhoods. The overall economic impacts of this project are expected to be positive. Project completion will improve traffic flow and provide easier and more efficient transportation of workers, services and agricultural products. The highway will attract businesses such as service stations, convenience stores, and other traffic oriented businesses near the interchange locations. Some land severance will

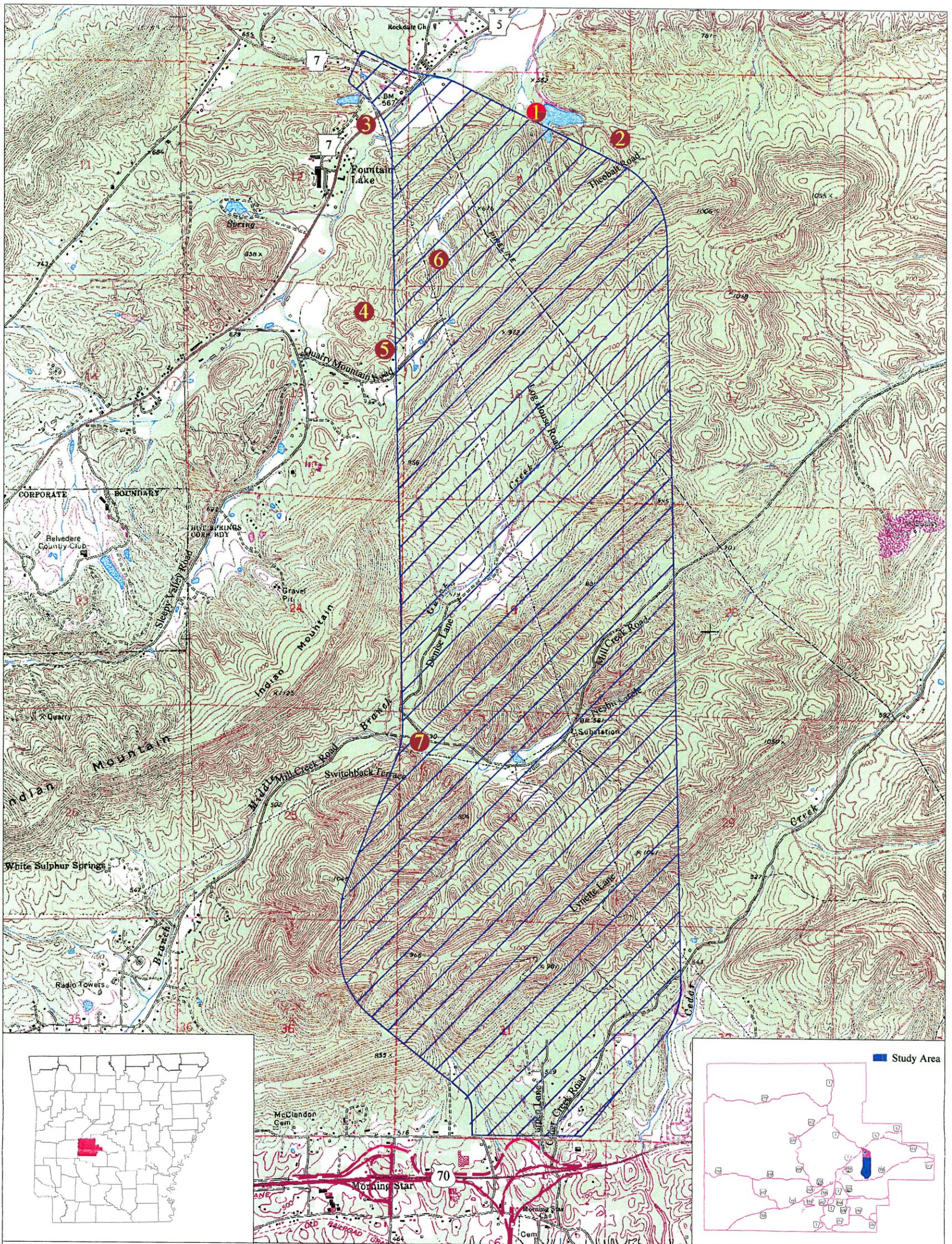
occur with each proposed alternative. Land severance on the selected route will be minimized, where possible, by working along property boundaries.

Hazardous Waste

A hazardous materials assessment was conducted for the proposed project corridor to determine if hazardous substances or solid wastes were present in the proposed project corridor. The hazardous waste assessment involved review of numerous government agency databases, current aerial photographs and field reconnaissance. GIS databases were obtained from the U. S. Environmental Protection Agency (EPA), Federal Emergency Management Administration (FEMA) as part of the Department of Homeland Security's Emergency Preparedness and Response Directorate, the Arkansas Department of Environmental Quality (ADEQ), the Arkansas Department of Health and the U.S. Geological Survey (USGS). In the search of GIS data, the only data in the study area was from FEMA and USGS showing the location of dams, schools, a church, Thousand Dripping Springs and large gymnasiums (Figure 9).

Current digital aerial photographs were of such poor resolution at higher magnifications that they impaired the view and only caused distorted pixilation. Ground reconnaissance revealed numerous illegal dumps pocketed throughout the project area comprised mainly of scrap metal, discarded appliances, mattress sets, abandoned vehicles and tires (Figures 10, 11 and 12). These small dumps are isolated and will be further assessed after an alternative is selected.

A large dump area outlined by the use of a GPS system and incorporated into the Quantm Model as one of the major environmental constraint areas is shown on Figure 5. Because of its large size and prominence upon the landscape, a detailed description of the dump is warranted. Based upon interviews with locals, the ADEQ-Solid Waste Division, and the Garland County Solid Waste Department found this site to be extensively used by the City of Hot Springs and locals as a dumping area from the mid 1940s until 1972. It was also suggested that this dump was the main medical waste area for St. Joseph's Mercy Health Center in Hot Springs. St. Joseph's Mercy Health Center Administration had no knowledge of waste being dumped during the time period in question.



Legend

 Project Corridor

-  Fountain Lake Dam (FEMA)
-  O. Mahoney Pond Dam (FEMA)
-  Fountain Lake School District (FEMA)
-  Fountain Lake School District (FEMA)
-  Fountain Lake School (FEMA)
-  Rockdale Church (USGS)
-  Dripping Springs - Historical (USGS)



0 2000 feet

Job R60140
AHTD/Environmental - GIS - Reed
04/26/2004

Fountain Lake 1972 USGS Topographic Map
Photorevised 1984
Hot Springs North 1966 USGS Topographic Map
Photorevised 1976

Figure 9
GIS Query Results



Figure 10: Tire dump near Alternative A.



Figure 11: Illegal dump found on top of Indian Mountain near Alternative A.



Figure 12: Discarded boat found on top of Indian Mountain near Alternative A.

Field inspections at the dumpsite determined that it is from the 1940's. This is obvious because there is an absence of plastic items in the dump. A large majority of the materials in the dump are metal. There are no items of a biodegradable nature evident in the top areas of the dumpsite. Organic materials that were dumped in the past such as cloth, wood, food, and natural fiber materials have decomposed. Time and nature have clearly decomposed all organic material. The only materials left are bed frames, mattress frames, old stoves, refrigerators, signs, tin roofs, tin cans, glass bottles, bottle caps, and anything metal. The AHTD delineated the dumpsite location to ensure that the area would not be disturbed or impacted. Photographs taken at the site are shown in Figures 13 thru 16. The size of the trees growing on top of the dumpsite gives a clear indication of the age of the site.

The Garland County Solid Waste Department assisted the AHTD in determining locations of dumpsites throughout area. A Mr. Kenneth Hutcheson owns the property where the former city dump is located. There was at one time a large illegal tire dump located on the eastern side of the power line along Denise Lane. This tire dumpsite was cleaned up seven years ago by ADEQ and the Garland County Solid Waste Department.



Figure 13: Northeastern boundary of city dump (looking north along the electrical transmission line).



Figure 14: Old city dump (note: large trees).



Figure 15: Old city dump

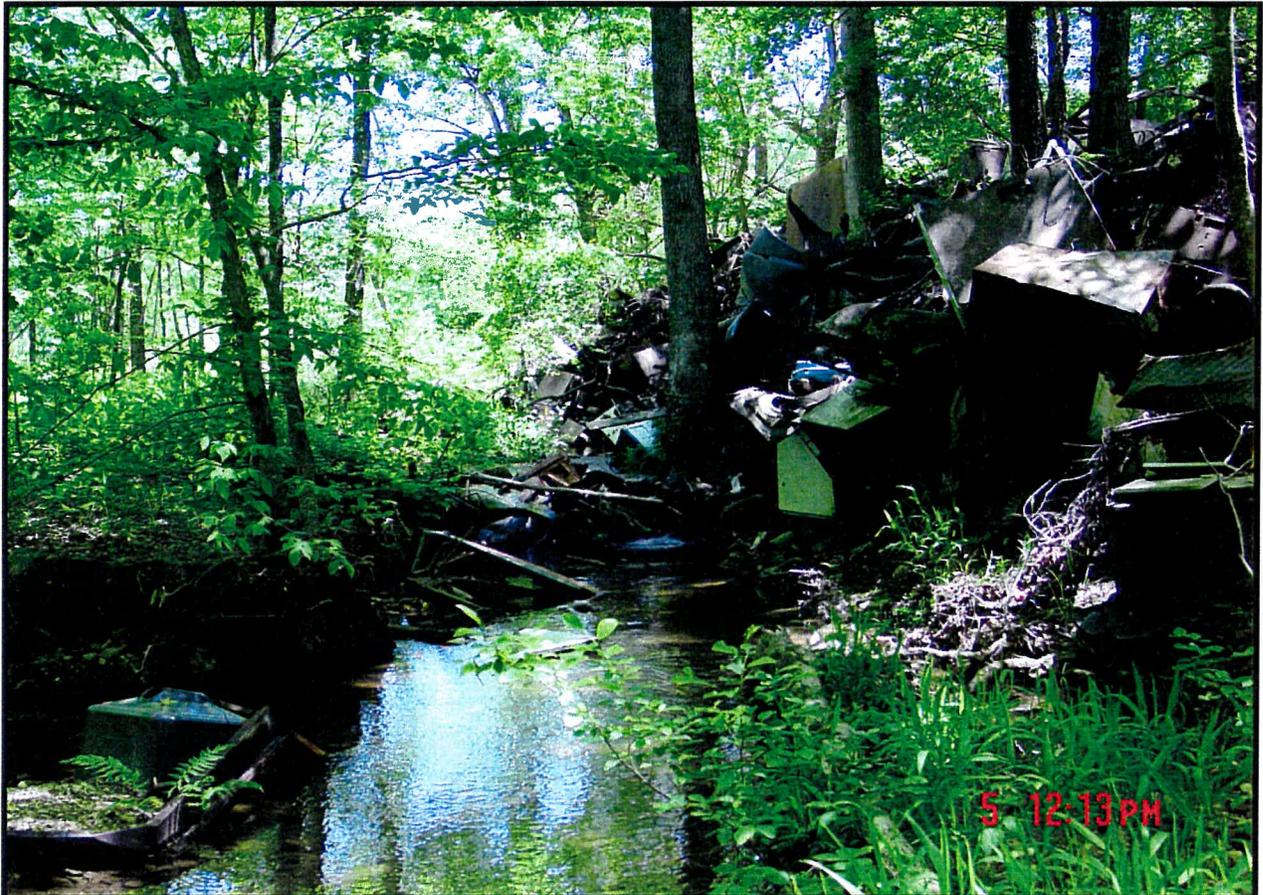


Figure 16: Old city dump and Middle Branch Gulpha Creek

If additional hazardous materials are identified, observed or accidentally uncovered by any AHTD personnel, contracting company(s) or state regulating agency and found to be within our acquired right of way, it will be the AHTD's responsibility to determine the type, size and extent of contamination. The AHTD will 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 will be conducted in conformance with the ADEQ, EPA, and Garland County Solid Waste Division regulations.

Prime Farmland

No prime farmland is located along either project alternative.

Endangered Species

There are no Federally protected plant or animals in the proposed project area. The Ouachita Madtom (*Noturus lachneri*), which is endemic to the Ouachita River drainage, was collected in 1992 from the Middle Branch of Gulpha Creek about 1.25 miles (2.0 kilometers) southeast of Hot Springs National Park. Documentation from the Arkansas Department of Natural Heritage Commission states that the Ouachita Madtom was reported in Cedar Creek, located along the eastern side of the project corridor study area. The Ouachita Madtom is listed as an S2 and G2 species, meaning the species is very rare in Arkansas (S2) and imperiled globally because of rarity (G2). The Ouachita Madtom has not been recorded in the immediate project area and should not be affected.

Water Quality

The project area lies within the Ouachita Mountains Ecoregion where the turbidity standard set by ADEQ for streams is 10 Nephelometric Turbidity Units (NTUs) and 25 NTUs for lakes and reservoirs (*ADEQ Regulation 2-Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas*) as revised, effective October 28, 2002. Given the existing water quality within the region, additional sediments contributed during construction will likely result in localized, short-term adverse water quality impacts. Temporary exceedances of state water quality standards for turbidity may occur. Other potential sources of water quality impacts include petroleum products from construction equipment, highway pollutants from the operations of the facility, and toxic and hazardous material spills.

The Department will comply with all requirements of The Clean Water Act, as Amended, for the construction of this project. This includes Section 401; Water Quality Certification, Section 402; National Pollutant Discharge Elimination Permit (NPDES), and Section 404; Permits for Dredged or Fill Material. The NPDES Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will include all specifications and best management practices (BMPs) needed for control of erosion and sedimentation. This will be prepared when the roadway design work has been completed in order to best integrate the BMPs with the project design.

Hydrogeology

Hot Springs, Arkansas, located in the Zig Zag Mountains of the Ouachita Region, is known for its unique mid-continental thermal springs (Figure 17). Highly deformed Paleozoic sedimentary rocks (sandstone, chert, slate, shale and novaculite) typify the region with remnant mountain ridges that once spanned over 1,300 miles (2,100 kilometers) from Eastern Mississippi to Western Texas (Hanover, 1980). A generalized description of local rocks can be found on Table 3 (Bedinger, *et al.*, 1974).

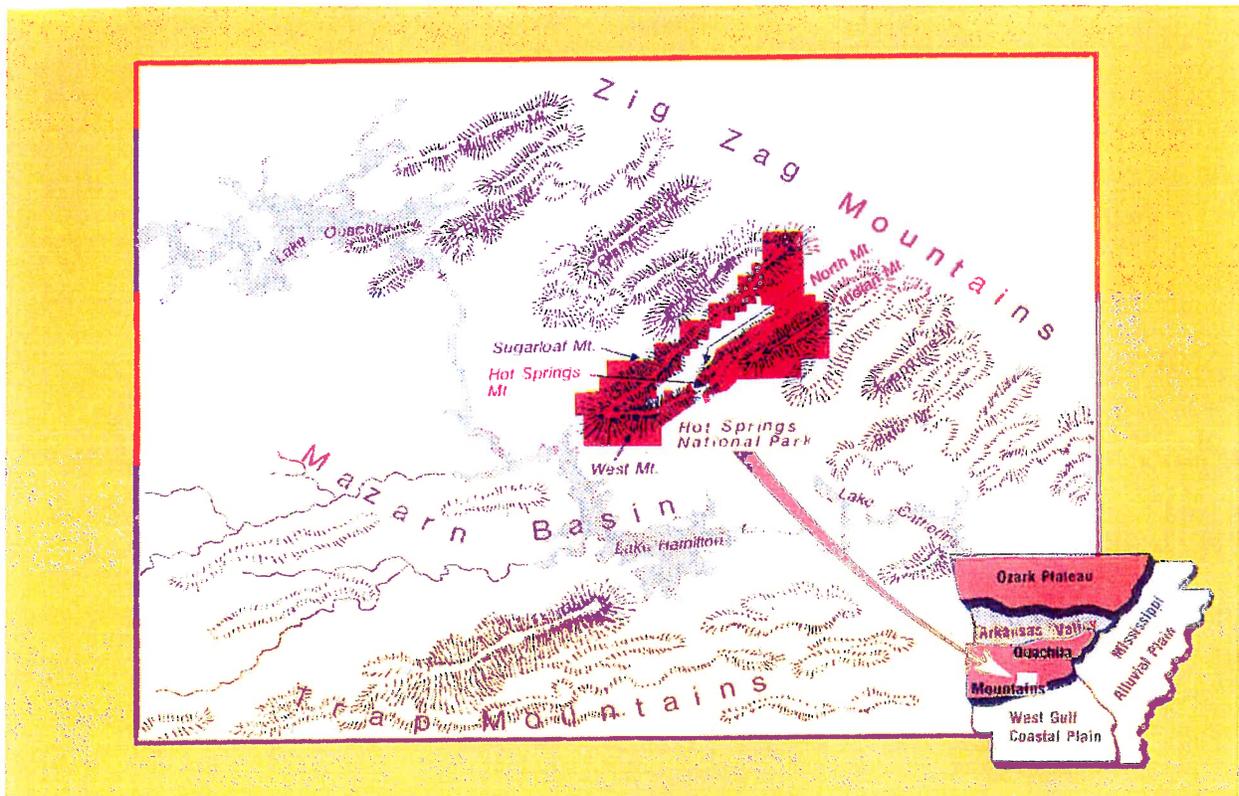


Figure 17: The location of Hot Springs in the Zig Zag Mountains of the Ouachita Region.

Table 3. Generalized section of sedimentary rocks in the vicinity of Hot Springs
(From Bedinger et al., 1974)

System	Formation	Maximum thickness in Hot Springs Area (feet)	Lithologic Description	Topography
Mississippian	Stanley Shale	8,500	Greenish-black and black shale, gray sandstone, and traces of thin chert and tuff.	Broad valleys with low ridges and hills.
	Hot Springs Sandstone	150	Hard, gray quartzitic sandstone, conglomerate, and thin interbedded black shale.	Steep slopes, or narrow, sharp crested ridges.
	Devonian	Arkansas Novaculite	650	Massive to thin bedded Novaculite, interbedded with black clay, siliceous shale, and tripoli.
Silurian		Undifferentiated Missouri Mountain Shale, Blaylock Sandstone, and Polk Creek Shale.	195	Green to black shale, a few thin sandstones, and traces of conglomerate.
Ordovician	Bigfork Chert	700	Thin-bedded chert, highly fractured and interbedded thin siliceous shale.	Steep sided low ridges, and round knobs.
	Womble Shale	1,500	Black shale, thin interbedded lenses of limestone, and very thin sandstones.	

The area now known as Hot Springs was once covered in the shallow waters of the expansive Ouachita Ocean basin that separated the North American continent from the continents of South America and Africa (Hanover 1980). The Ouachita Orogeny, the mountain building process responsible for the Ouachita Mountains, began approximately 320 million years ago. During the Late Paleozoic, the continents of South America and

Africa drifted north, eventually colliding with the southern edge of North America. The resulting heat, pressure and solutions aided in the intense folding and faulting of the lithified sedimentary deposits of the Ouachita Ocean, creating the Ouachita Mountains.

Modern topography of the Ouachita Region is the result of over 245 million years of erosion. Sedimentary rocks of the Hot Springs area have been reduced by thousands of feet in elevation, yielding a landscape of east-west trending mountain ridges and a low broad valley. The valley, underlain by the highly fractured Bigfork Chert, is nested between surrounding peaks of Arkansas Novaculite. Collecting the meteoric (rain water) that drains from the ridges of the Sugarloaf, North and West Mountains of Hot Springs, the Bigfork Chert acts as the dominant source of recharge for the thermal springs (Figure 18). The Arkansas Novaculite is less porous, and aids in recharge to a lesser extent.

Thermal springs are abundant in regions of the eastern and western United States where the landscape has been shaped by tectonic activity, the movement and collision of continental masses (Figure 19). In these regions, subsurface water is heated at depth by the presence of molten rock or slow cooling igneous masses. The 47 mid-continental thermal springs of Hot Springs are unique in that they most likely have not been influenced by volcanism. Arkansas' most recent igneous activity occurred approximately 90 to 100 million years ago. Although it is possible that one of these masses of igneous rock lies buried at depth beneath the Hot Springs area, any molten material would have cooled long ago and would not now be a probable source of heat (Hanover, 1980). Common thought renders the thermal water of Hot Springs to be heated 6,000 feet to 8,000 feet (1,800 meters to 2,400 meters) below the land's surface due to a combination of the geothermal gradient, a normal increase of temperature with depth of approximately 15 degrees F/1000 ft (25 degrees C/km), and heat derived by radioactive masses (National Park Service, 2002).

Once water reaches the recharge area, it slowly percolates through fractures and fissures in the rock, taking more than 4,000 years to reach its final depth. It remains 6,000 – 8,000 feet (1,800 – 2,400 meters) below the earth's surface for no more than a few hundred years before it quickly travels back to the surface and emerges as thermal springs from the Hot Springs Sandstone Member of the Stanley Shale (National Park Service, 2002). The change in temperature is directly related to a change in density. As the water is heated, it becomes more buoyant, allowing it to flow to the surface in less than a year's time. The abbreviated journey prevents the water from cooling below 130 degrees Fahrenheit (54.4 degrees Celsius). The majority of the springs emerge at temperatures often exceeding 140 degrees Fahrenheit (60 degrees Celsius).

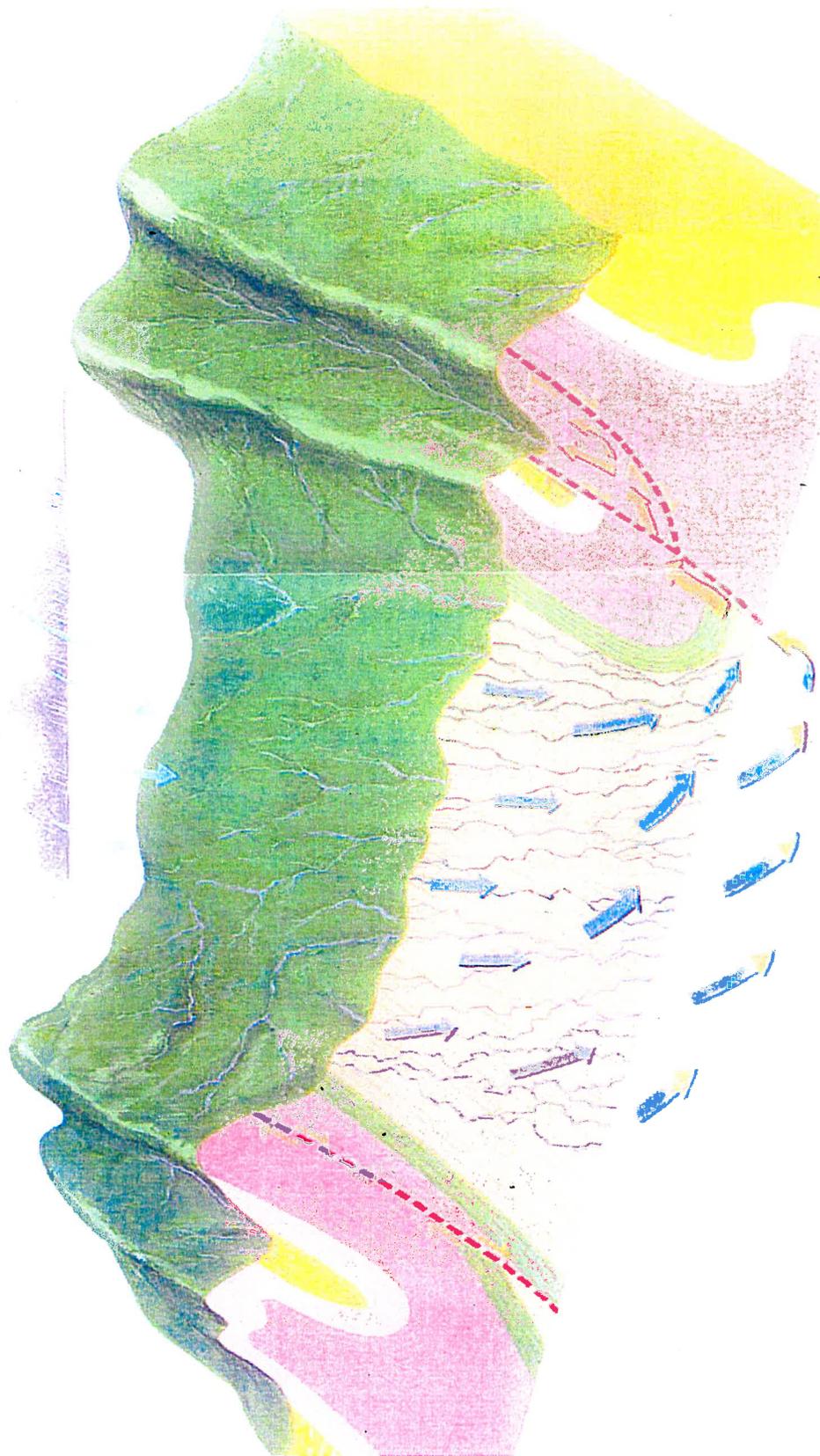


Figure 18: Meteoric water percolates through the Big Fork Chert, and to a lesser extent the Arkansas Novaculite, of the Hot Springs recharge area. After remaining at depth for hundreds of years, the water makes a year's journey through the faulted sedimentary rocks – resurfacing via the Hot Springs Sandstone.

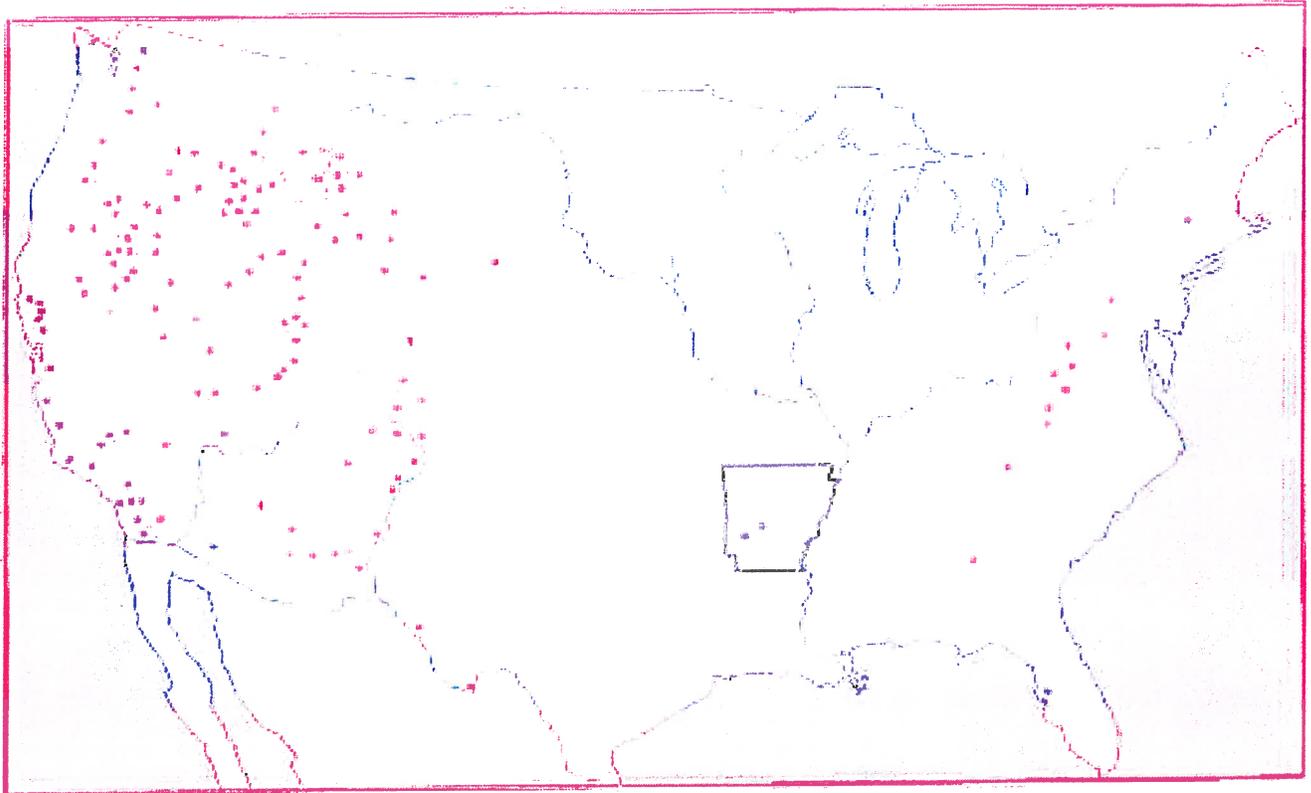


Figure 19. Thermal springs in the contiguous United States

Thousand Dripping Springs and the small unnamed spring along Denise Lane, and their recharge area (see Figures 20 - 22) are within the Big Fork Chert Formation (Middle Ordovician era), which is approximately 650 feet (198 meters) in thickness and is the primary aquifer in the area. Due to heavy fracturing, this formation acts like a sponge in collecting water, indicating it is fed, in part, meteorically. Due to faulting of lower units, older geothermal water migrates into the formation. In discussion with the Arkansas Geological Commission (AGC), removal of soil and /or rock will not render these springs without water. However, depending on blasting and removal of material, the flow pattern of the springs could change. This is due to the irregular nature of the conduits bringing the water to the surface in an aquifer that depends on a fracture porosity.

The Arkansas Geological Commission (AGC) recommends that the recharge area for Thousand Dripping Springs be avoided. This recommendation is based upon AGC staff experience in this area for the last 35 years.

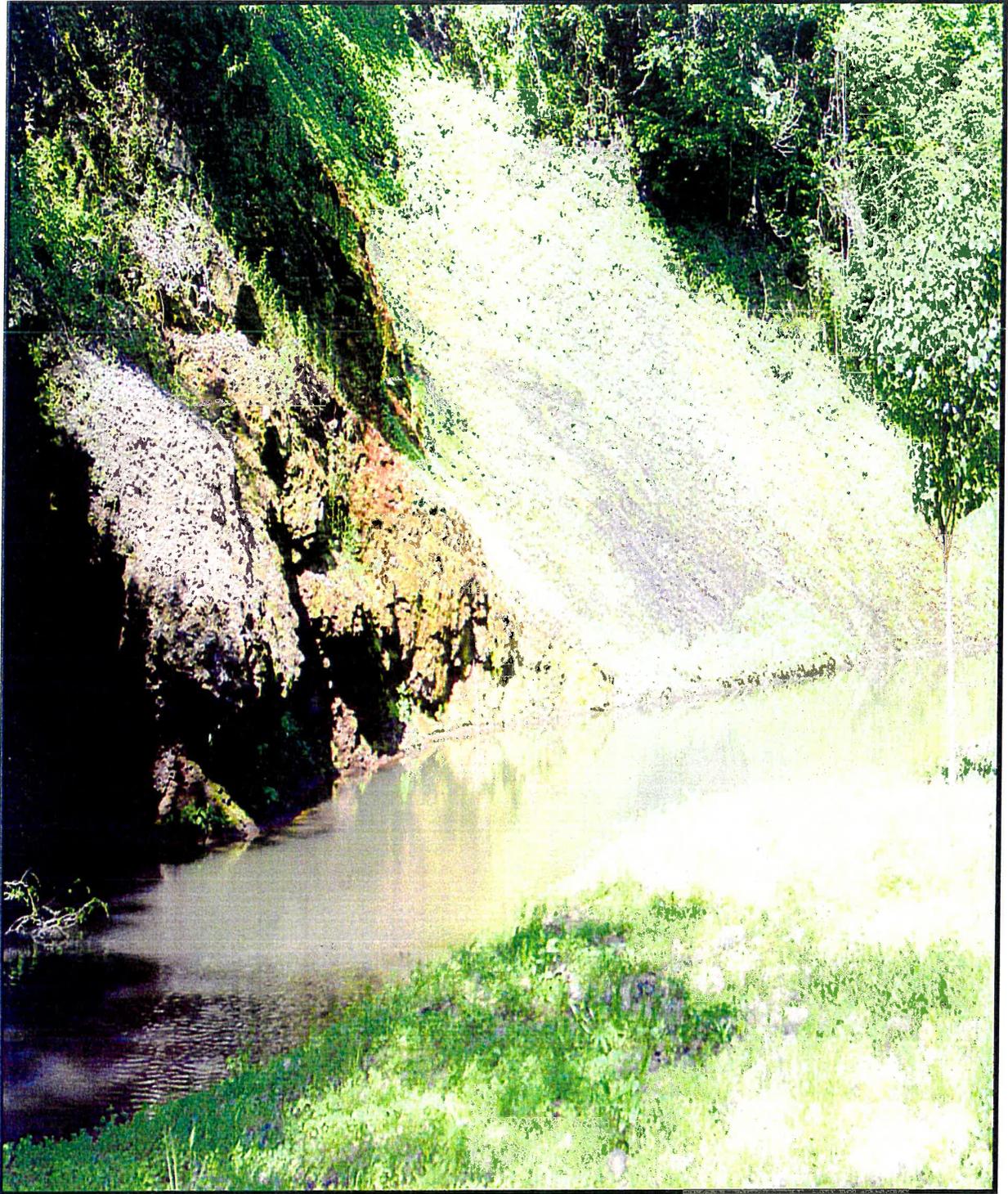


Figure 20: Thousand Dripping Springs.

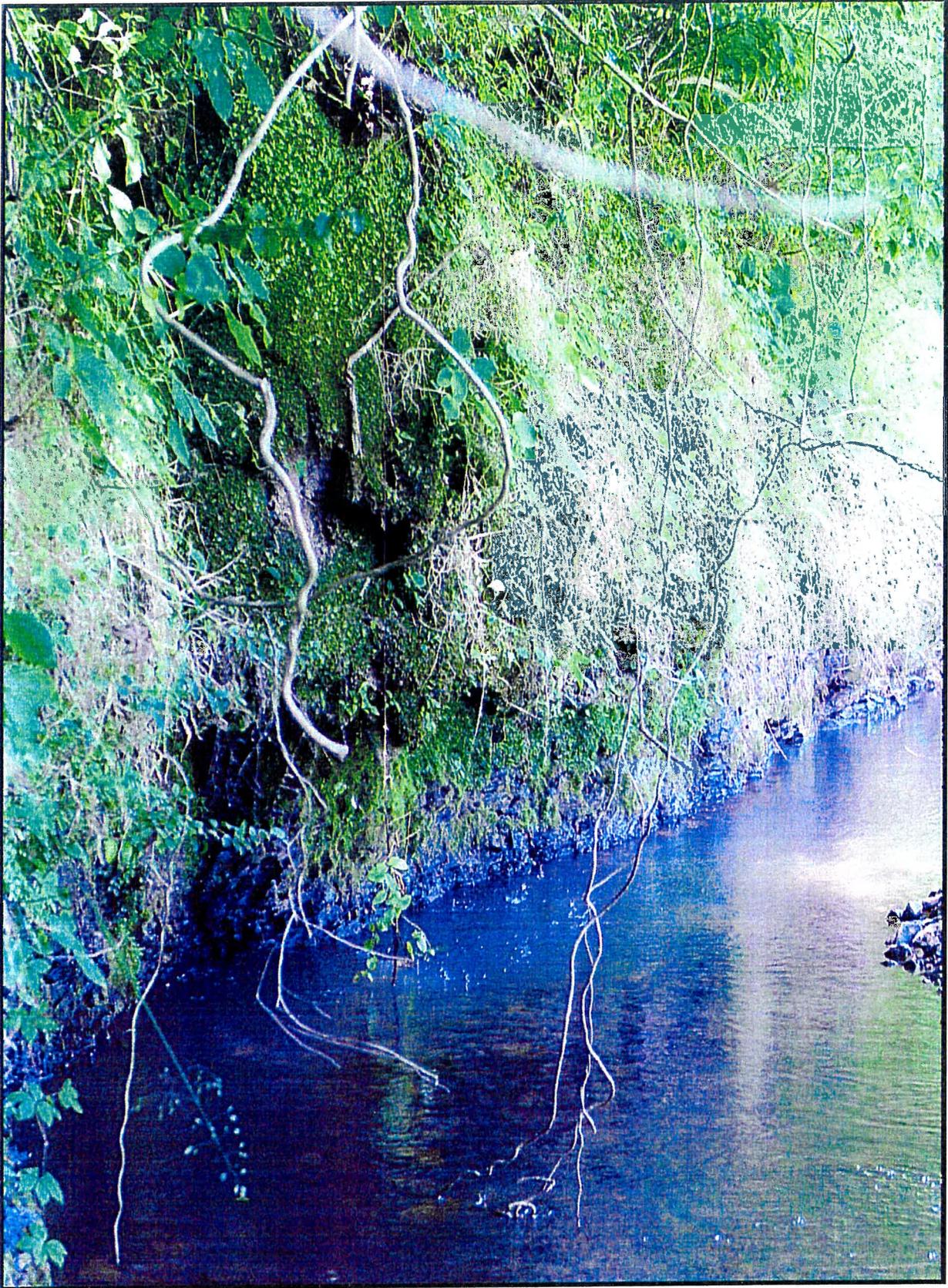


Figure 21: Thousand Dripping Springs.



Figure 22: Unnamed spring located along Denise Lane. At the time photo was taken, locals were acquiring water.

Public / Private Water Supplies

The project area is not within a public drinking water system's Wellhead Protection Area. No impacts to public drinking water supplies are anticipated due to this project. If any permanent impacts to private drinking water sources occur due to this project, the Department will take appropriate action to mitigate these impacts. Impacts to private water sources due to contractor neglect or misconduct is the responsibility of the contractor.

Wild and Scenic Rivers

The northern end of this project enters the protective buffer of the South Fork Saline River. ADEQ regulates the South Fork Saline River as an Ecologically Sensitive

Waterbody. An Ecologically Sensitive Waterbody is identified as a segment known to provide habitat within the existing range of a threatened, endangered, or endemic species of aquatic or semi-aquatic life forms. Erosion control plans for this project will be submitted to the ADEQ for approval. No significant impacts will occur to this waterbody due to the project.

Public Lands

Based upon current available data, no public lands or Section 4(f)/6(f) issues are anticipated to be involved with this project.

Air Quality

Utilizing the Mobile 5.0a Model (Mobile Source Emission Factor Model) and CALINE 3 dispersion model, air quality analyses have been conducted for carbon monoxide on previous projects of this type. These analyses incorporated information relating to traffic volumes, weather conditions, vehicle mix, and vehicle operating speeds to estimate carbon monoxide levels for the design year.

These computer analyses indicate that carbon monoxide concentrations of less than one part per million (ppm) will be generated in the mixing cell for a project of this type. This computer estimate, when combined with an estimated ambient level of 1.0 ppm, would be less than 2.0 ppm, and well below the national standards of 8.0 ppm for carbon monoxide.

This project is located in an area that is designated as in attainment for all transportation pollutants. Therefore, the conformity procedures of the Clean Air Act, as Amended, do not apply.

Noise

With the completion of this project, existing ambient noise levels are anticipated to increase due to the established presence of thru traffic on the proposed roadway. Noise level increases will also be a result of traffic volume increases during the planning period (Year 2024). However, noise predictions have been made for this project utilizing the FHWA's Traffic Noise Model (TNM 2.0) procedures, and these procedures indicate that

noise levels are not above the FHWA noise criteria beyond the project's proposed right of way limits. Therefore, no sensitive receptors will be adversely impacted. In addition, based upon existing development, no sensitive receptors are anticipated to be impacted during the planning period. Further, because this project involves the construction of a roadway on new location, existing ambient noise levels were measured at various representative locations along the proposed project location. Seven noise samples were taken and the date, approximate locations and results of these samples are documented in Table 4. In addition, no project related noise impacts are anticipated, and in compliance with Federal guidelines, local authorities will not require notification.

Table 4

Results of ambient noise readings taken Thursday, June 17, 2004.

Sample Name	Approximate Location	Leq Reading (dBA)
Sample 1	Near the southern end of the project; within a trailer park along Red Fern Pl.	52.9
Sample 2	Near the southern terminus of Alternative Alignment B in a rural residential area along Turpen Lane.	43.0
Sample 3	Near the southern terminus of Alternative Alignment A along Jericho Road.	39.6
Sample 4	Near the mid-section of Alternative Alignment A along Mill Creek Road.	50.8
Sample 5	Near the northern terminus of Alternative Alignment A along Quarry Mountain Road.	39.0
Sample 6	Near the northern terminus of Alternative Alignment B along Alydar Trail.	43.0
Sample 7	Near the mid-section of Alternative Alignment B along Mill Creek Road.	60.0

COMMENTS AND COORDINATION

Public Involvement Overview

Public involvement sessions and interagency coordination with Federal, state and local agencies were essential for the development of the two proposed alternatives. Procedures approved by FHWA and undertaken by the AHTD to carry out a public involvement/public hearing program were pursuant to 23 U.S.C. 128 and 40 CFR Parts 1500 through 1508. Standard public involvement procedures followed by the AHTD provided coordination with the public and other agencies concerning the NEPA process.

The AHTD provided an opportunity for early public input into the development of the proposed project. On April 29, 2003 and December 9, 2003, public involvement sessions were held at Fountain Lake High School in Fountain Lake, Arkansas. Newspapers, flyers, and public notices were used to advise the public when and where these sessions would be held. Visitors were given the opportunity to discuss the proposed project, view aerial photographs showing possible locations and submit written comments concerning the project.

Public Involvement Comments

The first Public Involvement Session was attended by 110 citizens. Questionnaires and project corridor maps were distributed at the public involvement session and 62 written comments were received. Additional comments were received several days later via the mail.

The second Public Involvement Session was attended by 130 citizens. Questionnaires were available and four alternatives (A, B, C and No-Build) were displayed at the public involvement session. There were 43 written comments received at the second meeting. One hundred ninety-eight additional written comments were received several weeks later via the mail. Copies of both public involvement session summaries, sample questionnaires and related public involvement materials are located in Appendix E. General comments received with AHTD responses are as follows:

- Concerns with negative impacts to the area as related to noise.

Response: Noise impacts will be minimized to the extent practicable.

- Concerns with negative impacts to the area as related to safety.

Response: By providing a controlled access roadway, errant and unauthorized vehicular traffic will be substantially removed, lessening the likelihood of severe crashes. In addition, appropriate spacing for local road connections will be utilized to increase safety on and around the selected alignment.

- Concerns with negative impacts to the area as related to property values.

Response: No evidence exists to support the assumption that residential property will be devalued by the project. In many cases, property values increase due to the proximity of highway facilities.

- Concerns with keeping the route(s) mostly in the western section of the corridor causing land severance and disruption of current land uses.

Response: As a response to the first Public Involvement Meeting, a more easterly Alternative B was considered as a viable choice to the originally proposed routes. Because there are smaller tracts and parcels of land along Alternative A, there will be increased land severance. Alternative B consists of larger property tracts due to tree farming operations, and land severance should be less severe. Land severance will be minimized, where possible, by routing along property boundaries.

- Concerns with impacts to Thousand Dripping Springs including wetland impacts and flooding.

Response: Erosion control measures such as erosional screening, ditch checks, earthen berms and sediment catch basins will be implemented to lessen the impacts to Thousand Dripping Springs. In addition, Alternative A would avoid the recharge area for Thousand Dripping Springs. Another small unnamed spring located along Denise

Lane will be designated as environmentally sensitive and avoided (see Wetlands and Waters of the United States Section). Professional hydraulic and engineering studies are conducted when projects are within the floodplain of waterways. Bridges and culverts will be designed to minimize hydraulic impacts to the drainage system, including flooding.

- Probable existence of cultural resource sites in the project area.

Response: Cultural resources sites have been identified and impacts to these sites have been minimized through the Quantm alignment selection process and design augmentation. An in-depth report of those sites within the proposed alternative will be submitted to the Caddo Nation and the State Historic Preservation Officer. All parties involved will determine if mitigation is needed for these cultural sites.

- Concerns with having access to Mill Creek Road from the proposed project.

Response: One hundred ninety-seven (197) comments out of a total 243 comments (81%) received for the second Public Involvement Meeting requested an access be designed at Mill Creek Road. This access will be addressed during survey and design.

Interagency Coordination

The AHTD coordinated this project with the U. S. Army Corps of Engineers, Vicksburg District, U. S. Fish and Wildlife Service (USFWS), Arkansas Natural Heritage Commission, the Arkansas Game and Fish Commission (AGFC), the Arkansas Department of Health (ADH), Arkansas Department of Environmental Quality (ADEQ), the Arkansas Soil and Water Commission, the Arkansas Geological Commission, Southwestern Bell Telephone and Centerpoint Energy (see Appendix D). An archeological survey report will be sent to the Caddo Nation and the State Historic Preservation Officer (SHPO) after an alignment is selected and detailed design becomes available. As more detailed design information becomes available, a Section 404 Permit will be requested from the U. S. Army Corps of Engineers.

COMMITMENTS

This section contains a summary of the commitments that are presently in use at the AHTD and have been mentioned in this document to minimize potential impacts associated with the construction of this project. AHTD's standard commitments associated with caves and cave resources, cultural resources, hazardous materials, pollution prevention measures, relocation procedures, terrestrial flora, terrestrial fauna, water quality, water supplies and groundwater protection and wetlands and waters of the United States and floodplains have been committed in association with this project. They are as follows:

Caves and Cave Resources

In the event construction operations encounter any indications that a cave has been discovered, work will immediately be discontinued in the area, access shall be denied, and the area secured to prevent unauthorized entry. The USFWS will be contacted for the proper procedures to be followed and examination of the cave(s) to determine usage by any listed species.

Cultural Resources

Once an alignment is selected, a final intensive cultural resources survey will be conducted. A report documenting the results of the survey and stating the AHTD's recommendations will be prepared and submitted to the SHPO for review. If Native American sites are identified within the proposed impact zone, consultation with the Caddo Tribe will be elevated and the site or sites will be evaluated to determine if Phase II testing is necessary. Should any affected site or sites be found eligible or potentially eligible for nomination to the National Register of Historic Places and avoidance is not possible, site specific data recovery plans will be prepared and data recovery will be carried at the earliest practicable time.

Hazardous Materials

The project will require the acquisition and demolition of standing structures. An asbestos survey by a certified asbestos inspector will be conducted on each building prior to the development of demolition plans. If the survey detects the presence of any asbestos containing materials, plans will be developed to accomplish the safe removal of these materials prior to demolition. All asbestos abatement work and their associated notifications will be conducted in conformance with ADEQ, EPA and Occupational Safety and Health Administration (OSHA) asbestos abatement regulations.

Field inspections found no evidence of underground storage tanks (USTs) in the project area. Because the area has numerous small illegal dumps, the likelihood of encountering additional dumpsites is possible. During construction, if hazardous materials, unknown illegal dumps or USTs are identified or accidentally uncovered by any AHTD personnel or it's contracting company(s), the AHTD will determine the type, size, and extent of the contamination according to the AHTD's response protocol. The AHTD in cooperation with ADEQ will determine the type of contaminant, remediation method, and disposal methods to be employed for that particular type of contamination.

The AHTD's *Standard Specifications for Highway Construction, Edition of 2003* will be utilized during construction of the project requires the contractor to employ best management practices to prevent pollution by spills; proper use, storage, and disposal techniques; and limits the amount of hazardous materials stored on-site.

Pollution Prevention Measures

Pollution prevention is comprised of reducing, reusing, and recycling materials in a cost effective manner that will greatly reduce the potential for pollutants entering the environment from the work zone.

Reduction of hazardous materials that may be used in the construction project is of prime importance. By not using certain chemicals, components, or ingredients known to be of a toxic nature, the AHTD is reducing possible environmental consequences. A key responsibility of the AHTD is to see that the contractor does everything within their

powers to reduce the usage of potentially hazardous materials in the field. Reuse of construction materials has proven to be a financial incentive to the contractor.

Another aspect of pollution prevention is usage of recyclables in road building applications. The AHTD does allow the addition of fly ash in cement mixes. Certain classes of concrete can accept 15% by weight of fly ash to the concrete mix. Granulated blast furnace slag (25%) is also accepted in certain types of cement mixes. Even the addition of rubber to asphalt in hot-mix asphalt containing crumb rubber modifiers is sometimes used. In some states the usage of crushed glass is acceptable; however, in Arkansas such a program is not in place.

The AHTD does allow 15% recycled asphalt pavement and even up to 30% recycled asphalt to be added to virgin asphalt. Mulch tackifiers are made from recycled newsprint or other paper products. The reuse of rubblized concrete as an aggregate has been used by the AHTD in past interstate projects. The feasibility of using rubblized concrete for this project is limited due to the source of concrete and its economics. The AHTD will allow the usage of recyclable materials in road construction where they will yield economic, engineering and environmental benefits. If the contractor wishes to use recyclable materials, a written statement of the type, quantity and where the material is to be used will have to be submitted to the Chief Engineer.

In addition, pollution prevention addresses discovery situations that sometimes occur. In these instances, immediate action is taken to assure that pollutants are immediately contained, identified and remediated. In those instances where a contractor or AHTD personnel are exposed to a potential health and/or safety hazard due to an unforeseen event, Section 107.10 Restraining Conditions will be utilized to address the hazard. Just because a site is isolated or looks clean, or is in constant use, there is no guarantee of the absence of harmful materials. Highway construction may be the very thing that disturbs such materials and makes them active.

The effective use of the AHTD's specifications concerning Pollution Prevention guide the AHTD and our contractors in preventing unwanted environmental problems. By limiting the pollution generated by construction and having measures in place to

address unforeseen accidents, the AHTD is striving to preserve, protect and beautify the affected environment.

Relocation Procedures

AHTD relocation procedures located in Appendix C will be followed.

Terrestrial Fauna

In keeping with a context sensitive design, animal crossings may be implemented to reduce the potential for vehicular accidents and to provide safe passage for larger mammals at established crossings. Crossing areas will be identified by the Environmental Division once the alignment and design parameters are selected. Provisions may be made in the design of the concrete barrier walls in such a manner as to allow smaller fauna safe passage. Possible installation of barrier fencing leading to box culverts, bridges and other suitable crossings may be included in project design if appropriate.

Water Quality

The AHTD will comply with all requirements of the Clean Water Act, as Amended, for the construction of this project. This includes Section 401: Water Quality Certification, Section 402: National Pollutant Discharge Elimination Permit (NPDES), and Section 404: Permits for Dredged or Fill Material.

The Federal Water Pollution Control Act declares the discharge of any pollutants in the waters of the United States from any point source as unlawful, except under the terms of and conditions of a permit issued under the NPDES.

Any construction disturbing an area of one acre (0.4 hectare) or more in Arkansas is required to comply with NPDES regulations for storm water discharge from construction sites as issued by the ADEQ. The AHTD will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the permit. Before construction begins, the AHTD will file the requisite Notice of Intent

with ADEQ. The SWPPP will include all specifications and BMPs needed for control of erosion and sedimentation. This plan will be prepared when the roadway design work has been completed in order to best integrate the BMPs into the project design.

General measures to manage highway storm water runoff include litter control, management of deicing chemicals and herbicides, establishment and maintenance of roadside vegetation, and reducing direct discharges to receiving water, wherever practicable. Because the area is known to provide recharge to the Hot Springs National Park springs, herbicides will not be broadcast in known recharge areas or in losing streams.

Specific measures to be considered and used for management of a potential pollution problem include grassed channels, overland flow through vegetation, wet detention basins and silt basins with wetland species established.

If a material spill should occur during construction, clean-up procedures are outlined in the AHTD *Standard Specifications for Highway Construction, Edition of 2003*. Upon completion of the project, measures will be taken to ensure accidental spill and runoff controls are handled swiftly and carefully. The Arkansas State Police, the Arkansas Highway Police, the AHTD, and the Arkansas Department of Emergency Management manage accidental spills of hazardous materials. The Arkansas Department of Emergency Management can be reached at these numbers:

Main Switchboard.....501-730-9750
Fax.....501-730-9754
Incident/Disaster Reporting.....501-730-9751
Incident/Disaster Reporting.....1-800-322-4012

Water Supplies and Groundwater Protection

The alignments could impact existing springs either by disruption of their recharge areas or contamination during construction. This potential relates to the irregular flow patterns associated with fracture porosity. Also, this type of porosity relates to relatively rapid transmission of water that can contribute to the rapid transmission of any contaminants. Special provisions and design avoidance will be

required to protect the small unnamed spring along Denise Lane, that lies within Alternative A.

Any impacts to existing water supplies associated with the proposed project will include an assessment of water supplies before and after construction.

Wetlands and Waters of the United States

- Springheads will be avoided to the maximum extent practicable
- Barrier tape and restrictive construction limits will be utilized in areas where springs are present
- All dredged material not used as backfill will be placed on land and no runoff water from the disposal site will be allowed to enter the waterway
- The discharge from any construction site will not be located in the proximity of a public water supply intake
- Temporary work ramps or haul roads, when needed, will provide sufficient waterway openings to allow the passage of expected high flows
- The contractor will take precautions in the handling and storage of hazardous materials including lubricants, oils, fuels to prevent discharges or spills that would result in water quality degradation
- Sufficient bridging and/or drainage structures will be provided to minimize adverse effects from backwater situations
- Sufficient bridging and/or drainage structures will be provided to minimize increases in velocity
- Minimizing Channel alterations will be minimized to the maximum extent practicable
- Adequate and timely erosion control to minimize erosion, sedimentation, and using standard specifications for controlling work in and around streams to minimize adverse water quality impacts.

Floodplains

The final project design will be reviewed to confirm that the design is adequate and that potential risk to life and property are minimized. The project will not support incompatible use and development of the floodplain. Adjacent properties should not be impacted nor have a greater flood risk than existed before construction of the job. None of the encroachments will constitute a significant floodplain encroachment or a significant risk to property and life.

Federal Procedures and Permits Required before Construction

The following procedures must occur before implementation of the project:

- The issuance of a Section 404 permit by the U. S. Army Corps of Engineers, for the placement of dredged and fill material in waters of the United States as required by Section 404 of the Clean Water Act.
- The issuance of a Section 401 Water Quality Certification by the Arkansas Department of Environmental Quality as required by the Clean Water Act.
- The issuance of a National Pollutant Discharge Elimination System (NDPDES) Permit by the Arkansas Department of Environmental Quality as required by Section 402 of the Clean Water Act.
- Completion of the Section 106 process for consideration of historic properties conjunction with the Arkansas Historic Preservation Program and the Advisory Council on Historic Preservation.
- Continued coordination with the Caddo Tribe during the planning and construction stages of the project.

RECOMMENDATION

A preferred alternative has not been designated for this project. After the Environmental Assessment (EA) is signed and approved for public dissemination, a Location Public Hearing will be held. Factors in selecting an Alternative will include public input, the Quantm system, environmental constraints, relocatees, and project costs.

The deliberation and time spent to select these alternatives was made easier by input from the public, local officials and early coordination with state and Federal agencies. Without public and agency input, constraints within the project corridor could have been unidentified and never taken into consideration. The public was a key source of information concerning the corridor. All written comments from both Public Involvement Meetings were read, categorized, and summarized to aid the AHTD in choosing alternatives for the Environmental Assessment.

The use of the Quantm System for producing preliminary design of alternatives was instrumental in choosing alternatives which would serve the public and minimize impacts to the environment. By using the Quantm system, the AHTD was able to evaluate and discard 1,338 different alternatives and choose two for further consideration. In developing an alternative that could be advanced through planning, environmental, design, and construction stages, the AHTD considered identified needs, engineering constraints, environmental constraints, traffic safety, capacity improvement and public involvement. In addition, the approach considered topography, future travel demand, and other infrastructure improvements. The major benefit of using the Quantm system was the reduced time in generating alignments, a better estimation of costs, producing preliminary construction limits and refining the design overnight to reflect updated constraint information. The Quantm system allowed environmental personnel the opportunity to look at the proposed project limits, in the office and especially out in the field.

Constraints that played a major role in development of Alternatives A and B were cuts and fills to the mountainous topography, perceived impacts to the viewshed along the proposed route, multiple utility line crossings and avoidance of archeological sites. In addition, environmentally sensitive areas such as Thousand Dripping Springs and its related recharge area, a smaller unnamed spring, a historic graveyard and a large landfill will be missed by both Alternatives A and B. Known archeological sites in the project study corridor and along Indian Mountain guided Alternative A's final location. The proposed Alternative A will impact only minor archeological sites along Indian Mountain. If Alternative B is selected, it will impact similar archeological sites requiring further mitigation and possible significant impacts. Larger stream impacts will occur if Alternative A is chosen (see Table 5).

According to the Relocation Study (Appendix C), there will be two residential owners and three businesses affected by Alternative A, having an estimated relocation

cost of \$115,500.00. Alternative B will affect four residential owners and three businesses, at a total estimated relocation cost of \$165,000.00.

Quantm allowed a cost analysis of proposed alignment changes to give the AHTD a better idea on how alignment changes could affect costs. Projected construction costs were quickly summarized by the Quantm system for a four-lane system. The costs tabulated by the system were the amount of cuts and fills, borrow material, waste material, base and surfacing, retaining walls, culverts, box culverts, bridges and many times tunnels. The projected construction costs did not include property acquisition, utility relocation, engineering design, personal property relocation, and other related right of way costs. The projected construction cost for Alternative A is \$115 million. The cost for Alternative B is \$158 million. The difference in costs between Alternate A and Alternate B is \$43 million.

Based on public input, estimated project costs, relocatees, and environmental constraints of the project, an alternative will be selected at a later date. No significant impacts to the natural and social environment are expected by the project. Therefore, the identified need justifies the construction of the project as proposed.

Table 5

Alternative Comparisons

Alternative	A	B	No Build
Length in miles (kilometers)	5.47 miles (8.8 kilometers)	5.66 miles (9.1 kilometers)	0
Construction Cost (Quantm)	\$105,306,000	\$151,924,000	0
Stream Relocation	<350 feet (<107 meters)	None	None
Stream Crossings	2 intermittents 3 perennial	2 intermittents 2 perennial	None
Residential & Business Relocations	2 Residential 3 Commercial	4 Residential 3 Commercial	None
Archeological Sites	Minor	Minor	No impact
Bridge lengths / Cost	3,550 feet (1,082 meters) \$11,360,000	1,900 feet (579 meters) \$6,080,000	0

REFERENCES

- Arkansas Department of Environmental Quality. 2002. Regulation No. 2, as Amended, Regulation Establishing Water Quality Standards for Surface Waters of the State Of Arkansas. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2003. Active Solid Waste Permits Database. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2003. Leaking Underground Storage Tanks Notice Information Database. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2003. Registered Storage Tanks & Facilities Database. Little Rock, Arkansas.
- Bedinger, M.S., Pearson, F.J., Jr., Reed J.E., Sniegocki, R.T., and Stone, C.G. 1974 The Waters of Hot Springs National Park, Arkansas -- Their Origin, Nature, and Management: U.S. Geological Survey Open-File Report, p. 13.
- EPA XINFO Map Server, U.S. Environmental Protection Agency, Region 10. Seattle, Washington. EPA Geographic Information Query System.
- Executive Order 11988. (42 FR 26951), 1977. Floodplain Management Policy.
- Executive Order 11990 (42 FR 26961), 1977. Protection of Wetlands.
- Executive Order 12898. (59 FR 7629), 1994. Federal Action to Address Environmental Justice in Minority Populations.
- Hanover, Jeffery S., 1980, Fire in Folded Rock, Geology of Hot Springs National Park: Eastern National Park and Monument Association, pp. 17, 21, 22, 23, 24, 25.
- National Park Service, 2002, Water Resources Scoping Report: Hot Springs National Park: National Park Service, Water Resource Division, Technical Report NPS/NRWRD/NRTR-2002/301, p. 10.
- Schlumberger Limited, 2003, Oil Field Glossary: accessed on February 11, 2004 at URL <http://www.glossary.oilfield.slb.com/Display.cfm? Term=geothermal%20gradient>
- U.S. Environmental Protection Agency, Region 6, Dallas, TX. 2003. CERCLIS3 Database, Active/Inactive Sites.
- U.S. Environmental Protection Agency, Region 6, Dallas, TX. 2003 WASTELAN Database, Site/Response Action Listing.
- U.S. Geological Survey. 1998. Ground Water Atlas of the United States; Segment 5.
- U.S. Geological Survey. 2003. Water Resources Data, Arkansas Water Year 2003. Little Rock, Arkansas

APPENDIX A

LEVEL OF SERVICE (LOS) DESCRIPTIONS

Two-Lane Highway

LOS A - LOS A represents traffic flow where motorists are able to travel at their desired speed. Passing is rarely affected and slower drivers delay drivers no more than 35% of the time.

LOS B - Traffic speeds in LOS B drop and drivers are delayed up to 50% of the time by other drivers.

LOS C - At LOS C, speeds are slower than at LOS B. Although traffic flow is stable, it is susceptible to congestion due to turning traffic and slow-moving vehicles. Drivers may be delayed up to 65% of the time by slower drivers.

LOS D - LOS D describes unstable flow and passing becomes extremely difficult. Motorists are delayed nearly 80% of the time by slower drivers.

LOS E - At LOS E, passing becomes nearly impossible and speeds can drop dramatically.

LOS F - LOS F represents heavily congested flow where traffic demand exceeds capacity and speeds are highly variable.

Multi-Lane Highway

LOS A - LOS A represents free flow conditions where individual users are unaffected by the presence of others in the traffic stream.

LOS B - Traffic flow in LOS B is stable, but other users in the traffic stream are noticeable.

LOS C - At LOS C, maneuverability begins to be significantly affected by other vehicles.

LOS D - LOS D represents dense but stable flow where speed and maneuverability are severely restricted.

LOS E - Traffic volumes approach peak capacity for given operating conditions at LOS E; speeds are low and operation at this level is unstable.

LOS F - Minor interruptions in the traffic stream will cause breakdown in the flow and deterioration to LOS F, which is characterized by forced flow operation at low speeds and an unstable stop-and-go traffic stream.

APPENDIX B

QUANTM PROGRESS REPORTS

FOR

MARCH AND APRIL 2004



Quantm Progress Report

March 2004

Report No.2

Highway 70 East to Highway 7 North

Ref. No. : 00109

***Arkansas State Highway and Transportation
Department***

Date Report submitted: 12 March 2004



Progress Report Sign-Off

Quantm Project Manager	Katherine Holtz	
Client Project Manager	Alan Meadors	
Date submitted	30 August 2004	
Report Sign-off		

Contract Progress

Date Contract Signed	April 14, 2003
Remaining months in contract period	7 of 18 month contract

Quantm Staff Assigned to Project

Project Manger	Katherine Holtz	(512) 560-8802 katherine.holtz@quantm.net
Client Services Engineer	Len Bettess	(702) 241-9350 len.bettess@quantm.net
Technical Service Engineer	John Lane	+613 9620 3445 john.lane@quantm.net

Client Staff Trained

Research PM	Chris Corbett	(501) 569-2195 Chris.Corbitt@ahtd.state.ar.us
Env. GIS Analyst	Robert Reed	(501) 569-2281 Robert.Reed@ahtd.state.ar.us
Senior GIS Coordinator	Linda Pearson	(501) 569-2668 Linda.Pearson@ahtd.state.ar.us
Planning Transportation Engineer	Nathan Young	(501) 569-2207 Nathan.Young@ahtd.state.ar.us
Civil Engineer IV	Phillip Rye	(501) 569-2385 Phillip.Rye@ahtd.state.ar.us
Senior Bridge DES Eng	Charles (Rick) Ellis	(501) 569-2135 Rick.Ellis@ahtd.state.ar.us



Planner	Brian Freyaldenhoven	(501)569-2386 Brian.Freyaldenhoven@ahtd.state.ar.us
Advanced Design Engineer	Kevin Toblesky	(501)569-2539 Kevin.Toblesky@ahtd.state.ar.us

Client Contacts

Contract Manager	Alan Meadors	(501) 569-2103 Alan.Meadors@ahtd.state.ar.us
Division Head, Surveys	Kit Carson, PE, PLS	(501)-569-2341 Kit.Carson@ahtd.state.ar.us
Administrative Assistant	Karen McDaniels	(501) 569-2070 Karen.McDaniels@ahtd.state.ar.us
Invoices	Carol Ward	(501) 569-2279 Carol.Ward@ahtd.state.ar.us



Contents

Progress Report Sign-off.....	2
Contents.....	4
1 Executive Summary.....	5
2 Project Objectives and Deliverables.....	6
3 Approach/Strategy.....	13
4 Issues/Problems.....	24
5 Project Actions.....	25



1 Executive Summary

Arkansas State Highway and Transportation Department (AHTD) is using research funding to assess the benefits of the Quantm system for the Highway 70 East to Highway 7 North project to the west of Hot Springs. The study area is approximately 5.5 miles in length in hilly and rural terrain. The five-day Quantm training program was conducted with AHTD on April 23-27, 2003.

Further refinement and analysis of alignments have occurred. Since June 1, environmental shape files have been added and original terrain data has been refined. AHTD evaluated environmental issues to determine if areas should be avoided or mitigated. Alignments were generated ignoring environmental zones and avoiding environmental zones in order to see the relative costs between the two options. Construction costs for tunnels were increased.

On June 4, 2003 the AHTD team began using Quantm Integrator version 4.654, and stopped using version 4.653.

At this stage, the significant benefits have been:

- Reduced planning study time
- A more accurate estimate for construction costs
- Evaluation of more variables earlier in the project planning stage
- Involvement of all team members earlier in the decision making process

Next steps:

- More accurate construction costs will be researched and determined
- Further refinement and analysis of corridors and alignments
- Alan Meadors is going to call a staff meeting to consider these draft objectives and what deliverables were achieved.

Updates to Initial Report

Report 2 – March 2004

Since July of 2003, additional scenarios have been created and optimized by Quantm which identified various special zones including environmental constraint zones. Quantm was able to optimize these new scenarios and provide the planners with cost comparisons of various possible alignments for future consideration by the team. See specifics in section 3 of this report.



2 Project Objectives and Deliverables

The purpose of this project is to create a new roadway route that bypasses the City of Hot Springs on the eastern side of the city, providing a quicker route from the south to subdivisions to the north. Congestion through the center of the tourist town of Hot Springs makes it very difficult for locals to maneuver in the area. The roadway will consist of a 2-lane travel surface with the eventual addition of two more travel lanes having a total right of way of 300' (interstate grade). The project objective at the outset of the contract was principally to, but not limited to, evaluate the most cost effective route within a corridor and analyze all the different variables considered in the selection process.

In addition, an initial project objective was to use Quantm output to assist in the preparation for a Public Involvement Meeting – 29 April 2003.

“AHTD will have information they have never had before at this stage of public meetings. This one-week of training has helped to prepare for this Public Involvement meeting.”

Following are the key objectives to be derived from the Quantm analysis, agreed upon by the project team during the training session, together with the deliverables to date:

1. Evaluate Quantm as an effective route selection tool.

Although a positive evaluation was achieved during the initial training, further ongoing usage and processing has been completed with the addition of more environmental site data and improved accuracy of the site data.

The first scenario modification since training added special areas:

- subdivision sw-avoid area but not avoid the corner
- mobile home park se-avoid area but not avoid corner
- road sw-road to be constructed for access
- mobile home park west-this is already in the western boundary avoid area
- spring recharge area-avoid
- road east-avoid area road to be constructed for access.
- road north-avoid road to be constructed.
- dump-avoid old dump site.



Modification of site location to improve location accuracy occurred for two streams, a country road and a spring recharge area.

Six operations files were submitted to produce over 300 alignments. Many routes were examined and further refinements occurred.

Report 2 – March 2004

Additional scenarios were created and ran which included the following new information

1. Scenario ARK_18
 - a. Changed special zones road east and road north to ignore instead of avoid
 - b. Made the spring recharge area larger on a recommendation from the environmental division
 - c. Moved the stream farther north and moved other features to more accurately represent actual field conditions
2. Scenario ARK 19
 - a. Changed spring recharge area to ignore so as to compare to costs from scenario 18 where set to avoid
3. Scenario ARK_20
 - a. Loaded additional environmental constraints included in special zone file ark_19_27_08_03. Set these new zones to avoid for this scenario
4. Scenario ARK_21
 - a. Set zones from ARK_20 now to ignore except
 - i. Substation,
 - ii. Redefined dump area
 - iii. Redefined spring recharge area
 - iv. Cemetery zone 22
 - b. Added small spring as avoid area



c. Changed cost of tunnel from \$25000 per foot to \$50000 per foot

5. Scenario ARK_22

a. Added quarry clusters 1,2, and 3 as avoid zones

2. Compare current selection process with the process using Quantm including the following components:

a) Planning time

It is estimated that approximately 1 year will be cut from the project planning time using the Quantm system.

b) Accuracy of estimate.

Typically accurate costs are not considered until the preliminary design stage. Initial cost estimates for the project (not based on any definitive data, and considered only in the horizontal, not the vertical) was \$8-11 million per mile.

The initial analysis demonstrates much improved input and alignment cost estimation, particularly in determining the relative cost difference from one corridor to another and then one alignment alternative to another. Costs for structures and earthworks have been modified 6 times, as more information becomes available. Tunnel costs were doubled to \$500,000 per linear foot because tunnels are undesirable for this project.

c) The quality and number of alternatives considered at the beginning of the planning stage.

This objective has been met.

3 Consider all variables

a) Managing complex environmental constraints

Data for several archaeological sites were available during training and an example of avoiding an archaeological site was performed. Many new sites were included in this work.

This objective has been met.

b) Demonstrating comprehensive investigation of alternatives



The corridor or 'unseeded' search and various refinement search options ensure the planners are better able to consider and analyse the objective issues and factors. During the one week training a total of 17 scenarios were created, millions of alignment alternatives were processed by the Quantm system and approximately 1,220 alignments were advanced to the planners for review, compared to just the initial 6 currently under consideration [after how many months of investigation?].

This period the Quantm user ran 6 operations files, including unseeded and intensive refinements.

This objective is met.

c) Meeting geometric standards in difficult terrain

Although not yet tested in detail, it is expected that some sensitivity testing of geometric criteria will be conducted throughout the study, in particular relating to maximum grade criteria. The following is one example of such testing figure 1.3.1 showing 5% grade alignment compared to a 6% grade alignment in figure 1.3.2. Because design criteria is provided in the first scenario, the Quantm application only allows alignments to be generated that meet this design criteria. The planner knows immediately from the initial stages of analysis that design criteria is being satisfied, rather than having to wait for the preliminary design phase to evaluate the alignments to see if they can meet geometric criteria.

While this analysis is not yet complete, note that this initial comparison indicates that allowing a change to a 6% grade may reduce the alignment construction cost by approximately \$5 million or 5%.

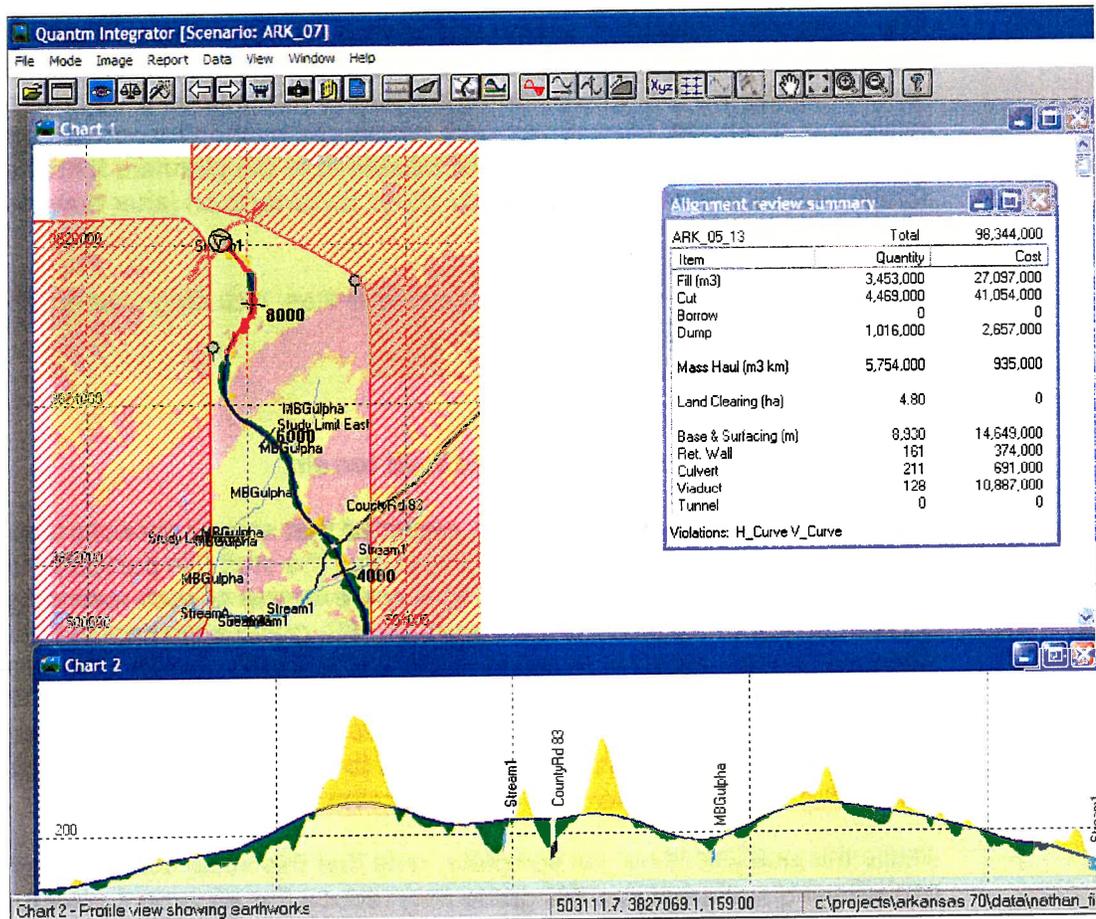


Figure 1.3.1 Alignment with maximum vertical grade of 5%

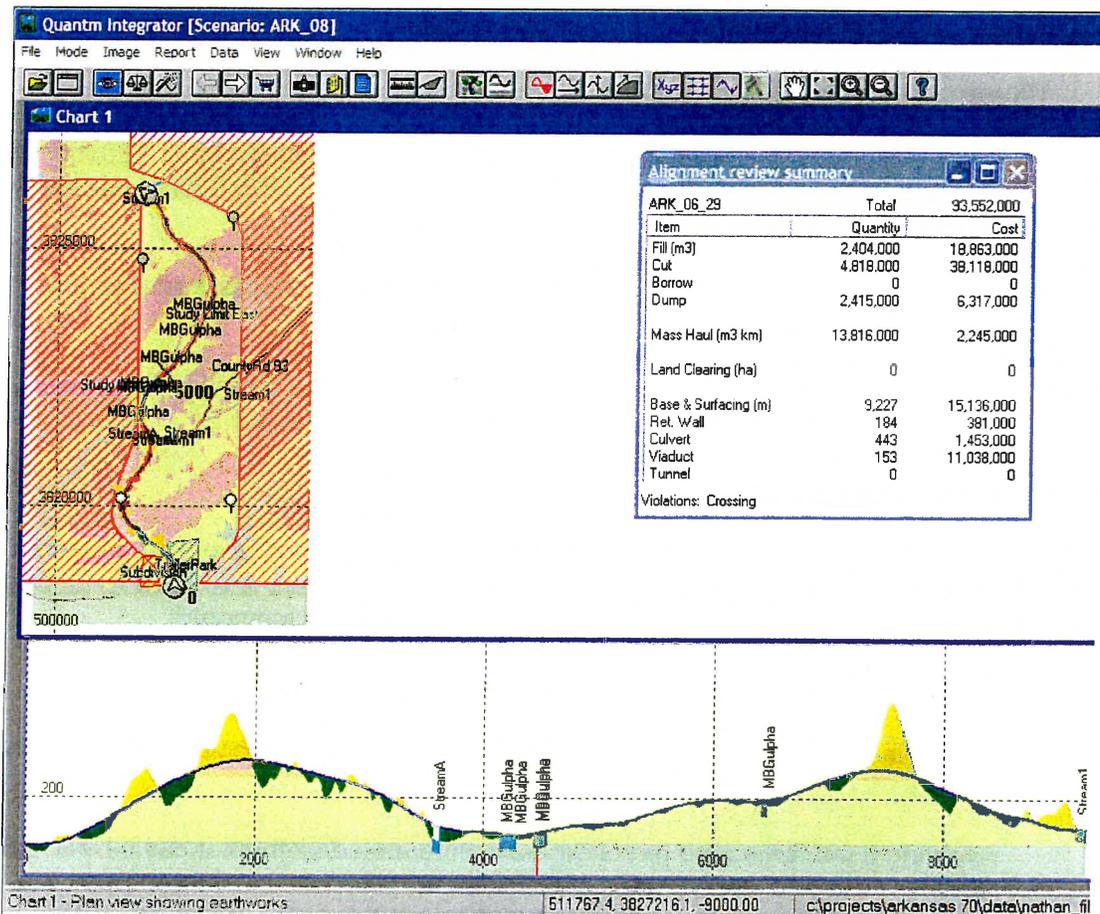


Figure 1.3.2 Alignment with maximum 6% vertical grade.

4. Support for the consultation process

The ability to demonstrate such an extensive analysis of alternatives across the study area will provide valuable support for the consultation process. This objective will be further demonstrated throughout the project.

5. Meet requirements of evaluating “all reasonable alternatives.”

The Quantm system allows for a much improved ability to analyse corridors and alternatives. Environmental issues can be considered earlier in the process. In just one week, approximately 1,220 alignments were considered.

Report 2 – March 2004

Since the previous reporting period, an additional 6 scenarios or 120 alignments were developed and reviewed which brings the total to 1340 alignments considered by the project team.

6. Better justification using facts to help community leaders and public understand the true costs of their decisions.

At the first public involvement meeting, none of the Quantm information was used. This objective will be demonstrated as the project proceeds.

Report 2 – March 2004

The team prepared various scenarios to compare costs of avoiding environmentally sensitive areas to ignoring them. By doing this they were able to develop costs for each of these areas as they impacted the cost of the alignment.

Examples:

Avoiding environmental areas (all 50 of them) increased cost by \$14 million to avoid them.

Avoiding the large spring recharge area increased alignment costs by \$15 million.

7. Environmental Justice - documentation of the reasons the preferred alignments were selected.

This objective was not considered by the project team yet.

8. Team approach - integrate all disciplines at the beginning of the planning process.

Early indications are a greatly improved relationship/interaction between the survey, environmental and design divisions and functions. The ability to input all known constraints at the front end and then progressively add new constraints as they are identified will be crucial in bringing all the key project team members together. Several groups were represented at the training stage, providing helpful input judgements, including:

GIS data staff; Planning Engineers; Bridge Engineer; Design Engineer; Environmentalist; Geologist; and Research Engineer.

9. Improve quality of planning information that is constrained now due to lack of resources (experience and manpower).



While the Quantm system will not replace the skilled planner, it has been demonstrated that it is a powerful support system that enables the planning team to manage complex project issues and comprehensively investigate alternative options. Existing resources will therefore be able to manage more projects through the application of the Quantm system.

10. Utilize information or data gathered from multiple sources - GIS, noise modelling, energy consumption, etc.

Information considered in this initial stage included geological types and zones from a USGS map and the AHTD's geologist, GIS data from aerial photography, known archaeological sites (Sensitive or High Priority) from environmental surveys, a quarry, locations of pertinent structures and waterways.

Report 2 – March 2004

During this reporting period, additional shape files of additional environmental constraints were developed and added to the special zone files for consideration in new scenarios.

11. Identify limitations or issues with the system

- a) Bridge abutment slopes are not calculated in determining bridge lengths.

Len Bettess took this feedback to the Quantm Research and Development team and this limitation was removed with the bridge abutments now being addressed, along with the associated earthworks within the abutment and the bridge length up to the abutment.

- b) Plan view showing limits of construction are not readily exportable.

Len Bettess took this feedback to the Quantm Research and Development team and this limitation was also address with exportable limitation figures.

3 Approach/Strategy

A new road is needed to service a subdivision north of Hot Springs and to by-pass busy and congested Hot Springs. AHTD determined the new route would be best on the east side of Hot Springs because of typical traffic patterns. AHTD also decided the terminus points of the project needed to be at Highway 70 East and Highway 7 North.

AHTD staff collected the digital data required and Quantm's technical team converted it to Quantm format for the training program. Unit costs and geometric input data was also gathered by AHTD to ensure all necessary information was available for the project specific training program.

During the training program, the group decided to make separate scenario runs for each item to be evaluated:

1. An unseeded, unconstrained run would be made using only engineering design criteria (Figure 3.1). The results of this run showed there would be no benefit to considering alignments outside of the study area.

[Scenario: Ark_01]
Parent scenario: Ark_00
Date/time created: 19/04/2003 18:39:40
Geotypes: Assumptions from Roadway.
Network File: Data from Roadway.
Costs File: From Bridge and Roadway.
Alignments using engineer parameters only
(without constraints).



Figure 3.1 Unseed, constrained by engineering only

- An unseeded run constrained in the study area with engineering criteria (figure 3.2). This run identified definite corridors. These initial alignments defined two tunnels of significant length (figure 3.3).

[Scenario: Ark_02]

Parent scenario: Ark_01

Date/time created: 22/04/2003 11:40:44

Defined Study Limits.

Objective: Compare with previous submission (ARK_01) that did not include Study Area constraints.

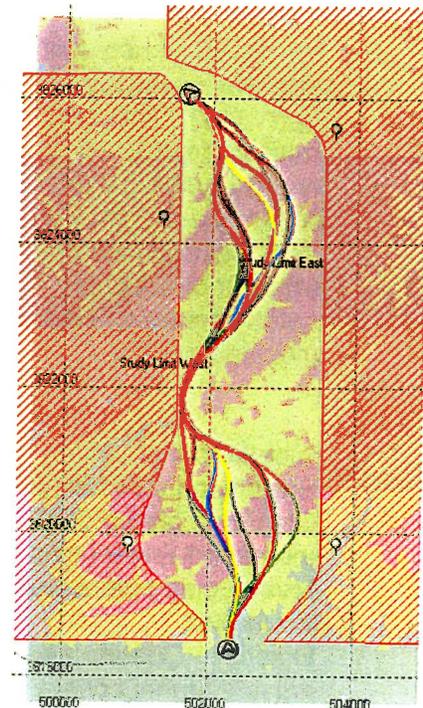
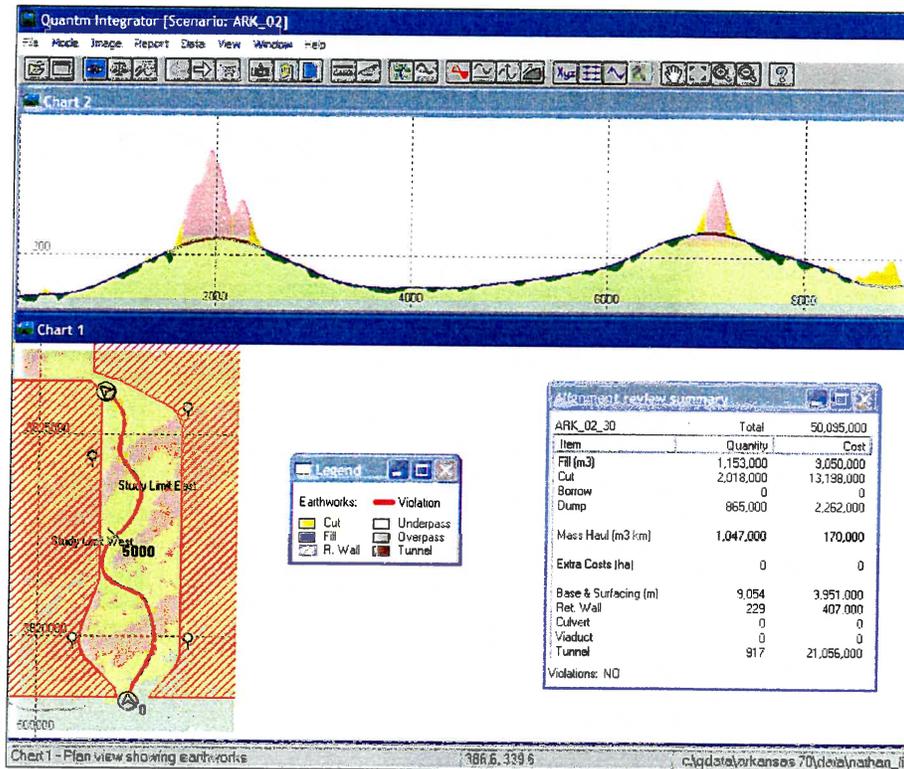


Figure 3.2 Unseeded in study area, constrained by engineering criteria.

Figure 3.3 Vertical Alignment of First Alternative



- The AHTD did not want to build tunnels so extra costs were included for tunnel construction (figure 3.4). This greatly reduced the amount of tunnelling from 917 feet to 130 feet with a cost savings of 60% for tunnelling (figure 3.5). Cut was increased from 2,018,000 CY to 3,934,000 CY almost doubling the cost of cut, and fill costs were almost doubled. This demonstrated an overall increase in projects construction cost, to minimize tunnels.

[Scenario: Ark_03]
 Parent scenario: Ark_02
 Date/time created: 22/04/2003 13:49:55
 Increased Tunnel costs.
 Moved guide points inside Study Area Boundary.
 Objective: Obtain new alignments using adjusted tunnel costs

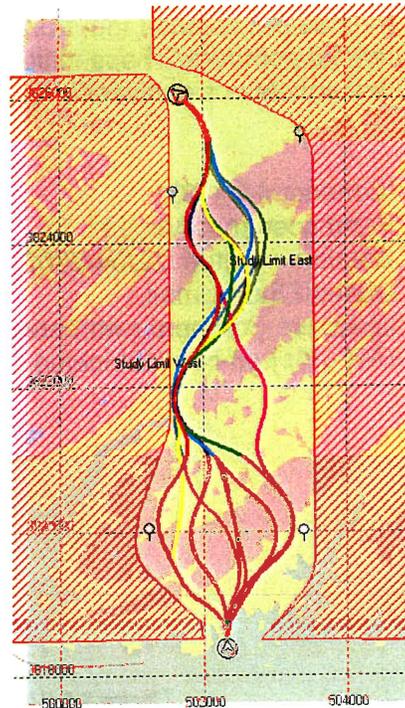
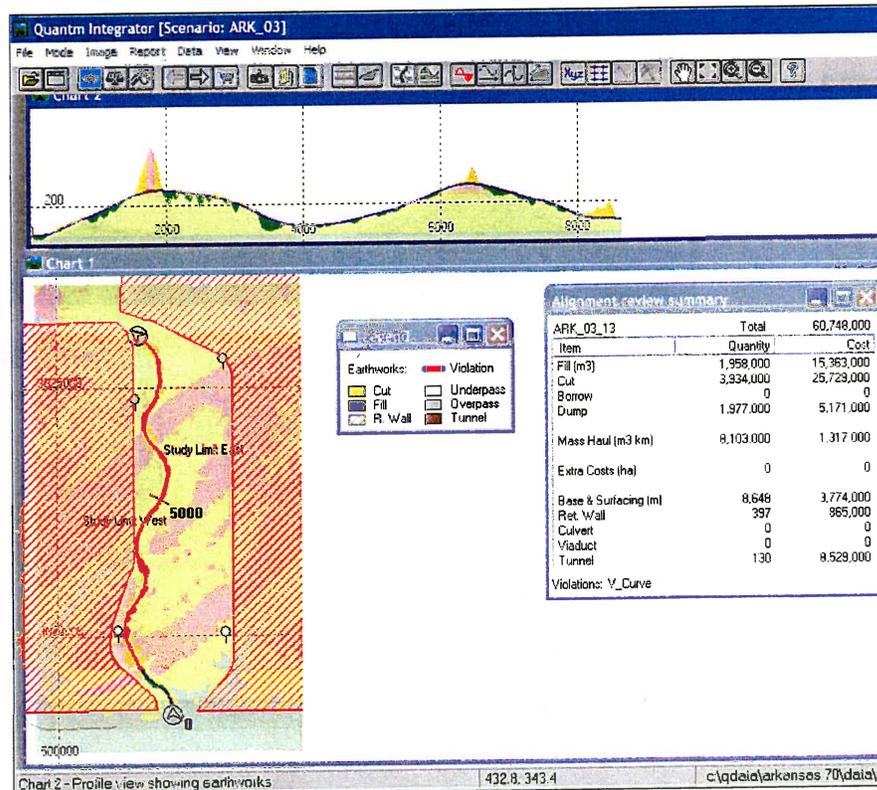


Figure 3.4 Increased tunnelling costs

Figure 3.5
 Vertical alignment of first alternative



4. Geological types and locations. Areas of hard rock were identified by the AHTD geologist (Figure 3.6.) The team decided to identify these areas of hard rock and place a higher cost on the square foot area to account for higher excavation cost. The team expected the selection process to try to stay away from these areas. However, the team determined that the system actually preferred to go through hard rock as a 1:1 slope was allowed, offsetting the extra cost by major savings in obtaining additional right of way.

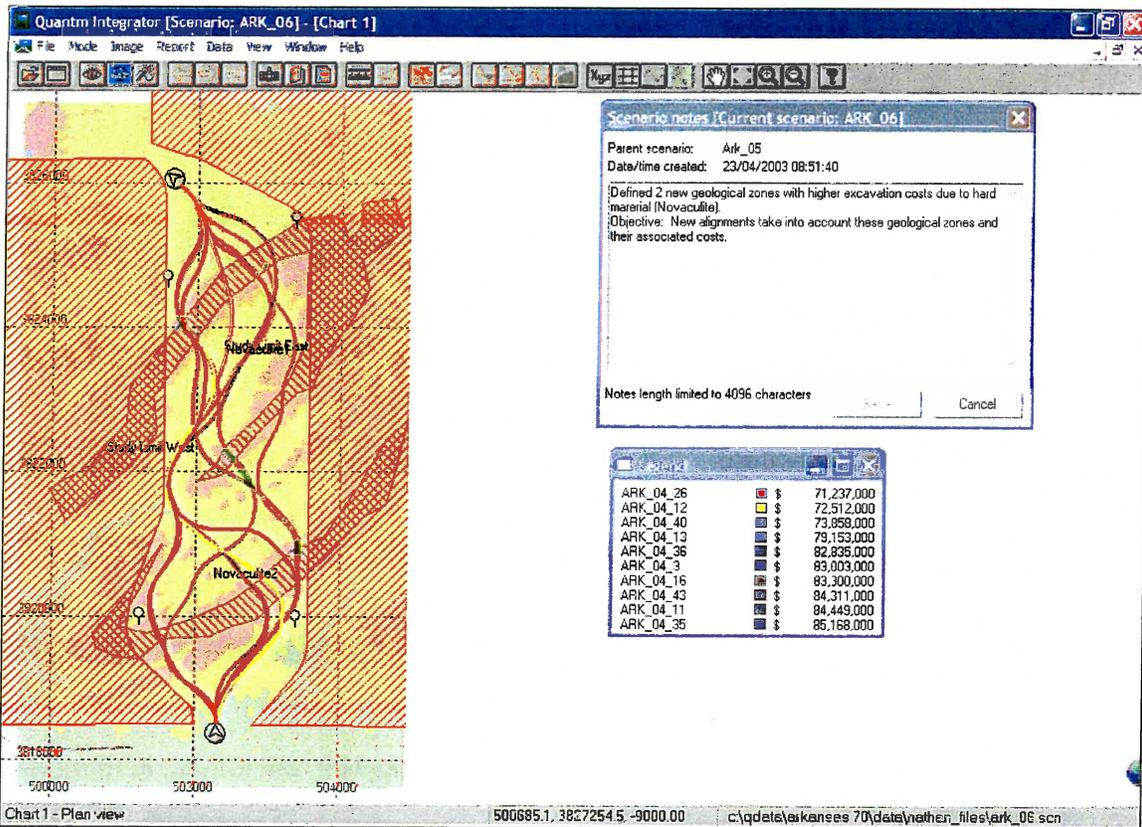


Figure 3.6 – Hard Rock geological zones entered.

5. Roadways were added along with crossing rules.
6. Stream crossings were identified and crossing rules were developed.
7. Subdivisions were given special treatment to avoid or take into account relocation costs. Figure 3.7. The subdivision marked in red was designated an avoid area, and the trailer park marked in blue was given minor mitigation costs for relocating homeowners. The system selected corridors totally to the east based on these criteria.

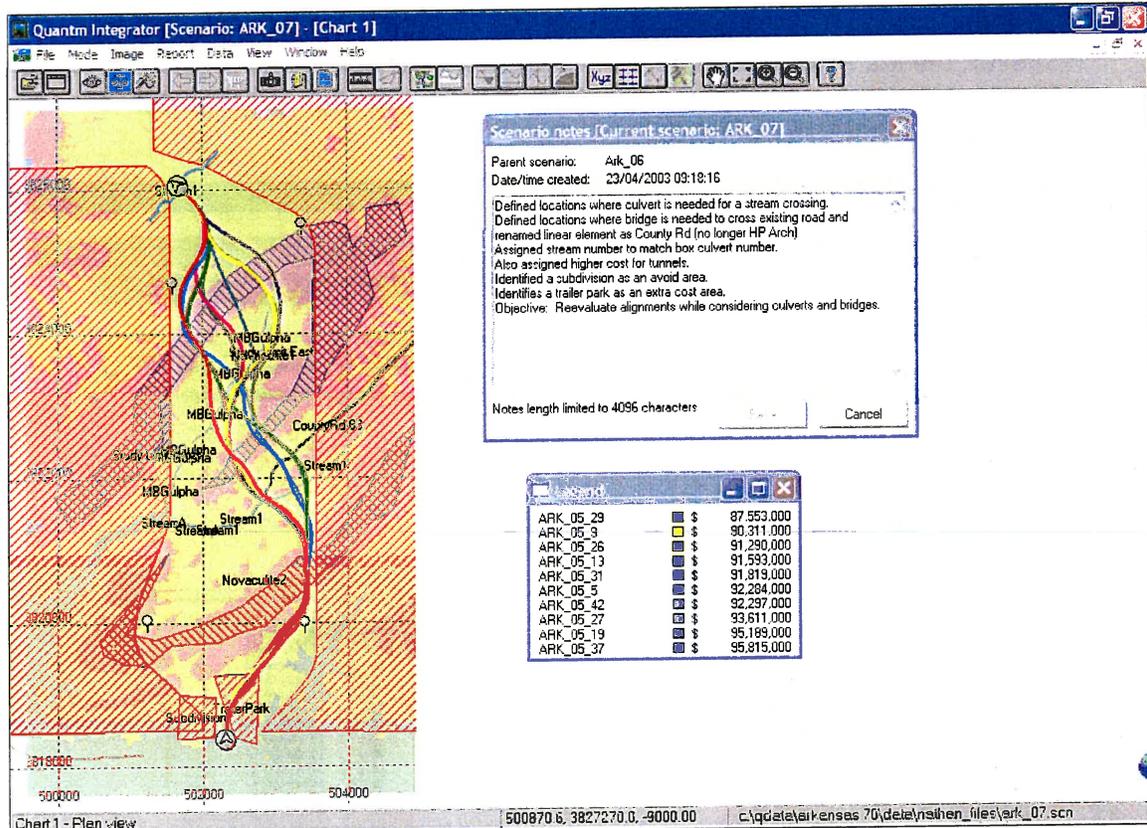


Figure 3.7 Special treatments of subdivision and trailer park

8. A special zone for archaeological site was added along with refinement of hard rock area locations.

Report 2 – March 2004

New scenarios run.

1. Special zones set as ignore: construct road e and construct road n. Enlarged spring recharge area based on new environmental data. Corrected placement of two streams and a road per new data too.

Results Roadway moved to avoid the enlarged spring recharge area. Price of lowest alignment increased \$3 million.

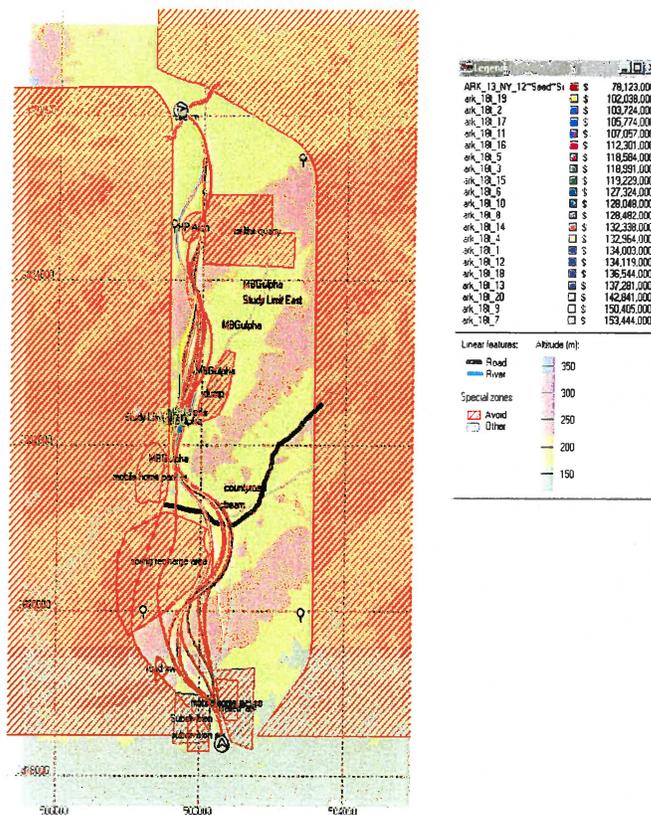


Figure 3.8 Scenario ARK_18

[Scenario: Ark_18]

Parent scenario: Ark_17

Date/time created: 02/07/2003 13:37:29

Changed special zones construct road E and road N to ignored from avoid areas. Enlarged spring recharge area based on input from environmental division, moved two streams and a road to more accurately represent area.

2. Changed spring recharge area from avoid to ignore for cost comparison.

Results Lowest cost alignment = \$86.2 million compared to \$102 million to avoid the spring recharge area. Thus the cost to avoid the recharge area is \$15 million.

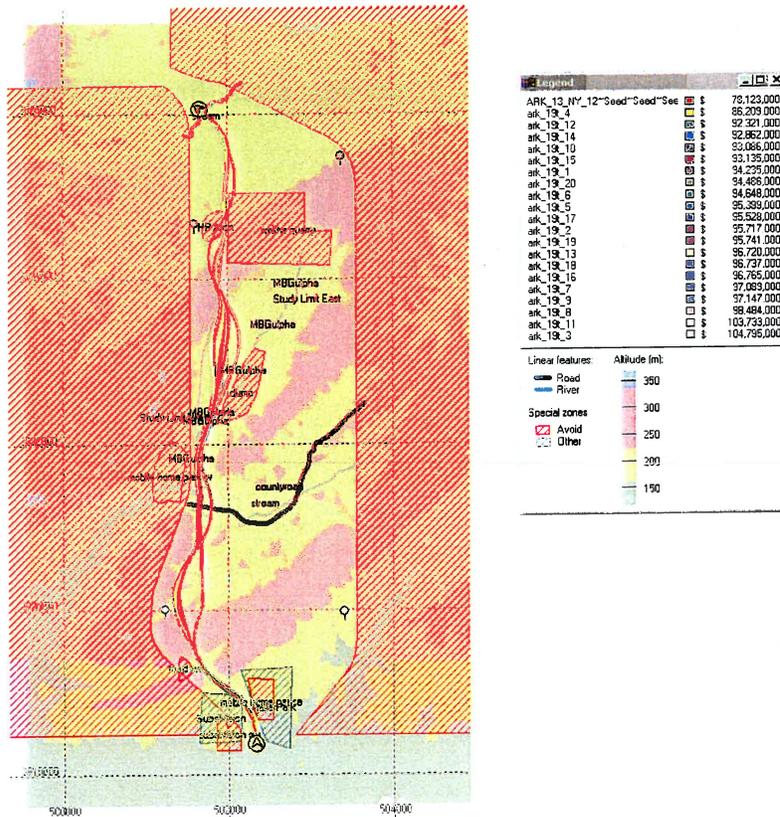


Figure 3.9 Scenario ARK_19

[Scenario: Ark_19]
 Parent scenario: Ark_18
 Date/time created: 09/07/2003 13:58:53

Changed spring recharge area from avoid to ignore.

Objective: Compare with scenario 18 where spring was set to avoid.

- Located additional environmental data= 46 identified zones and 4 probable zones. Set zones to avoid fro first pass. Spring recharge area set to avoid.

Results Cost to avoid new environmental areas = \$100.3 million compared to \$86.2 without them. New environmental areas added \$14 million to the project cost.

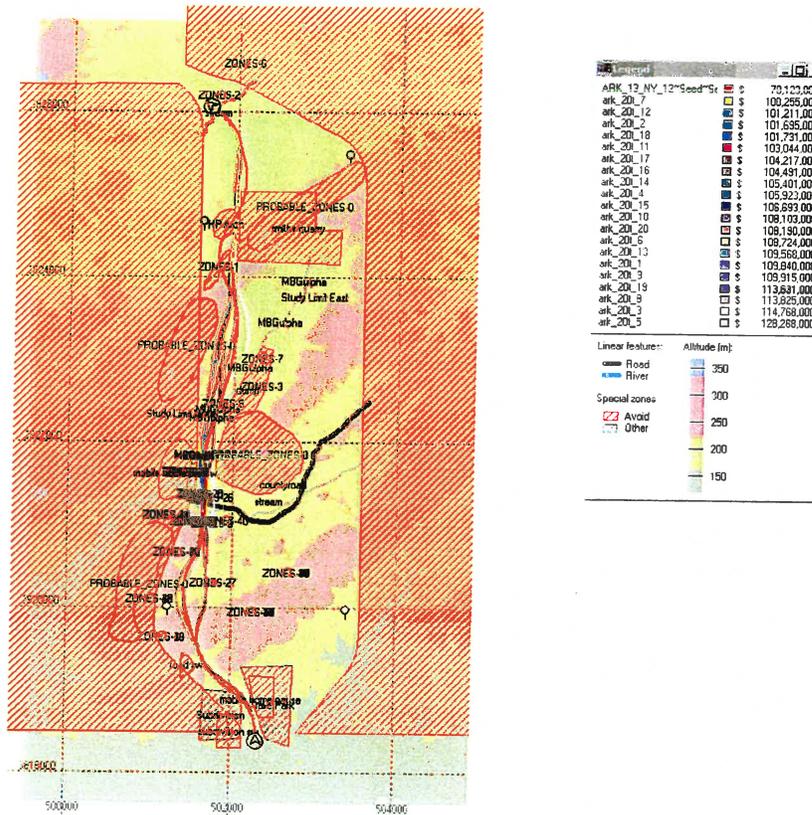


Figure 3.10 Scenario ARK_20

[Scenario: Ark_20]
 Parent scenario: Ark_19
 Date/time created: 26/08/2003 13:43:14
 Loaded additional environmental constraints. Set zones to avoid for first pass.
 Objective: See how new environmental data effects previous alignments.

Added 46 environmental zones identified and 4 probable zones. Set to avoid

- Deleted environmental zones added in previous scenario except: substation, smaller redefined dump area, larger redefined spring recharge area, and cemetery zone 22. Also added small spring area as avoid and revised tunnel cost from \$25,000/LF to \$50,000/LF.

Results Lowest cost alignments = \$95.3 million compared to \$86.2 without areas. These areas added \$9 million to cost of alignment.

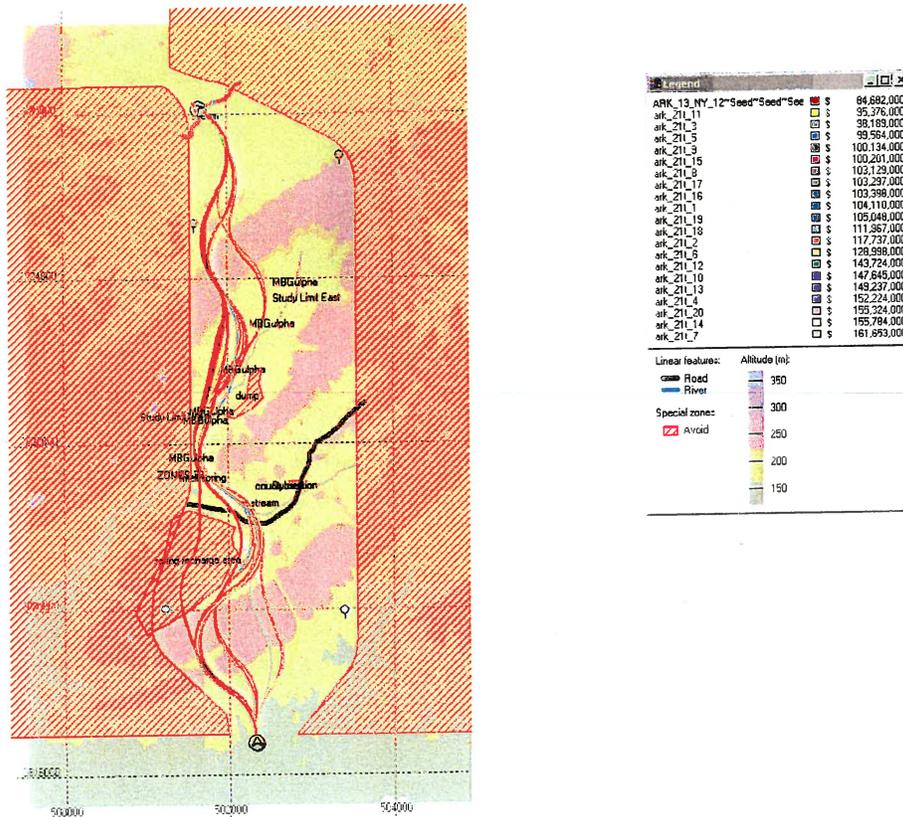


Figure 3.11 Scenario ARK_21

[Scenario: Ark_21]

Parent scenario: Ark_20

Date/time created: 10/09/2003 13:16:42

Changed zones added in scenario 20 from ignore to avoid except:

Substation

Redefined dump area

Redefined spring recharge area

Cemetery zone 22

Added small spring area as avoid

Revised tunnel cost from \$25,000 per foot to \$50,000 per foot

5. Added quarry clusters 1,2, and 3 to previous scenario as avoid zones.

Results Avoiding these quarries added \$5 million to the lowest alignment cost.

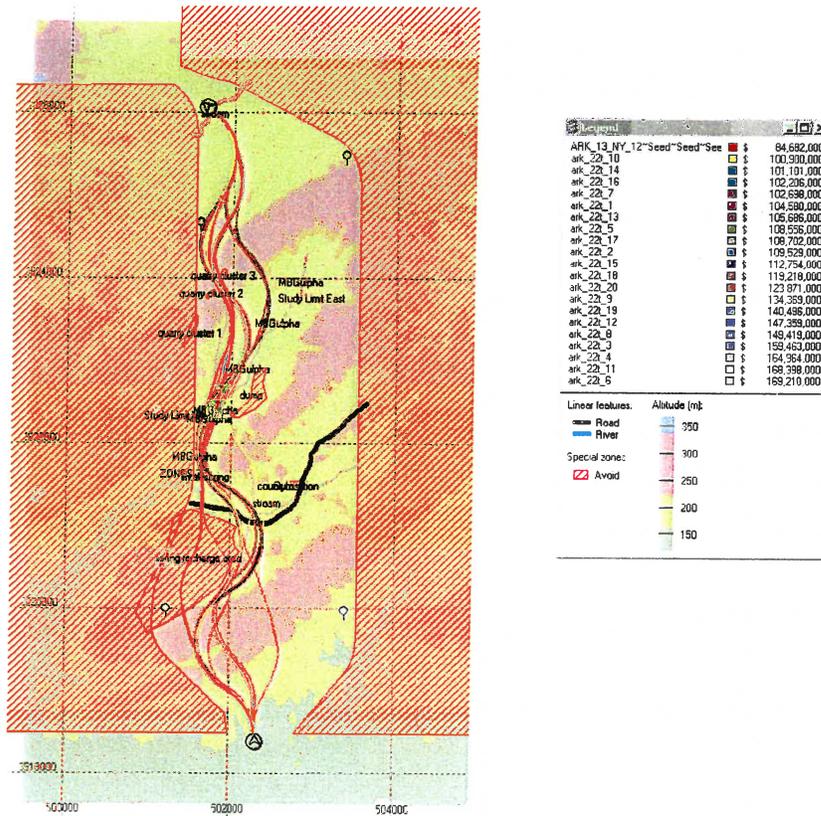
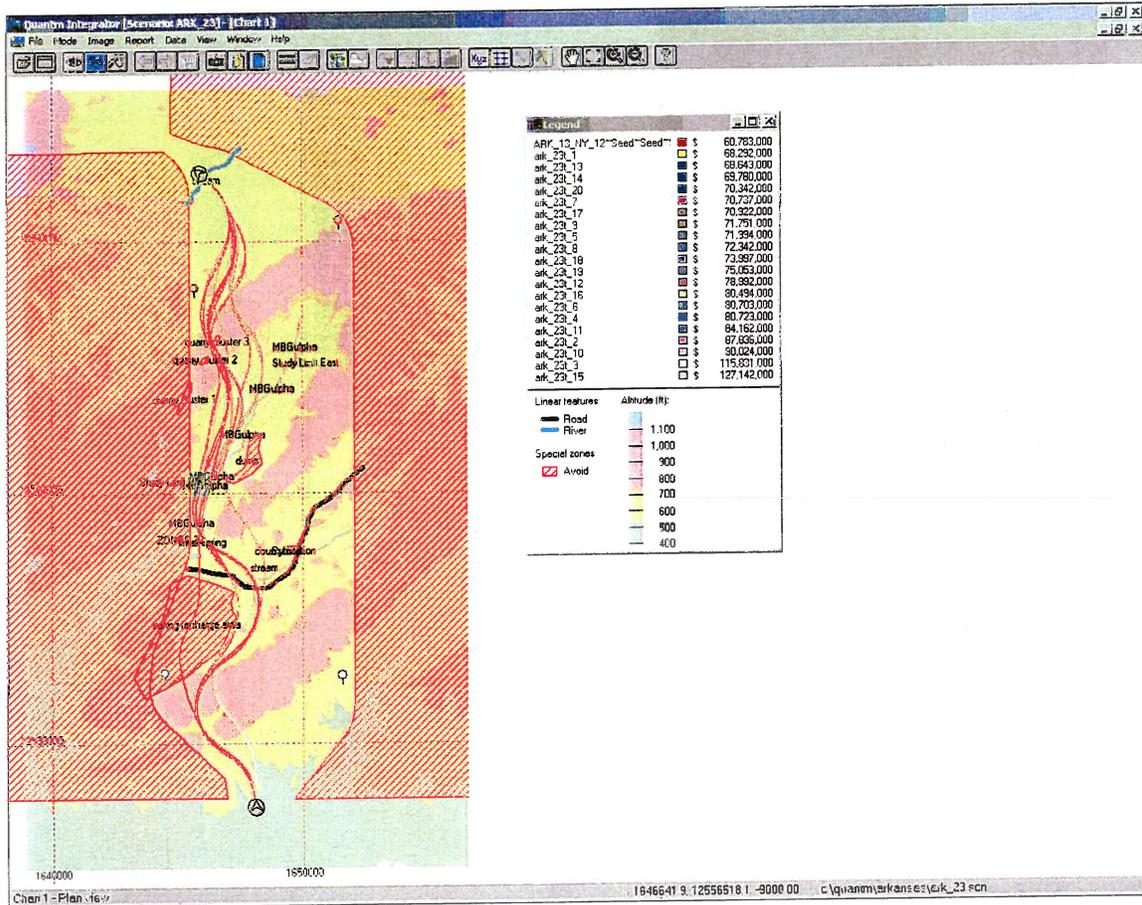


Figure 3.12 Scenario ARK_22

[Scenario: Ark_22]
 Parent scenario: Ark_21
 Date/time created: 10/09/2003 14:47:33
 Added quarry clusters 1,2, and 3 as avoid zones
 Objective: Take into account additional zone data.

6. Revised network file and reduce formation width from 180 feet to 70 feet.

Results Overall project costs were reduced to \$ \$68.3 million compared to \$100.1 million when formation width was 180 feet.



[Scenario: Ark_23]

Parent scenario: Ark_22

Date/time created: 10/09/2003 14:47:33

Revised network file to change formation width to 70 feet

Objective: Programs and Contracts division asked for this comparison.



4 Issues/Problems

Not all users were able to stay for entire training session.

More environmental data would have been considered if it had been determined, prior to commencement, which data was important with respect to no-go or mitigation costs.

Report 2 – March 2004

No new issues at this time. Initial Quantm report sign off by Arkansas DOT still pending.

5 Project Actions

No.	Date	Action	Who	When
1	4/30/03	Review objectives and show examples of objectives being met	CC	5/16/03
2	5/26/03	Call a meeting to discuss objectives	AM	6/25/03
3	3/4/2004	Obtain sign off on Report #1	KH	4/1/2004



Quantm Progress Report

April 2004

Report No.2

Highway 70 East to Highway 7 North

Ref. No. : 00109

***Arkansas State Highway and Transportation
Department***

Date Report submitted: April 12, 2004



Progress Report Sign-Off

Quantm Project Manager	Katherine Holtz	
Client Project Manager	Alan Meadors	
Date submitted	30 August 2004	
Report Sign-off		

Contract Progress

Date Contract Signed	April 14, 2003
Remaining months in contract period	7 of 18 month contract

Quantm Staff Assigned to Project

Project Manger	Katherine Holtz	(512) 560-8802 katherine.holtz@quantm.net
Client Services Engineer	Len Bettess	(702) 241-9350 len.bettess@quantm.net
Technical Service Engineer	John Lane	+613 9620 3445 john.lane@quantm.net

Client Staff Trained

Research PM	Chris Corbett	(501) 569-2195 Chris.Corbitt@ahtd.state.ar.us
Env. GIS Analyst	Robert Reed	(501) 569-2281 Robert.Reed@ahtd.state.ar.us
Senior GIS Coordinator	Linda Pearson	(501) 569-2668 Linda.Pearson@ahtd.state.ar.us
Planning Transportation Engineer	Nathan Young	(501) 569-2207 Nathan.Young@ahtd.state.ar.us
Civil Engineer IV	Phillip Rye	(501) 569-2385 Phillip.Rye@ahtd.state.ar.us
Senior Bridge DES Eng	Charles (Rick) Ellis	(501) 569-2135 Rick.Ellis@ahtd.state.ar.us



Planner	Brian Freyaldenhoven	(501)569-2386 Brian.Freyaldenhoven@ahtd.state.ar.us
Advanced Design Engineer	Kevin Toblesky	(501)569-2539 Kevin.Toblesky@ahtd.state.ar.us

Client Contacts

Contract Manager	Alan Meadors	(501) 569-2103 Alan.Meadors@ahtd.state.ar.us
Division Head, Surveys	Kit Carson, PE, PLS	(501)-569-2341 Kit.Carson@ahtd.state.ar.us
Administrative Assistant	Karen McDaniels	(501) 569-2070 Karen.McDaniels@ahtd.state.ar.us
Invoices	Carol Ward	(501) 569-2279 Carol.Ward@ahtd.state.ar.us



Contents

Progress Report Sign-off.....	2
Contents.....	4
1 Executive Summary.....	5
2 Project Objectives and Deliverables.....	6
3 Approach/Strategy.....	9
4 Issues/Problems.....	15
5 Project Actions.....	15



1 Executive Summary

Arkansas State Highway and Transportation Department (AHTD) is using research funding to assess the benefits of the Quantm system for the Highway 70 East to Highway 7 North project to the east of Hot Springs. The study area is approximately 5.5 miles in length in hilly and rural terrain.

This progress Report 2 only reviews work performed since the last Progress Report 1 that has been approved by AHTD.

Since July of 2003, additional scenarios have been created and optimized by Quantm which identified various special zones including environmental constraint zones. Quantm was able to optimize these new scenarios and provide the planners with cost comparisons of various possible alignments for future consideration by the team. See specifics in section 3 of this report

At this stage, the significant benefits have been:

- Reduced planning study time
- A more accurate estimate for construction costs
- Evaluation of more variables earlier in the project planning stage
- Involvement of all team members earlier in the decision making process

Next steps:

- Determine Environmental Justice issues
- Further refinement and analysis of corridors and alignments
- Finish Environmental Assessment
- Begin drafts of reports



2 Project Objectives and Deliverables

The purpose of this project is to create a new roadway route that bypasses the City of Hot Springs on the eastern side of the city, providing a quicker route from the south to subdivisions to the north. Congestion through the center of the tourist town of Hot Springs makes it very difficult for locals to maneuver in the area. The roadway will consist of a 2-lane travel surface with the eventual addition of two more travel lanes having a total right of way of 300' (interstate grade). The project objective at the outset of the contract was principally to, but not limited to, evaluate the most cost effective route within a corridor and analyze all the different variables considered in the selection process.

Following are the key objectives to be derived from the Quantm analysis, agreed upon by the project team during the training session, together with the deliverables to date:

1. Evaluate Quantm as an effective route selection tool.

Although a positive evaluation was achieved during the initial training, further ongoing usage and processing has been completed with the addition of more environmental site data and improved accuracy of the site data.

Additional scenarios were created and ran which included the following new information

1. Scenario ARK_18
 - a. Changed special zones road east and road north to ignore instead of avoid
 - b. Made the spring recharge area larger on a recommendation from the environmental division
 - c. Moved the stream farther north and moved other features to more accurately represent actual field conditions
2. Scenario ARK 19
 - a. Changed spring recharge area to ignore so as to compare to costs from scenario 18 where set to avoid
3. Scenario ARK_20
 - a. Loaded additional environmental constraints included in special zone file ark_19_27_08_03. Set these new zones to avoid for this scenario
4. Scenario ARK_21



- a. Set zones from ARK_20 now to ignore except
 - i. Substation,
 - ii. Redefined dump area
 - iii. Redefined spring recharge area
 - iv. Cemetery zone 22
 - b. Added small spring as avoid area
 - c. Changed cost of tunnel from \$25000 per foot to \$50000 per foot
5. Scenario ARK_22
- a. Added quarry clusters 1,2, and 3 as avoid zones

2. Compare current selection process with the process using Quantm including the following components:

No new or additional information.

3 Consider all variables

No new or additional information.

4. Support for the consultation process

No new or additional information.

5. Meet requirements of evaluating “all reasonable alternatives.”

Since the previous reporting period, an additional 6 scenarios or 120 alignments were developed and reviewed which brings the total to 1340 alignments considered by the project team.

6. Better justification using facts to help community leaders and public understand the true costs of their decisions.

At the first meeting on April 29, 2003, the AHTD learned of a dump, grave yards and natural springs. These were then added into Quantm Integrator as new constraints and analyzed.



A second public hearing was held on December 9, 2003. Three Quantm generated alignments were exported and placed on top of an aerial photograph for poster display.

The team prepared various scenarios to compare costs of avoiding environmentally sensitive areas to ignoring them. By doing this they were able to develop costs for each of these areas as they impacted the cost of the alignment.

Examples:

Avoiding environmental areas (all 50 of them) increased cost by \$14 million to avoid them.

Avoiding the large spring recharge area increased alignment costs by \$15 million.

7. Environmental Justice - documentation of the reasons the preferred alignments were selected.

This objective was not considered by the project team yet.

8. Team approach - integrate all disciplines at the beginning of the planning process.

Terry Tucker, an Environmental Scientist with the Environmental Division, is performing the environmental assessment during this time period. When Terry gave the actual earthwork footprints of the alignment to his archaeologist, he loved it. The archaeologist was able to have a better idea of actual disturbance for the roadway, whereas in the past, the archaeologist just had a line and had to imagine the cut and fill areas to investigate.

9. Improve quality of planning information that is constrained now due to lack of resources (experience and manpower).

For the environmental onsite investigations, manpower was not decreased, but because of the accuracy of the alignment locations, the field team could work faster.

10. Utilize information or data gathered from multiple sources - GIS, noise modelling, energy consumption, etc.

During this reporting period, additional shape files of additional environmental constraints were developed and added to the special zone files for consideration in new scenarios.

11. Identify limitations or issues with the system

No new or additional information.

3 Approach/Strategy

A new road is needed to service a subdivision north of Hot Springs and to by-pass busy and congested Hot Springs. AHTD determined the new route would be best on the east side of Hot Springs because of typical traffic patterns. AHTD also decided the terminus points of the project needed to be at Highway 70 East and Highway 7 North. New scenarios run since last report.

1. Special zones set as ignore: construct road e and construct road n. Enlarged spring recharge area based on new environmental data. Corrected placement of two streams and a road per new data too.

Results Roadway moved to avoid the enlarged spring recharge area. Price of lowest alignment increased \$3 million.

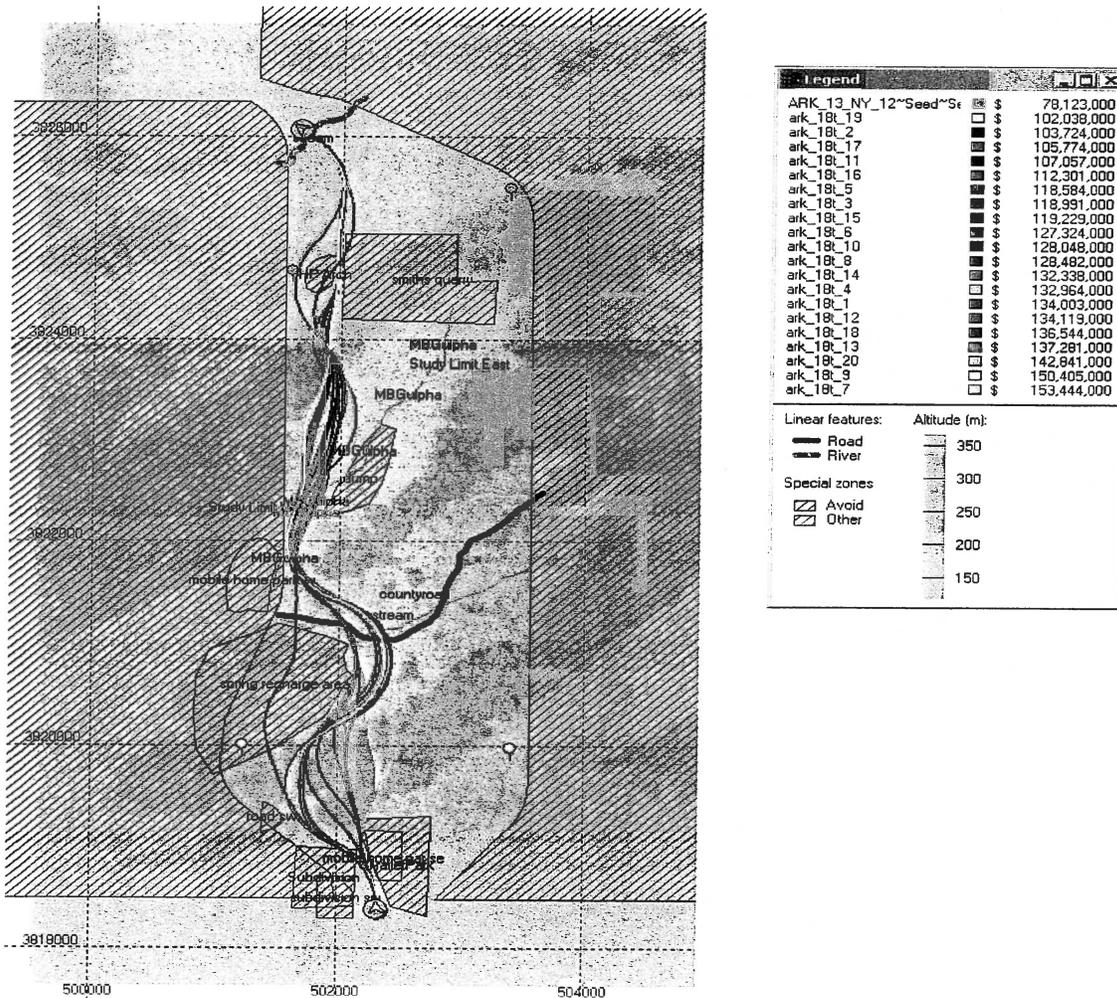


Figure 3.8 Scenario ARK_18

2. Changed spring recharge area from avoid to ignore for cost comparison.

Results Lowest cost alignment = \$86.2 million compared to \$102 million to avoid the spring recharge area. Thus the cost to avoid the recharge area is \$15 million.

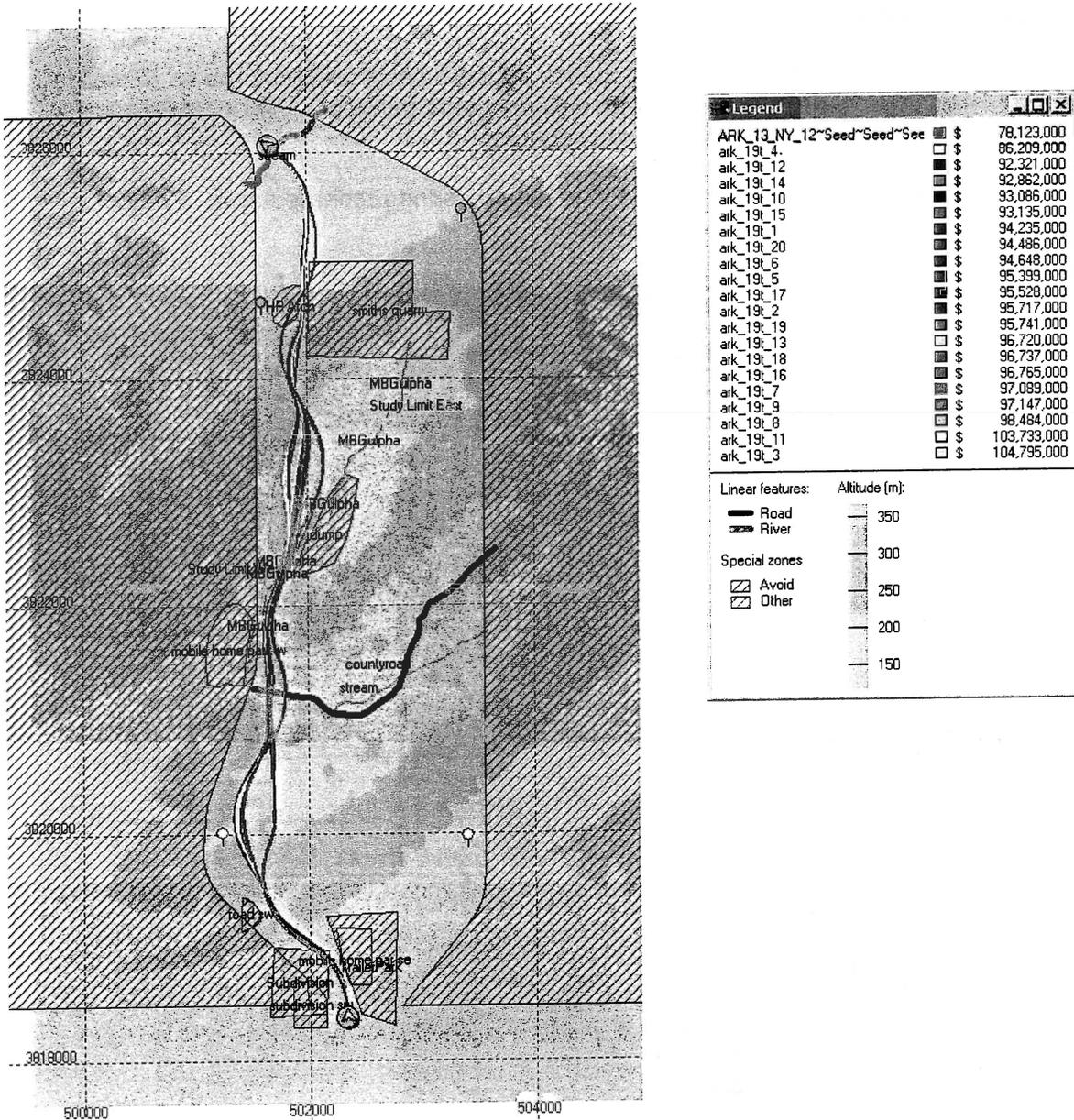


Figure 3.9 Scenario ARK_19

3. Located additional environmental data= 46 identified zones and 4 probable zones.
Set zones to avoid fro first pass. Spring recharge area set to avoid.

Results Cost to avoid new environmental areas = \$100.3 million compared to \$86.2 without them. New environmental areas added \$14 million to the project cost.

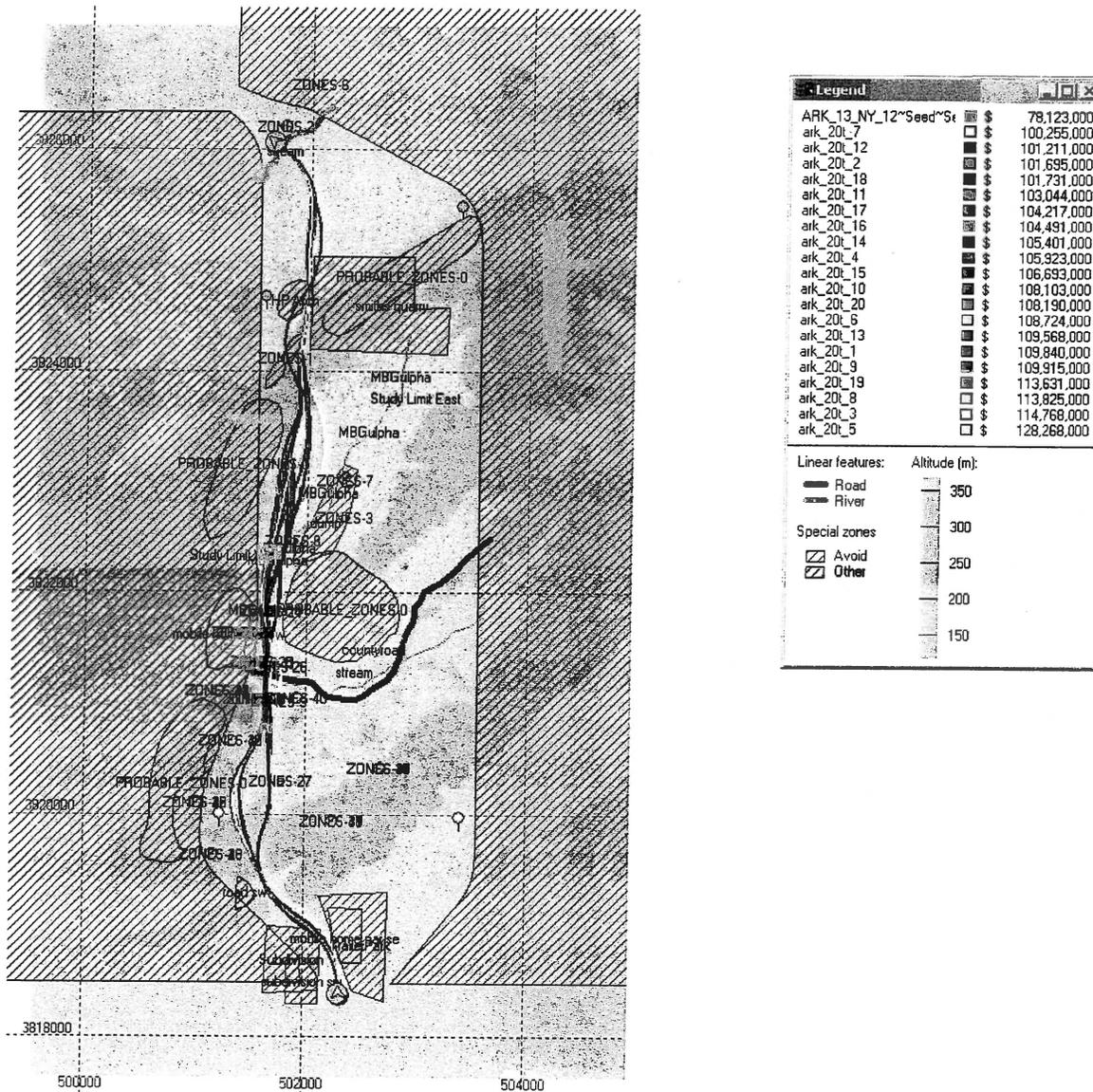


Figure 3.10 Scenario ARK_20

5. Added quarry clusters 1,2, and 3 to previous scenario as avoid zones.

Results Avoiding these quarries added \$5 million to the lowest alignment cost.

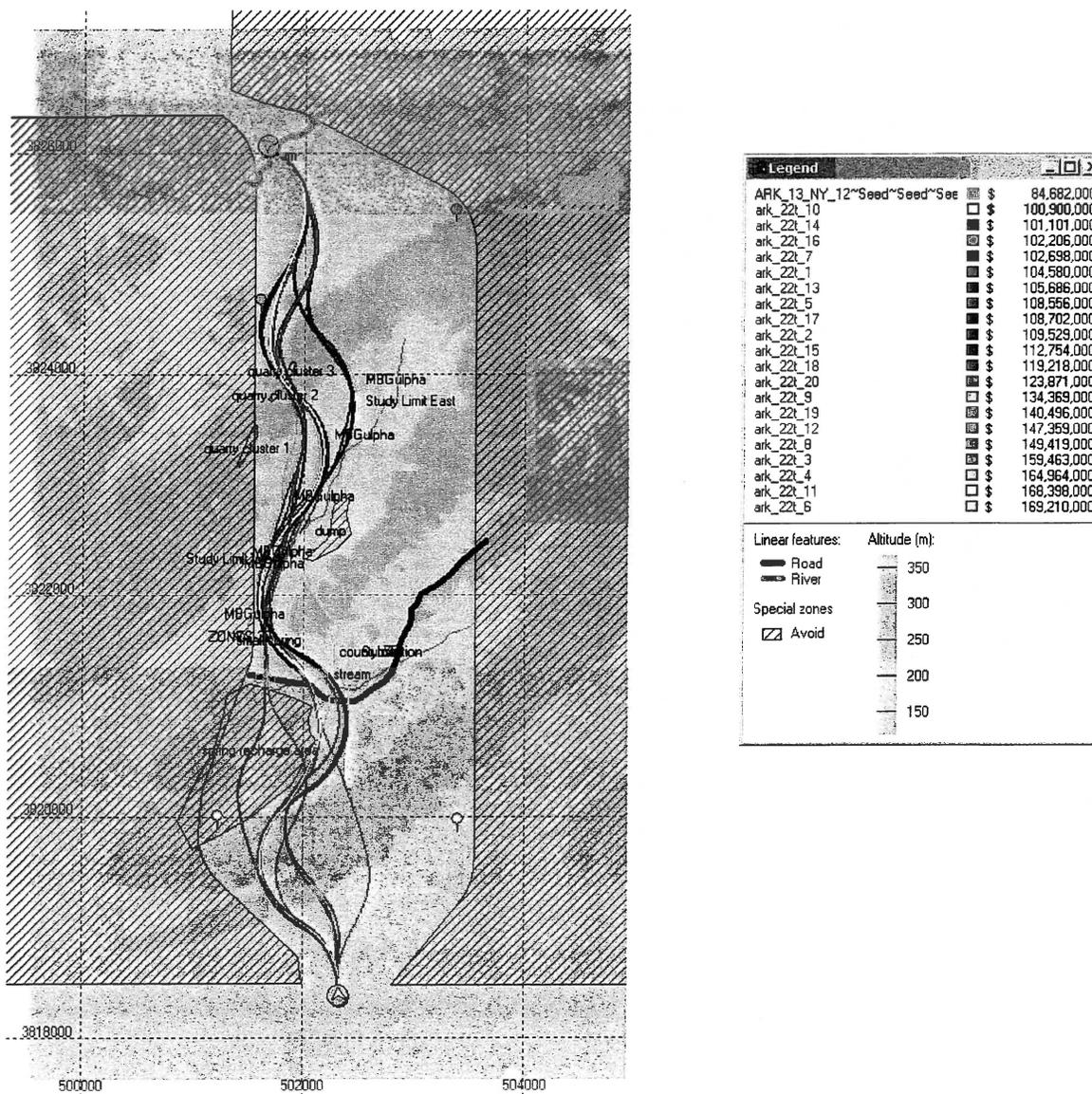
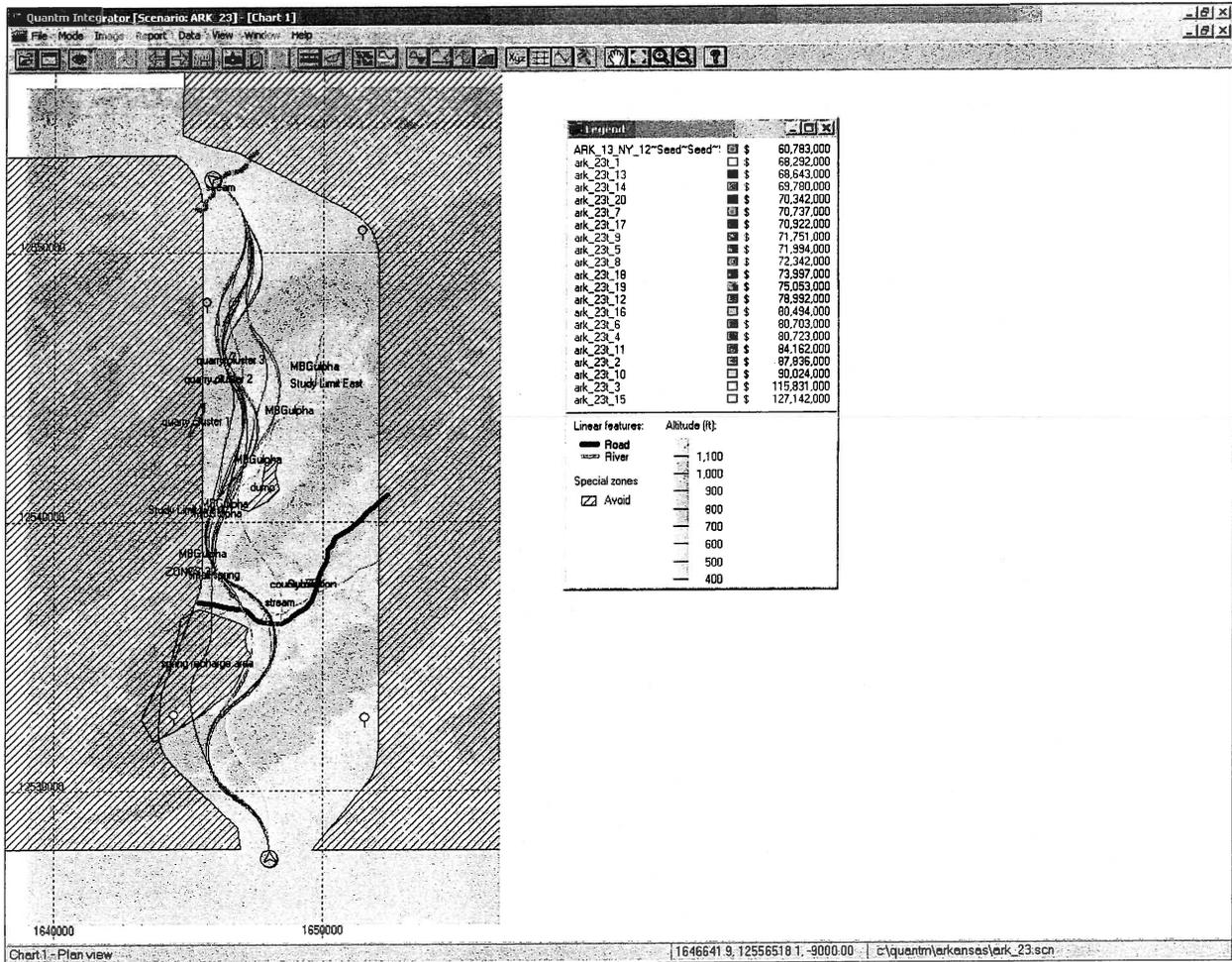


Figure 3.12 Scenario ARK_22

6. Revised network file and reduce formation width from 180 feet to 70 feet.

Results Overall project costs were reduced to \$ \$68.3 million compared to \$100.1 million when formation width was 180 feet.





4 Issues/Problems

Chris Corbitt, Principal Investigator has left the AHTD.

5 Project Actions

Next steps:

- Determine Environmental Justice issues
- Further refinement and analysis of corridors and alignments
- Finish Environmental Assessment
- Begin drafts of reports

APPENDIX C

RELOCATION STUDY

moving and/or re-establishment costs. This type of payment is not less than \$1,000.00 or more than \$20,000.00 if relocation cannot be accomplished without a substantial loss of business.

If the displacee is not satisfied with the amounts offered as relocation payments, he 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 displacee, and the facts of the case will be promptly and carefully reviewed.

Relocation services will be provided until all persons are satisfactorily relocated. The Relocation Office will have listings of available replacement housing and commercial properties. Information is also maintained concerning other Federal and State Programs offering assistance to displaced persons.

Based on current plans available, it is estimated that the alternates on the subject project could cause the following displacements.

<u>Alternate A</u>	
2 residential owners	\$ 45,000.00
3 businesses	<u>60,000.00</u>
	\$ 105,000.00
Services	<u>10,500.00</u>
Total Estimated Relocation Cost	\$ 115,500.00

<u>Alternate B</u>	
4 residential owners	\$ 90,000.00
3 businesses	<u>60,000.00</u>
	\$ 150,000.00
Services	<u>15,000.00</u>
Total Estimated Relocation Cost	\$ 165,000.00

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.

An available housing inventory has been compiled and it indicates there are at least fourteen (14) dwellings available for sale at this time. A breakdown of the price range is as follows:

<u>PRICE RANGE (FOR SALE)</u>	<u>NUMBER OF UNITS</u>
\$15,000-25,000	0
25,001-35,000	1
35,001-45,000	2
45,001-55,000	0
55,001-65,000	3
65,001-75,000	4

75,001-85,000	3
85,001-95,000	1
95,001 and over	<u>0</u>
Total	14

This is a new location project from Hwy. 70 East in Hot Springs to Hwy. 7 North, Northeast of Hot Springs. The project covers a distance of approximately 5.5 miles. The units contained in the housing inventory are in the Hot Springs area. These numbers and dwellings are comparable and adequate to provide replacement housing for the types of families to be displaced on both of the alternates. The housing market should not be detrimentally affected and there should be no problems with insufficient housing at this time. In the event housing cannot be found or can be found but not within the displacees economic means at the time of displacement, Section 206 of Public Law 91-646 (Housing of Last Resort) will be utilized to its fullest and practical extent.

The housing inventory was compiled with the cooperation of real estate companies of the area. The dwellings contained in the inventory have been determined to be comparable and decent, safe and sanitary, in an area not less desirable in regard to public utilities and public and commercial facilities, reasonably accessible to the displacee's place of employment, adequate to accommodate the displacees, and in a neighborhood which is not subject to unreasonably adverse environmental factors. It has also been determined that the available housing is within the financial means of the displacees and is fair housing...open to all persons regardless of race, color, sex, religion or national origin and consistent with the requirements of Title VIII of the Civil Rights of 1968.

A commercial property inventory indicates there are eight (8) commercial properties available in the subject area. The businesses affected on all alternates, should have the opportunity to relocate. They may not be able to relocate in the immediate area of their displacement which may cause loss of existing patronage, resulting termination of operations. However, in order to assist the displaced businesses in relocating in the same area, the State will explore all possible sources of funding or other resources which may be available to businesses. Sources which will be considered include State and Local entities, the Department of Housing and Urban Development, the Economic Development Administration, the Farmers Home Administration, the Small Business Administration and other Federal Agencies. Emphasis will be given to providing relocation advisory services to the businesses. Appropriate measures will be taken to ensure the businesses to be displaced are fully aware of their benefits and entitlements (in-lieu payments etc.), courses of action which are open to them and any special provisions, designed to encourage businesses to relocate with the same community.

There are no identified unusual conditions involved with the alternates on this project.

DEA:sfb

APPENDIX D

ARKANSAS GEOLOGICAL COMMISSION COORDINATION



R60140

Arkansas GEOLOGICAL COMMISSION

VARDELLE PARHAM GEOLOGY CENTER • 3815 WEST ROOSEVELT ROAD • LITTLE ROCK, ARKANSAS 72204

Mike Huckabee
Governor
Mac B. Woodward
Director and State Geologist

July 29, 2003

Mr. Marion Butler
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Butler:

This letter is a response to your request for information on potential environmentally sensitive areas in the proposed extension of the Hot Springs East-West Arterial between Hwy 70 and Hwy 7 and 5. I have enclosed with this letter some descriptions of springs that may be impacted by the highway 's construction.

If you have any questions about these springs

Sincerely,

A handwritten signature in cursive script that reads "William Lee Prior".

William Lee Prior
Geologist Supervisor

100
~~101~~ - Analysis continued

Found.	Grains per U.S. gallon	Per cent of total solids
Silica SiO ₂ -----	.91	5.51
Sodium Na -----	.38	2.30
Potassium K -----	.03	0.19
Magnesium Mg -----	.69	4.18
Calcium Ca -----	4.55	27.51
Iron Fe -----	.01	.06
Aluminum -----	.07	.43
Barium and Strontium Ba, Sr -----	.00	.00
Sulphuric Acid SO ₄ -----	1.45	8.78
Carbonic Acid CO ₃ -----	8.18	49.46
Bromine, Iodine, Manganese, Titanium, Lithium (Br, I, Mn, Ti, Li) -----	.00	.00
Chlorine Cl -----	.26	1.58
Phosphoric Acid P ₂ O ₅ -----	.00	.00
Total -----	<u>16.53</u>	<u>100.00</u>

The water for analysis was collected by assistant L. S. Griswold, from the largest and most used spring at Mountain Valley. (A. G. S. Ann. Rept. 1891, vol. 1, p. 69)

No. ~~100~~ 101

GRANDMA CHASE'S SPRINGS

NW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 30, T. 2 S., R. 18 W., 6 miles northeast of the City of Hot Springs. The best known of the springs are the Red Chalybeate and the Dripping springs. These come from the north face of Cutter's Mountain and are on the south side of the middle fork of Gulpha Creek. The rocks of this region belong to the Lower Silurian age. These little springs issue almost at the foot of the north slope of Cutter's Mountain, on the west bank of the middle fork of Gulpha Creek. The water is clear, tasteless and odorless, with a neutral reaction. No deposit of iron is made by the water.

The water for analysis was collected from what appeared to be the boldest of these springs, which is next to the last one going up the creek (east), and low down on the bank of the creek. The flow of this spring is intermittent. A stream of clear water about the size of an ordinary lead pencil flows from five to ten minutes at a time. Elev. 533 feet.

101
No. 102--Continued

47

Analysis of Water from Dripping Spring

Hypothetical Combination

Constituents	Grains per U.S. gallon	Per cent of total solids
Silica SiO ₂ -----	.81	6.12
Chloride of Soda NaCl -----	.30	2.26
Chloride of Potash KCl -----	.05	.38
Chloride of Magnesia MgCl ₂ -----	.20	1.51
Carbonate of Lime CaCO ₃ -----	10.90	82.33
Sulphate of Magnesia MgSO ₄ -----	.59	4.46
Sulphate of Lime CaSO ₄ -----	.19	1.43
Sulphate of Iron FeSO ₄ -----	.20	1.51
Total -----	13.24	100.00

Found.

Silica SiO ₂ -----	.81	6.11
Sodium Na -----	.12	.90
Potassium K -----	.03	.23
Magnesium Mg -----	.17	1.28
Calcium Ca -----	4.42	33.36
Lithium Li -----	.00	.00
Iron Fe -----	.07	.53
Aluminum Al -----	trace	trace
Sulphuric Acid SO ₄ -----	.73	5.51
Carbonic Acid CO ₃ -----	6.54	49.36
Chlorine Cl -----	.36	2.72
Phosphoric Acid P ₂ O ₅ -----	.00	.00
Total -----	13.25	100.00

Water collected by R. N. Brackett, November 3, 1889.

Temperature of water, 59.18° F.

Total solid material in solution, 13.003 grains per U. S. gallon.

Carbonic Acid CO₂, free and for bicarbonates, 3.33 grains per U. S. gallon. (A. G. S. Ann. Rept. 1891, vol. 1, p. 48)

No.

McLENDON HEALTH SPRINGS

SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 32, T. 2 S., R. 18 W., 7 miles east of Hot Springs. The springs are owned by Bertha J. Busch. Four springs, combined flow about 40,000 gallons per day. They are marketed by McLendon Health Spring Water Company. Elev. 400 feet (approximately). (Bertha J. Busch)

GARLAND COUNTY

49

103
No. ~~103~~ - Analysis continued

49

	Grains per U.S. gallon	Per cent of total solids
Carbonate of Lime CaCO_3 -----	10.24	76.70
Carbonate of Iron FeCO_3 -----	.89	6.67
Sulphate of Potash K_2SO_4 ---	.66	4.94
Sulphate of Magnesia MgSO_4 -	.02	.15
Total -----	<u>13.35</u>	<u>100.00</u>

Found.

Silica SiO_2 -----	.22	1.64
Sodium Na -----	.08	.60
Potassium K -----	.18	1.34
Magnesium Mg -----	.24	1.79
Calcium Ca -----	4.10	30.55
Iron Fe -----	.43	3.20
Sulphuric Acid SO_4 -----	.55	4.10
Carbonic Acid CO_3 -----	7.50	55.89
Chlorine Cl -----	.12	.89
Total -----	<u>13.42</u>	<u>100.00</u>

Water collected by assistant H. E. Williams; analysis by A. E. Menke.

Total solid material in solution, 12.08 grains per U. S. gallon.

Temperature of air, 40.28° F.; water, 78.98° F.

(A. C. S. Ann. Rept. 1891, vol. 1, p. 28)

No. ~~103~~ 104

RED CHALYBEATE SPRING

NE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 25, T. 2 S., R. 19 W., 6 miles northeast of Hot Springs. The spring forms a copious deposit of reddish brown hydroxide of iron on the sides and on the bottom. It is clear, and has a very slight odor but no sulphuretted hydrogen. This spring is one of Grandma Chase's. Elev. 533 feet (approximately)

Analysis of Water

Hypothetical Combination

Constituents	Grains per U.S. gallon	Per cent of total solids
Silica SiO_2 -----	.72	24.74
Chloride of Soda NaCl -----	.08	24.75
Chloride of Potash KCl -----	.01	.34
Chloride of Magnesia MgCl_2 --	.19	6.53

104

50

No. ~~105~~ -- Analysis continued

	Grains per U.S. gallon	Per cent of total solids
Carbonate of Lime CaCO_3 -----	.18	6.53
Sulphate of Magnesia MgSO_4 ----	.49	16.84
Sulphate of Lime CaSO_4 -----	.49	16.84
Sulphate of Iron FeSO_4 -----	.75	25.77
Total -----	<u>2.91</u>	<u>100.00</u>

Found.

Silica SiO_2 -----	.72	24.87
Sodium Na -----	.03	1.04
Potassium K -----	.005	.17
Magnesium Mg -----	.14	4.84
Calcium Ca -----	.22	7.60
Lithium Li -----	good trace	good trace
Iron Fe -----	.27	7.33
Aluminum Al -----	trace	trace
Sulphuric Acid SO_4 -----	1.21	41.79
Carbonic Acid CO_3 -----	.11	3.80
Chlorine Cl -----	.19	6.56
Phosphoric Acid P_2O_5 -----	<u>strong trace</u>	<u>strong trace</u>
Total -----	<u>2.89</u>	<u>100.00</u>

Water collected by R. N. Brackett, November 3, 1889.
 Amount of water used for analysis, $1\frac{1}{2}$ gallons.
 Temperature of water, 62.78°F .
 Total solid material in solution, 3.02 grains per U. S.
 gallon.
 Carbonic Acid CO_2 , free and for bicarbonates, 6.34 grains
 per U. S. gallon.
 (A. G. S. Ann. Rept. 1891, vol. 1, p. 50)

No. ~~104~~ 105

GILLET'S WHITE SULPHUR SPRING

$\text{SE}\frac{1}{4}$, Sec. 26, T. 2 S., R. 19 W., 3 miles northeast of Hot
 Springs. The water comes from rocks of Lower Silurian age
 and is said to have good medicinal properties.

Analysis of Water

Constituents

Carbonates of iron, lime, and magnesia; traces of organic
 matter and very small quantities of sulphuric acid and
 free carbonic acid.



APPENDIX E

PUBLIC INVOLVEMENT MATERIALS

INTER OFFICE MEMORANDUM

DATE: April 30, 2003

TO: Marion Butler, Division Head, Environmental Division
FROM: Stella T. Loya, Environmental Analyst, Environmental Division
SUBJECT: Public Involvement Synopsis
AHTD Job Number R60140
Hwy. 70 East-Hwy. 7 North
Garland County

An open forum public involvement meeting for the referenced project was held on Tuesday, April 29, 2003 at Fountain Lake High School Cafeteria in Fountain Lake, Arkansas. AHTD Environmental, Roadway and Right-of-Way staff along with District personnel participated in the meeting. Project corridor maps with the proposed roadways were presented for viewing.

Approximately 110 citizens visited the session. Sixty-two (62) written comments were received at the meeting. Five (5) additional comments were received by mail several days afterward.

Written comments were as follows:

- 48 comments supported the project as presented.
- 12 comments did not support the project presented.
- 1 undecided (did not check either yes or no).

Of the written comments received these were the primary responses:

Pro Comments:

- 33 comments stated the project would create an alternate route for shopping, cross town driving and requested speeding up progress.
- 11 comments mentioned the shorten travel time, reduced traffic congestion, and noise levels.

- 11 comments stated making it more accessible to Hot Springs residents and reducing stress on central downtown streets.
- 8 comments stated the project would increase property value.

Negative Comments:

- 8 comments stated it would affect their business and cause noise problems.
- 9 comments reference to financial burden and requested the project to bypass their homes.
- 6 comments stated it would reduce their property value and displace several properties and take away from their natural beauty.
- 4 comments stated possible historical landfill, Indian mines, findings of Indian artifacts around Hwy 70 East, and the disruption of Black Panther in Panther Valley.
- 2 comments stated they wanted to be notified to know when to take the appropriate steps in selling the house.
- 1 comment requested the consideration of expanding the perimeters to include the centerline of zone 20 and zone 29 since fewer people lived in the area.
- 1 comment was of the effect on retirement income and needed someone to contact them.
- 1 comment on the displacement of wildlife and the asthmas-causing diesel fumes plus a tunnel would destroy water table.

Neutral comments:

- 1 comment suggested creating left turn lanes in exiting highways.
- 1 written request for an aerial photograph of the project area by the Mayor of Fountain Lake. This map was provided to the Mayor after the Public Involvement meeting.

PUBLIC MEETING NOTICE



Hwy. 70 East to Hwy. 7 North (East – West Arterial)

(AHTD Job No. R60140)

Tuesday, April 29, 2003

Fountain Lake High School Cafeteria

4:00 p.m. to 7:00 p.m.

The Arkansas State Highway and Transportation Department (AHTD) will conduct a public involvement session to discuss the proposed highway improvements from Hwy. 70 East to Hwy. 7 North.

The informal session will be held Tuesday, April 29, 2003, from 4:00 p.m. to 7:00 p.m. in the Fountain Lake High School Cafeteria, 4207 Park Avenue in Fountain Lake.

This will be an "open house" meeting with no formal presentations. The public is invited to visit anytime during the scheduled hours to view exhibits, ask questions, and offer comments.

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000



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

April 9, 2003

The Sentinel-Record
Display Advertising
P.O. Box 580
Hot Springs, AR 71902-0580
FAX: 501-623-2984

Re: Job R60140

Greetings:

Please publish the enclosed "Notice of Public Meeting " display ad in the local news section on the following date:

Sunday, April 20, 2003

Send one proof of publication with invoice for payment to:

Arkansas State Highway and Transportation Department
Attention: Environmental Division
P. O. Box 2261
Little Rock, Arkansas 72203
Phone: 501-569-2281

Sincerely,

A handwritten signature in black ink that reads 'Lynn P. Malbrough'.

Lynn P. Malbrough
Public Outreach Coordinator
Environmental Division

Enclosure

cc: District 6 Engineer
Construction (Master Files)

INFORMATION RELEASE



Office of the Director

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
P. O. Box 2261 - Little Rock, Arkansas Telephone (501) 569-2227

Contact:
Randy Ort/DN

NR03-069
April 15, 2003

AHTD TO HOLD PUBLIC INVOLVEMENT SESSION IN FOUNTAIN LAKE

LITTLE ROCK (4-15) - The Arkansas State Highway and Transportation Department (AHTD) will hold a Public Involvement Session in Fountain Lake to discuss plans for a new highway in the area, according to AHTD Director Dan Flowers.

The informal session will be held Tuesday, April 29, 2003, from 4:00 p.m. to 7:00 p.m. at the Fountain Lake High School, 4207 Park Avenue, in Fountain Lake.

Future plans call for a new east-west arterial highway on a new location between Highway 70 East and Highway 7 North.

The public is invited to visit anytime during the scheduled hours to view displays, ask questions and offer comments.

###

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

AHTD PUBLIC INVOLVEMENT SESSION

**AHTD JOB NUMBER R60140
HWY. 70 EAST-HWY. 7 NORTH
GARLAND COUNTY**

**LOCATION:
FOUNTAIN LAKE HIGH SCHOOL CAFETERIA
4:00 – 7:00 P.M.
TUESDAY, APRIL 29, 2003**

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.

Yes No

 Do you feel there is a need to provide a new connection of Hwy 70 with Hwy 7? Comment (optional)

 Will the improvement project create any impacts (beneficial or adverse) on your property and/or community (economic, environmental, social, or other)? Please explain.

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

INTER OFFICE MEMORANDUM

DATE: April 30, 2004

TO: Marion Butler, Division Head, Environmental Division
FROM: Terry Tucker, Environmental Scientist, Environmental Division
SUBJECT: Public Involvement Synopsis
AHTD Job Number R60140
Hwy. 70 East-Hwy. 7 North
Garland County

An open forum public involvement meeting for the referenced project was held on Tuesday, December 9, 2003 at Fountain Lake High School Cafeteria in Fountain Lake, Arkansas. AHTD Environmental, Roadway and Right-of-Way staff along with AHTD District personnel participated in the meeting. Aerial photographs and topographic maps with the proposed alternatives were presented for viewing.

Approximately 130 citizens visited the session. Forty-three (43) written comments were received at the meeting. One hundred and ninety-eight (198) additional comments were received by mail weeks afterward.

Written comments supporting an alternative were as follows:

- 205 comments supported Alternative A.
- 13 comments supported Alternative B.
- 6 comments supported Alternative C.
- 11 comments had No Preference.
- 3 comments checked other route, submitted their own design.
- 3 comments selected both Alternative A and B.
- 2 undecided (did not check any box).

Citizen comments for each alternative are presented below:

Alternative A:

193 form letters requested..." that access to Mill Creek Road be incorporated into the design of the project, and that the yellow most westerly alternative be considered and the attraction called 'The Witness' will definitely be adversely affected if the route east of the yellow route is taken due to the additional noise of the connector. Hence, the most westerly route would be much better. Panther Valley Ranch lodging and horseback riding will be devastated unless the most westerly route is taken."

"Least cost, least impact (social & ecologically), quickest construction (least dirt work) & most scenic route. Safety!! -Remove truck traffic from bathhouse row + also cars. Time & gas savings on trips to church, mall, Lowe's, etc. - All shopping & restaurants & to Lake Hamilton...As quickly as possible!"

"Highly beneficial to Hot Springs because of improved traffic flow from Hot Springs Village and surrounding areas."

"It appears to be the most economic route."

"It seems to be more sensitive to the topography. The route would have a positive impact on traffic patterns in the City of Hot Springs. The route would take truck traffic off the portion of Central Ave. that is in the Historic District. Due to the constraints imposed by the National Park's holdings there is no alternative to the use of Central Ave. Tourism and economic development would be enhanced by the proposed facility."

"The route would have a positive impact on traffic patterns in the City of Hot Springs."

"Lowest cost."

"More direct."

"Cheaper, straighter. Promised Land Rd needs to continue between Mill Creek and Cedar Creek."

"A & B are most economic & A is more environmentally benign (less hassle w/ the EPA, etc.). All beneficial! Hot Springs Village residents (13,000) could access Hot Springs Businesses so much faster, & safer, and in quantity, than at present. Also, Hot Springs folks on north side of town can get to proposed Wal-Mart expeditiously. Hot Springs Village may grow to 25,000 – multiplying the benefits of the extension. Please do it! Not on the route, but clearly a significant beneficiary of it. Our village, 13,000 strong & growing, emphatically supports extension of the King Expressway to the intersection of 5 & 7, the sooner, the better."

"Straighter & shorter."

"Noise Pollution. These Village people have plenty of time to get to their destination with existing routes."

"I prefer the yellow route. I also think a access ramp on & off Mill Creek Rd. will be expected."

"Less impact on springs along Mill Creek Rd. Less traffic on Park Ave. Quick route to area hospitals & major retail."

"Thanks for holding this 12-9-03 hearing! I belong to the Mountain Valley Sportsman's Assoc. on 10 mile Road & we have been concerned about the route in relation to our gun club property. This info helped a lot!"

Alternative B:

"Noise from closeness of highway."

"More direct route seems least expensive. Create a faster/more direct access to heart of Hot Springs."

"It appears to be the shortest and least expensive. Any route chosen will significantly reduce travel time from Hot Springs Village and the Highway 7

area to Hot Springs hospitals and eliminate going thru town to reach the Hot Springs Mall."

"Shorter road, less curve. Make #7 into town a safer road make it easier to get to hospital. Have passing lanes. Do it tomorrow."

"Shortest distance; uses a draw that would likely be less cut & fill & hence less costly. Very beneficial in serving an unimproved link between Hot Springs Village and Hot Springs. Great job-keep up the good work- I submitted a resolution in support of this project that was approved by the HSVPOA Board of Directors in April 2003. It was transmitted to the Congressional delegation with all responses received also submitted at this Public Involvement forum on 12/9/03."

"Shortest and most likely the least expensive."

"Least costly and intrusive."

"Shortest route and therefore least costly."

"If Alternative C is in fact started it will be very close to my family and where we have lived forever. From Cedar Creek Rd. we'll have no easy access to Hwy. 70 without going all the way to Westinghouse."

"Alternative #2-Seems to be most practical. I am not a resident of this area."

"The directness of the route would hopefully reduce the cost enough to enable the consideration of 4-laning the connector with the potential savings verses the other routes. It would greatly aid in the economic development of the Hwy. 5 and Hwy. 7 junction area."

"It looks like the shortest route."

"Last year at a Rotary meeting I heard that it may be 20 years before this is started. This bypass needs to be done now. If not you need to 4-lane Hwy. 7 to the junction of Hwy. 5 and widen Hwy. 5 to the back of Hot Springs Village East Gate. I read in the paper that this part of the bypass would only be 2 lanes. That would be ridiculous!! Too many people who live in Hot Springs Village can't drive over 40 miles an hour and unless you have plenty of straight stretches to pass talk about road rage. I also heard that you don't plan any exits at Mill Creek Rd. That would be the second biggest mistake since that intersection you built at Central Ave. Weyerhaeuser has bout sold all the land down Mill Creek and there is going to be a lot of growth down that road. Also access here would give people all the way to Hwy. 128 an alternate path to the bypass."

"The Red route would stay far enough away from the springs and cemetery, also an off & on ramp in that area would be beneficial to those business on the west end of Mill Creek Rd. It appears Mill Creek Rd. is about 1/2 way. If there was an on & off ramp there it would benefit both Morning Star & Fountain Lake Fire Dept. and other emergency personnel. The map I have does not identify the routes as A-B-C so I'm assuming a is yellow/b is red/ & c is blue."

Alternative C:

"Least congested route-more sense. Easier to get to Hot Springs and other area attractions. Hot Springs Village residents will greatly appreciate a non-congested route into Hot Springs."

"It is the shortest & best route. There will be extensive improvements to the community. All good effects. An interchange is needed on Quarry Mountain road to allow as many vehicles as possible along Hwy. 7 to access the new road."

"Looks easier to go thru."

"It seems to be the most environmentally safe route. If the road becomes widened it could diminish the property value and development. There needs to be a through research for any endangered species or potential environmental constraints."

"Map did have routes, they were colored. Exit at Mill Creek. I live off Promised Land (Switch Back). The eastern option would not affect our land. The other routes would impact us due to traffic/noise."

"The most practical route and probably least expensive. We need the extension-lets keep costs down to achieve completion earlier. ...the connector will enhance the economy of Fountain Lake and Hwy 7 North and divert much heavy traffic (gross weight) and help preserve Hwys. 5 & 7 and Gulpha Gorge."

No Preference:

"Hopefully the least amount of earth to move & bridges to build. As a citizen of the area between 5 & 7 – off of Hamilton Dairy, I am looking forward to the extension, ASAP."

"As long as it connects to the bypass, I don't care. It would cut down on time it takes to work, 7 south area and help relieve congestion on outdated Highway system in town. This is a great project and should help this area to develop more easily in the future. It should take a lot of traffic off Park and Central Ave., which for years have become pains to travel because of Narrow streets, parking, etc. I also have big trucks and heavy equipment to move and use this route rather than thru town. Thanks for listening."

"Using bypass to get to South Hot Springs would save wear & tear in the historic downtown area. Hope this project goes thru. Very beneficial to villagers traveling to the Hot Springs Mall."

"Like to see moved farther east."

"My property does not lie in the area to build the connector. It is on Hwy. 7 past the connection and could be a negative impact if the road is widened later. If part of our land is taken for road right-of-way then it would diminish our property value and development."

"What ever works best for Hwy. Dept and is environmentally sound. Benefit in time factor for travel. Adverse-increase in traffic in front of my house. Hurry before I retire."

"Very beneficial. How about a tunnel? Do not (please) make just a 2-lane hwy. At least have passing lanes. Preferably 4 lanes all the way."

"I trust state engineers expertise. I hope that route will be extra wide to #1 permit future lanes, #2 allow for landscaping, #3provide median."

"My preference is to get the connector built. It would ease the traffic through the National Park/Business District for access to shopping and working in Hot Springs for residents NW or NE of the city. This link/connector is a needed segment in the Arkansas Highway system with all the development in the Fountain Lake, Jessieville, and Hot Springs Village area. Central and Park Avenues in Hot Springs cannot accommodate the increased traffic it is experiencing."

Other:

"I prefer the yellow line on map. Please protect environment, use enhanced design features for bridges & walls. Also, plan for long-term addition of interchanges at Mill Creek & Quarry Mtn. Roads. Do environmental analysis and purchase right-of-way for future interchange ramps. Plan for grade separated interchanges at SH. 7."

"The area is dependent on water quality. A route (alignment) that's minimizes stream/spring impacts would be preferable. At Hwy. 70 interchange, I would suggest the arterial (3) be moved east to avoid Lynette Lane. The arterial should continue NE until beyond Lynette Lane, cut NW and cross Nesbit Circle NE of the Middle Fork, cross Mill Creek Rd. and then return to the "Proposed" route 3. This route avoids several stream crossings and minimizes impacts to local water quality."

"The route which crosses Mill Creek Road at it s westernmost point which would be the least disruptive to local owners as well as the most cost effective, and to minimize litigation. I.E. (Panther Valley Ranch and the

Historical Site Area). Access on and off Mill Creek Road @ intersection would spur growth in that area as well as access to the amphitheater being more convenient. Old dump off Denise Lane area. As a lifetime resident of Garland County, a veteran real estate broker, and a member of the Garland County Board of Equalization, I am very familiar with the area. In my opinion, the westernmost crossing at Mill Creek Road would be the least disruptive. An access at that crossing would spur growth and development in that area also. I have no dog in this hunt. I think that the destruction of Panther Valley Ranch, the closeness of the highway to the witness passion play, the degrading of the old lake. The expense of climbing that steep ridge above the lake, as well as a new house on top of that ridge could prove more costly as an alternative."

2 or more routes selected:

"No C- would take out my new brick home-\$150,000 + 11 acres at \$5200 acre, brothers \$125,000 brick home +2 acres at \$5200. C- The beginning of highway on 70 east would go directly through a minimum of 10 homes due to easement."

"It won't take out my home. Please contact me on any future news."

"Shorter route."

No alternatives selected:

"Fastest to construct. Been promising for 16 years to have another way to south Hot Springs. Traffic is way too strong can't even enter Hwy. 7, bumper to bumper all the way to town."

"I believe it would be beneficial economically for the community."

PUBLIC MEETING NOTICE



Hwy. 70 East to Hwy. 7 North (East – West Arterial) (AHTD Job No. R60140)

Tuesday, December 9, 2003
Fountain Lake High School Cafeteria
4:00 p.m. to 7:00 p.m.

The Arkansas State Highway and Transportation Department (AHTD) will conduct a public involvement session to discuss the proposed highway improvements from Hwy. 70 East to Hwy. 7 North.

The informal session will be held Tuesday, December 9, 2003, from 4:00 p.m. to 7:00 p.m. in the Fountain Lake High School Cafeteria, 4207 Park Avenue in Fountain Lake.

This will be an "open house" meeting with no formal presentations. The public is invited to visit anytime during the scheduled hours to view exhibits, ask questions, and offer comments.

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000



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

November 24, 2003

The Sentinel-Record
Display Advertising
P.O. Box 580
Hot Springs, AR 71902-0580
FAX: 501-623-2984

Re: Job R60140

Greetings:

Please publish the enclosed "Notice of Public Meeting" display ad in the local news section on the following date:

Sunday, November 30, 2003

Send one proof of publication with invoice for payment to:

Arkansas State Highway and Transportation Department
Attention: Environmental Division
P. O. Box 2261
Little Rock, Arkansas 72203
Phone: 501-569-2281

Sincerely,

Lynn P. Malbrough
Public Outreach Coordinator
Environmental Division

Enclosure

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

AHTD PUBLIC INVOLVEMENT SESSION

**AHTD JOB NUMBER R60140
HWY. 70 E TO HWY. 7 N (E-W ARTERIAL)
GARLAND COUNTY**

**LOCATION:
FOUNTAIN LAKE HIGH SCHOOL CAFETERIA
4:00 – 7:00 P.M.
TUESDAY, DECEMBER 9, 2003**

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.

In your opinion, which alternative would you consider to be the best location for a new connector between Hwy. 70 and Hwy. 7?

- | | |
|--|--|
| <input type="checkbox"/> Alternative A | <input type="checkbox"/> Alternative B |
| <input type="checkbox"/> Alternative C | <input type="checkbox"/> No Preference |
| <input type="checkbox"/> Other (Please describe on back) | |

Why is that your preference? _____

Yes No

- Does your home or property have any limitations, such as septic systems, that the Department needs to consider in its alignments and or design?

If you would like for someone to contact you to further discuss the matter, please include a telephone number: (_____) _____

- Would constructing a new connector create any impacts (beneficial or adverse) on your property and/or community (economic, environmental, social, etc.)? Please explain. _____

APPENDIX F

SCOPING LETTERS



DEPARTMENT OF THE ARMY

VICKSBURG DISTRICT, CORPS OF ENGINEERS
4155 CLAY STREET
VICKSBURG, MISSISSIPPI 39183-3435

REPLY TO
ATTENTION OF:

August 5, 2003

Planning, Programs, and
Project Management Division
Environmental and Economic
Analysis Branch

Mr. Marion Butler
Environmental Division
Arkansas State Highway and
Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Butler:

I refer to your letter of July 21, 2003, regarding proposed improvements to Highway 70 East-Highway 7 North, Garland County, Arkansas (AHTD Job No. R60140). The U.S. Army Corps of Engineers, Vicksburg District, has no ongoing or proposed activities in the project area.

If your proposed work involves the discharge of dredged or fill material into wetlands or any other waters of the United States, you may need a Department of the Army permit prior to construction. For further information, please visit our website at <http://www.mvk.usace.army.mil/offices/od/odf> or contact Mr. Mike McNair (telephone (601) 631-5721).

I trust this information meets your needs. If you have any further questions, please contact Mr. Jacob Brister of this office (telephone (601) 631-5163).

Sincerely,

Norwyn E. Johnson
Norwyn E. Johnson
Chief, Environmental and Economic
Analysis Branch





IN REPLY REFER TO:

TMU

United States Department of the Interior

FISH AND WILDLIFE SERVICE

1500 Museum Road, Suite 105

Conway, Arkansas 72032

Tel.: 501/513-4470 Fax: 501/513-4480

August 7, 2003

Mr. Marion Butler
Arkansas State Highway and Transportation Dept.
P.O. Box 2261
Little Rock, AR 72203-2261

Subject: AHTD Job number R60140 Hwy. 70 East-Hwy. 7 North, Garland County, Arkansas

Dear Mr. Butler:

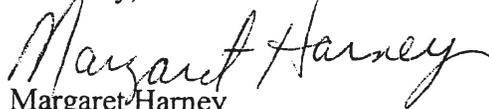
This responds to your letter dated July 21, 2003 soliciting our recommendations on the above referenced project. A review of the project area revealed that no Federally listed threatened or endangered species occur within the vicinity. We feel the highway and related construction projects through the proposed project area between Hwy. 70 East and Hwy. 7 North near Hot Springs in Garland County, Arkansas will cause no significant adverse impacts to fish and wildlife resources in the impact area.

Further investigation revealed no historical areas or federal/state lands within the proposed impact area. Unique/sensitive environmental features include several springs within the project area that should be avoided during the alignment process. For further correspondence regarding this matter, please contact Mitch Wine of this office at (501) 513-4488.

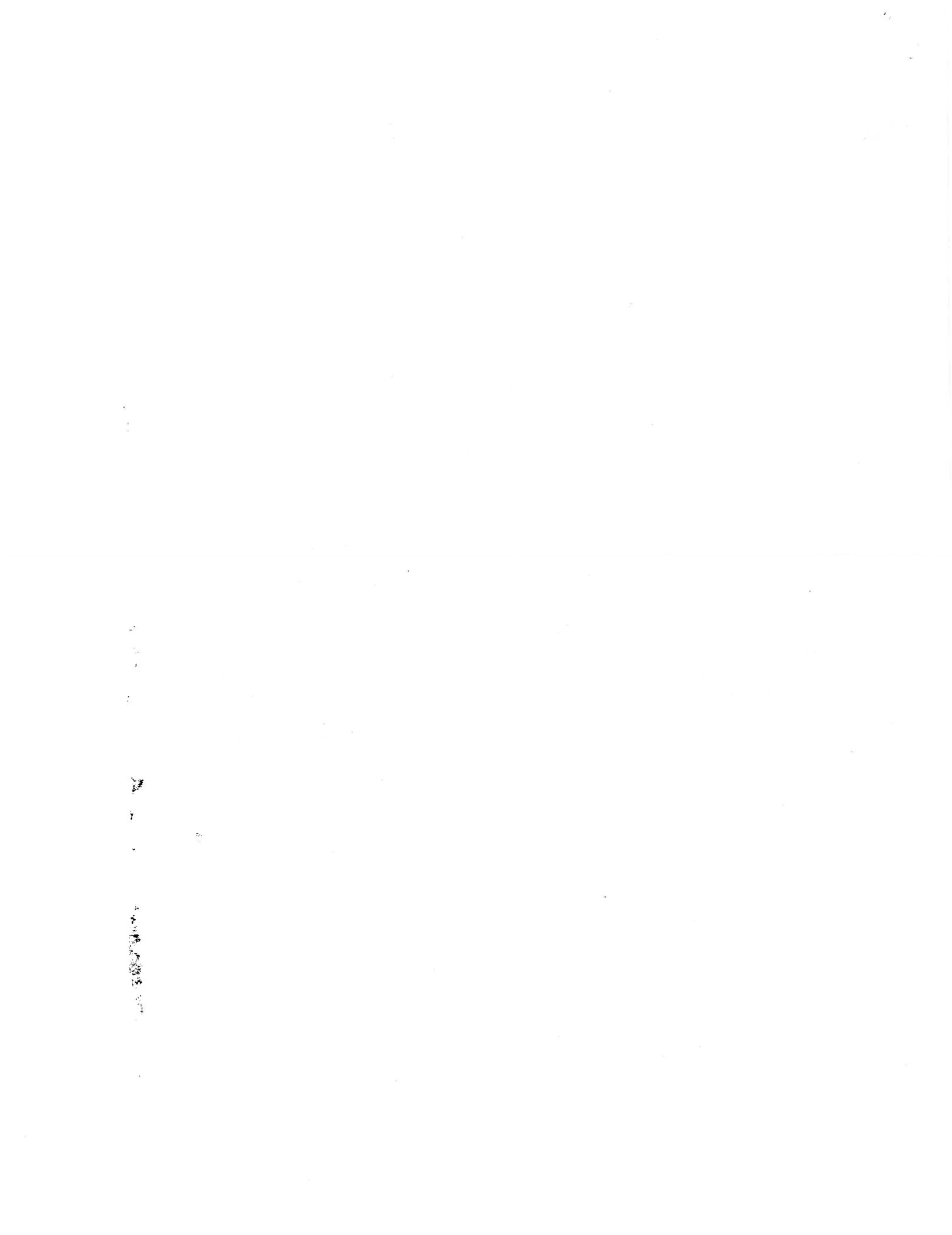
Please contact the United States Army Corps of Engineers regarding permits required under Section 404 of the Clean Water Act.

Thank you for allowing our agency the opportunity to comment on the proposed project.

Sincerely,


Margaret Harney

Acting Field Supervisor



cc:

John Harris, AHTD
Randal Looney, FHWA
Cindy Osborne, ANHC
Wanda Boyd, EPA
Robert Leonard, AGFC



File: R6014c



Arkansas Department of Health

4815 West Markham Street • Little Rock, Arkansas 72205-3867 • Telephone (501) 661-2000
Fay W. Boozman, MD, MPH, Director
Mike Huckabee, Governor

August 20, 2003

Mr. Marion Butler
Division Head Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

RE: AHTD Job Number R60140 Hwy. 70 East-Hwy. 7 North Garland County.

Dear Mr. Butler:

A staff review has been made of the information received on the referenced permit application. We have the following comment to offer on the submittal:

- Some Water and Sewer line relocations will likely be necessary, but these will be handled on an "as needed" basis. Otherwise, there are no significant Health-Related constraints or concerns associated with this project.

If you have any questions or comments, please coordinate them through Anthony Fernald at 501-661-2623.

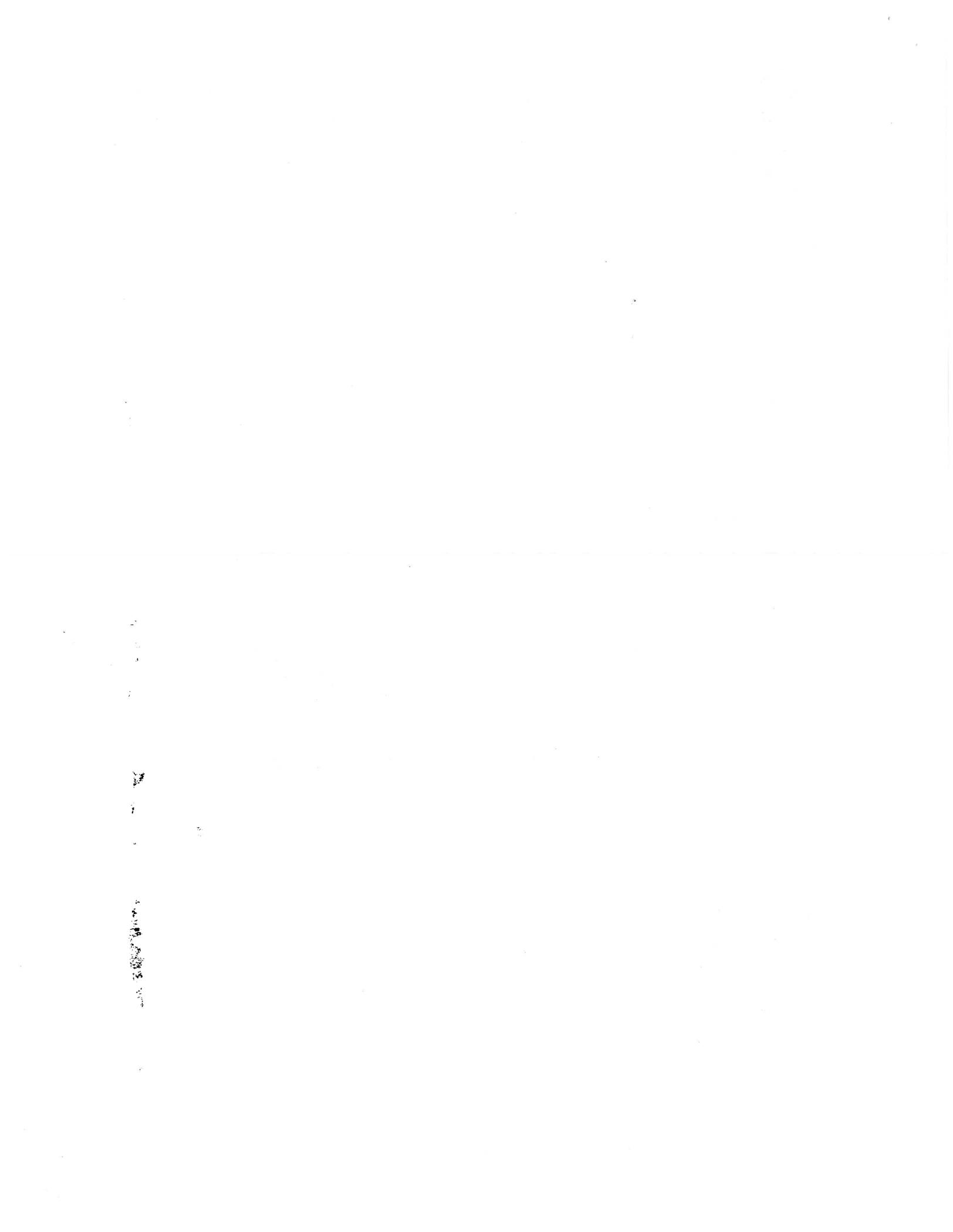
Sincerely,

Bob Makin, P.E.
Assistant Director
Division of Engineering

BM:AF:af

Keeping Your Hometown Healthy

"An Equal Opportunity Employer"



Southwestern Bell Telephone
P.O. Box 5058
Room 400
Hot Springs, AR 71902
Phone: 501.321.3200
Fax: 501.321.3215
Toll Free: 1.990.2070
E-Mail: gc1918@armail.sbc.com

Greg Chism
Area Manager Engr/Const

Southwestern Bell



August 21, 2003

Marion Butler
Division Head
Environmental Division
P.O. Box 2261
Little Rock, AR 72203-2261

RE: AHTD Job Number R60140
Hwy 70 East-Hwy 7 North
Garland County

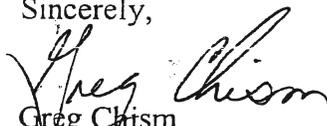
Dear Mr. Butler:

SBC has a couple of significant concerns that should be considered during the assessment of impacts associated with the Highway 70 East to Highway 7 North project. We have a Mini-Hut located on private easement on Highway 7 approximately 300 feet north of the intersection of 5 and 7. Paralleling Highway 5, we have a 6-way conduit run on the south side of the highway, part of which is also on private easement.

If the opportunity exists to accommodate the current location of these structures, considerable expense and time to relocate could be avoided. A very rough estimate of cost prior to detailed engineering for relocation of these facilities is \$300,000.00.

If additional information is needed, please contact Cornell Cornelius, Manager Engineering Design at (501) 321-3204.

Sincerely,


Greg Chism
Area Mgr. Engr/Const.



Arkansas Game & Fish Commission
2 Natural Resources Drive Little Rock, Arkansas 72205



David Goad
Deputy Director

Loren Hitchcock
Deputy Director

Scott Henderson
Director

August 25, 2003

Marion Butler
Arkansas State Highway and Transportation Dept.
P.O. Box 2261
Little Rock, AR 72203-2261

SUBJECT: AHTD Job Number R60140 Hwy. 70 East-Hwy. 7 North Garland

Dear Mr. Butler:

Your letter dated July 21, 2003 referencing the above mentioned subject has been referred to me for reply. Biologists of this agency have reviewed the proposed project and we anticipate insignificant adverse impacts to fish and wildlife resources associated with this proposed project.

Our agency would like to conduct another review of this project after the exact road alignment and stream crossings are determined.

Our agency appreciates the opportunity to comment on the proposed project.

Sincerely,


Robert K. Leonard, Biologist
River Basins Division

RKL

Cc: Mike Gibson
Donny Harris
USFWS- Conway

Phone: 501-223-6300 Fax: 501-223-6448 Website: www.agfc.com





J. Randy Young, PE
Executive Director

Arkansas Soil & Water Conservation Commission

101 East Capitol, Suite 350
Little Rock, Arkansas 72201
www.accessarkansas.org/aswcc

Phone: (501) 682-1611
Fax: (501) 682-3991
E-mail: aswcc@mail.state.ar.us



Mike Huckabee
Governor

August 25, 2003

Mr. Marion Butler, Division Head
Environmental Division, AHTD
P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job Number R60140
Highway 70 East – Highway 7 North
Garland County, Arkansas

Dear Mr. Butler:

Thank you for the opportunity to provide input regarding the preparation of an Environmental Assessment for the proposal to build on new location two lanes of an eventual four-lane divided highway. The proposed 5.5 mile project will extend the East-West Arterial in Hot Springs, Arkansas from U.S. Highway 70 north to the junctions of State Highways 7 and 5, near the community of Fountain Lake, Arkansas.

My staff has reviewed the documents provided by your Division and identified several areas of concern. Based on the proposed corridor, the project has the potential to adversely impact several streams. The proposed corridor shows potential alignment crossings of the South Fork of the Saline River, an Extraordinary Resource Water, the Middle Branch of Gulpha Creek and Cedar Creek, both tributaries of Gulpha Creek and/or the Ouachita River.

Alternatives should be explored that seek to avoid adverse impacts to these streams. Should impacts to any wetlands/streams in the area prove unavoidable, a mitigation plan should be established and implemented to offset the loss of any wetland/stream functions.

Additionally, it should be clearly stated in the environmental assessment that a) erosion-control measures will be implemented (pre-construction) and maintained throughout the construction phase of the project until the site has stabilized (post-construction), and b) construction is planned to take place during the driest time of the year in order to minimize sediment transport.

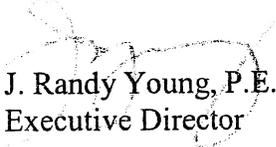
I recommend that the environmental assessment phase of the project, initiated by AHTD move forward.

Marion Butler
August 25, 2003

If you need further assistance, please contact Kenneth Colbert of my staff at 501-682-1608.

Again, thank you for the opportunity to provide input regarding the preparation of an Environmental Assessment on the above referenced project.

Sincerely,


J. Randy Young, P.E.
Executive Director

JRY/kc



United States Department of the Interior

OFFICE OF THE SECRETARY
National Business Center
Products and Services
7301 West Mansfield Ave.
Denver, Colorado 80235-2230

Sept. 5, 2003

To Whom It May Concern,

We have received mail from you addressed to the U. S. Bureau of Mines or one of their employees. The U. S. Bureau of Mines officially closed for business in 1996. Although mail addressed to the U. S. Bureau of Mines at the Denver Federal Center is still being forwarded to our office, at some point, the Post Office will no longer forward this mail. It is requested that you initiate action to remove this address from your mailing list.

Your mail was addressed to: Mr. Joe Gersic, U.S. Bureau
of Mines, P.O. Box 25026, Bldg 70, Denver Federal
Center, Denver, CO 80225

If you have any questions, please contact Robin Ylitalo, at the National Business Center, on 303-969-7780, ext. 2909.

Sincerely,

James A. Kernan
Chief, Accounting Services, Training and Review Section

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000



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

July 21, 2003

Mr. Joe Gersic
U.S. Bureau of Mines
P.O. Box 25086
Building 20, Denver Federal Center
Denver, Colorado 80225

Re: AHTD Job Number R60140
Hwy. 70 East-Hwy. 7 North
Garland County

Dear Mr. Gersic:

The Arkansas State Highway and Transportation Department (AHTD) is preparing an Environmental Assessment for the referenced project. This project proposes to build on new location two-lanes of an ultimately four-lane divided highway. The proposed 5.5 mile (8.9 kilometer) project will extend the East-West Arterial in Hot Springs from U.S. Highway 70 north to the junctions of State Highways 7 and 5, near the community of Fountain Lake. A map is enclosed which illustrates the study area of the proposed project.

Please identify any constraints or significant concerns that should be considered during the assessment of impacts associated with the proposed project. Your assistance in identifying any design or location issues is greatly appreciated. Examples of these are: unique environmental features or environmentally sensitive areas, socio-economic issues, permits or approvals that should be obtained prior to construction of the project. Your comments and any supporting documentation you may wish to provide would be helpful to project planners in the timely identification of adverse impacts.

If additional information is needed, please contact Terry Tucker of my staff at (501) 569-2281.

Sincerely,

Marion Butler
Division Head
Environmental Division

Enclosure

MB:TT:dfs

ADEQ

ARKANSAS
Department of Environmental Quality

March 1, 2004

Mr. Marion Butler
AHTD, Environmental Division
P.O. Box 2261
Little Rock, AR 72203-2261

RE: AHTD Job Number: R60140, Hwy. 70 East to Hwy. 7 North, Garland County

Dear Mr. Butler:

The Arkansas Department of Environmental Quality (ADEQ) has reviewed the information submitted on the referenced project. We apologize for the delay, but the document was delivered to the wrong Division within our agency and then it was misplaced. It was not found until February 3rd. The following agency Division has provided comments to us on your plan:

Water

The Arkansas Highway and Transportation Department shall apply for and comply with all provisions of the NPDES General Storm Water Construction Permit and Pollution Prevention Plan. For more information contact Kim Fuller at 501-682-0621.

The Environmental Preservation Division staff has also reviewed the information submitted in the referenced project.

We have no additional comments.

If you have any questions or concerns, please feel free to contact Audree Miller at 501-682-0015.

Sincerely,



Sandi Formica
Chief, Environmental Preservation Division

cc: Mary Leath, Chief Deputy Director
Martin Maner, Chief, Water Division

**RE-EVALUATION
FOR
HWY. 70 EAST - HWY. 7 NORTH (F)
GARLAND COUNTY, ARKANSAS**

Federal Highway Administration - Arkansas Division

FAP Number NCPD-9210(16)

State Project Number R60140

April 2019

TABLE OF CONTENTS

PROJECT HISTORY.....	1
PROJECT DESCRIPTION.....	1
PURPOSE OF THE PROJECT.....	2
PROJECT NEEDS.....	2
Existing Highway Connections.....	2
Planned Highway Improvements.....	5
Land Use.....	5
OPERATIONAL ANALYSIS.....	5
Traffic Volumes.....	5
Traffic Operations Analysis.....	6
Safety Analysis.....	13
PROJECT DESIGN MODIFICATIONS AND COST INFORMATION.....	17
ENVIRONMENTAL IMPACTS.....	21
Air Quality.....	21
Visual Environment.....	21
Relocations.....	21
Environmental Justice/Title VI.....	22
Geothermal Water Impacts.....	23
Floodways and Floodplains.....	27
Wetlands and Waters of the U.S.....	27
<i>Wetlands</i>	27
<i>Streams</i>	27
Public/Private Water Supplies.....	27

Hazardous Materials	28
Cultural Resources.....	28
Section 4(f) Resources.....	36
Threatened and Endangered Species.....	37
Land Use.....	38
Secondary Impacts.....	38
Cumulative Impacts.....	38
<i>Air Quality</i>	38
<i>Water Quality</i>	39
<i>Land Use</i>	39
<i>HOSP Recharge</i>	40
<i>Visual Features</i>	40
<i>Mitigation and Recommendations</i>	43
COMMITMENTS	44
SUMMARY	45
APPROVAL OF RE-EVALUATION	46

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	2005 and 2018 Selected Alternatives	3
2	Existing and Projected Traffic Volumes	7
3	Estimated and Projected Traffic Volumes with the 2018 Selected Alternative.	9
4	Estimated and Project Traffic Volumes with the 2018 Selected Alternative with Highway 7S Closed to Through Traffic	11
5	Crash Severity	15
6	Project Design Modifications	19
7	Geothermal Impacts	25
8-13	Wetland/Stream Impacts (Sheets 1 through 6).....	30-35
14	Projects within the HOSP Recharge Area	41

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Existing and Future LOS	6
2	Crash Rates	13
3	Design Modification Summary	17
4	Design and Cost Information	18
5	Relocation Comparisons	22
6	2018 Selected Alternative Stream Impacts.....	29
7	Projects within the HOSP Recharge Area	43
8	Impacts Summary.....	49

APPENDICES

Appendix A: Disposition of Comments

Appendix B: Conceptual Stage Relocation Statement

Appendix C: Section 4(f) Evaluation

Appendix D: The Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Appendix E: Correspondence

PROJECT HISTORY

The Arkansas Department of Transportation (ARDOT) initiated the National Environmental Policy Act (NEPA) process for this project in 2003. The Environmental Assessment (EA) was completed and signed by the Federal Highway Administration (FHWA) in February 2005. A Location Public Hearing was held in April 2005, and a Finding of No Significant Impact (FONSI) for the location of the Selected Alternative was approved in June 2005.

In 2006, a private well located 5.5 miles east of the Hot Springs National Park (HOSP) and approximately one mile from the proposed project was found to have thermal influences. The United States Geological Survey (USGS) conducted a reconnaissance of wells and springs in the general area and discovered an additional domestic well with thermal waters. A decision was made to study the potential for the proposed project to impact the springs at HOSP. In 2011, it was determined that there were no hydraulic connections between the domestic wells in the project area and the HOSP springs. A supporting letter by the HOSP is included in Appendix E. However, further studies found that the northern portion of the proposed project was theoretically within the recharge area for the HOSP springs.

Passage of a countywide tax for road improvement bonds in 2016 revitalized the project, and a partnering agreement between Garland County and ARDOT (Appendix E). A Design Public Hearing (DPH) was held February 27, 2018 showing the preliminary design for the 2018 Selected Alternative. Figure 1 identifies the location of the 2005 Selected Alternative, and the alignment shown at the DPH referred to in this document as the 2018 Selected Alternative. Public comments received at the DPH are addressed in the Disposition of Comments, found in Appendix A. This Re-evaluation outlines the changes between the 2005 Selected Alternative and the 2018 Selected Alternative; provides updated purpose and need information; and presents revised information for the environmental impacts.

PROJECT DESCRIPTION

The project is located in southeastern Garland County, Arkansas and will eventually be a four-lane divided highway with fully controlled access meeting American Association of State Highway and Transportation Officials (AASHTO) Freeway Standards, with a design speed of 50 mph. Initially, two 12-foot wide travel lanes (one in each direction) with 8-foot shoulders will be built, with the final typical section being two twelve-foot wide travel lanes in each direction separated by a barrier wall. Right of way width will vary from 400 to 600 feet depending on construction cuts and fills.

The southern terminus is outside the city limits of Hot Springs at the intersection of US Highways 70 and 270. From there, the route runs north on new location for 5.5 miles before terminating at the junction of Highways 5 and 7.

PURPOSE OF THE PROJECT

The purpose of the project is to provide safe and efficient movement of local and through traffic and to alleviate congestion on Highway 7 by moving through traffic onto the proposed bypass. The project is expected to reduce delays, congestion, and improve safety within Hot Springs for vehicles and pedestrians by removing much of the through traffic from the section of Highway 7 most heavily used by tourists and pedestrians.

The HOSP has requested closure of the Highway 7 Spur (7S), which bisects their Gulpha Gorge campground to connect Highways 7 and 70. This busy shortcut is commonly used to bypass congested traffic routes in downtown Hot Springs. When the proposed bypass opens, ARDOT and Garland County have agreed to close this road to through traffic and remove Highway 7S from the highway system, with maintenance by Garland County.

PROJECT NEEDS

To reassess the needs for the proposed project, information was updated related to the existing highway connections, planned highway improvements, land use, traffic volumes, level of service, and safety.

Existing Highway Connections

Regionally, north-south connectivity is very limited. Hot Springs is located in a north-south oriented valley between two mountain ridges. Highway 7 follows the valley through the center of downtown. Due to the mountainous terrain, in addition to Highway 7, only Highway 7S east of town and Highway 227 west of town provide connections to population hubs and recreational areas north and south of Hot Springs. Both routes follow valleys through the mountains. The nearest eastern connector between Highways 70 and 7 utilizes Highways 5 and 128 approximately 14 miles east of Highway 7S. Arterial access to the south and west of the city is constrained by Lake Hamilton and the Ouachita River.

Highway 7, Highway 227 (approximately four miles west of Highway 7), and Highway 7S (approximately two miles east of Highway 7) provide the only regional connections to locations north of the Hot Springs downtown area. Highways 70 and 270 provide connectivity across Hot Springs and regionally. Both routes connect to Interstate 30 approximately 20 miles to the east and to Highway 71.

Hot Springs Village (HSV), with a population of over 12,000, is located approximately 11 miles northeast of Hot Springs. Residents utilize both the Main Gate, located on Highway 7, and the East Gate, located on Highway 5, to access Hot Springs and Highways 70 and 270. Highway 7S is used to bypass Highway 7 through downtown Hot Springs.

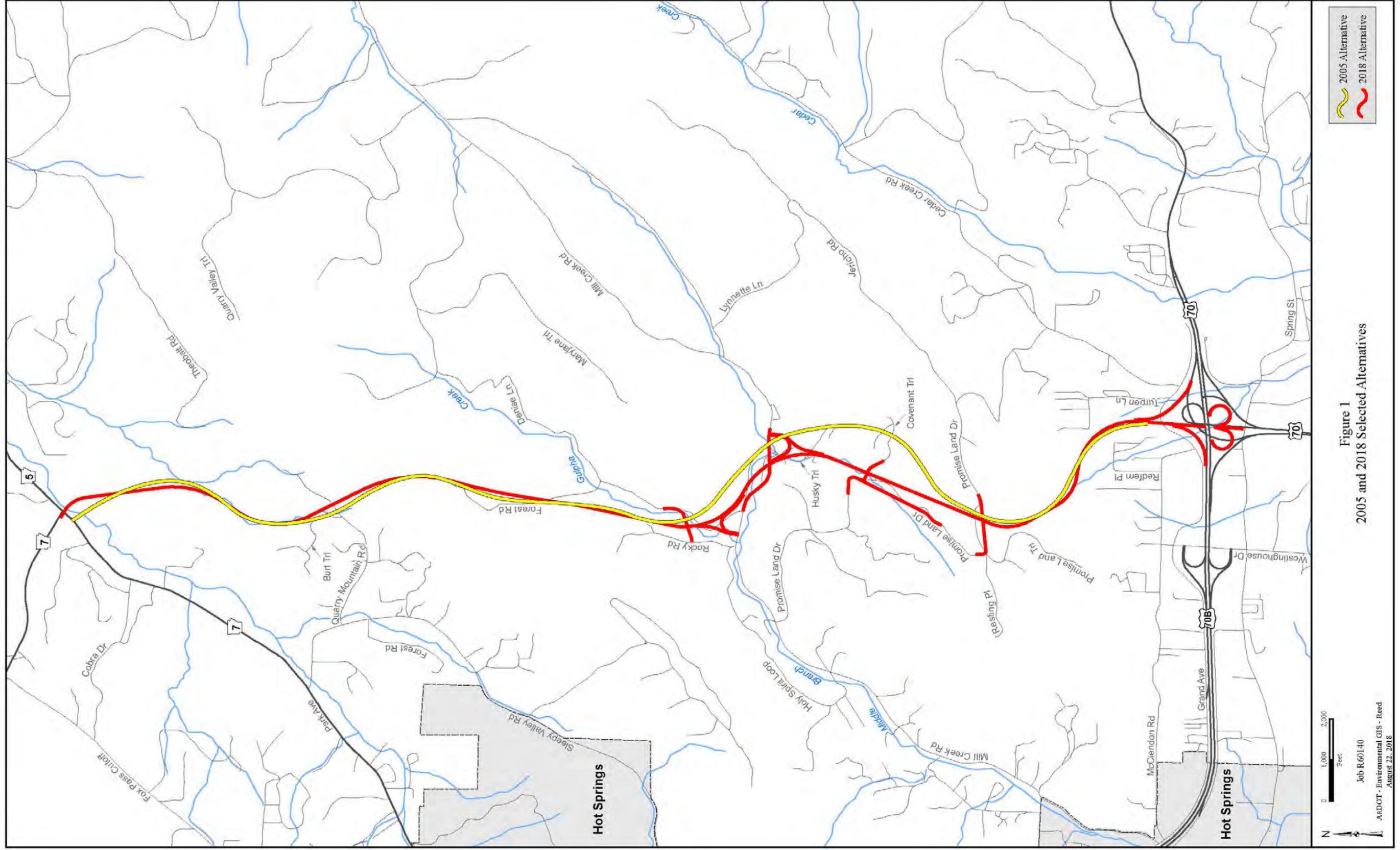


Figure 1
2005 and 2018 Selected Alternatives

0 1,000 2,000
Feet
N
AEDOT - Environmental GIS - Reed
Job R60140
August 22, 2018

This page left blank intentionally.

Planned Highway Improvements

Several planned projects in the area will increase traffic flow, provide wider lanes, improve safety, and will complement the 2018 Selected Alternative. These proposed highway improvements are discussed below and their locations are indicated on Figure 2.

Southwest of the proposed northern terminus of the 2018 Selected Alternative, Highway 7 will be upgraded to improve capacity and safety for a portion of Highway 7 from the Highways 5/7 intersection to Highway 7S in Garland County. Proposed project Job Number 061547 will include an overlay section, a section to be widened to three lanes, and the construction of a roundabout at the Highways 5/7 intersection. The total project length is approximately 4.3 miles. This project is planned for the fall of 2019.

Job Number 061438 will improve safety on 11 selected sections of Highway 7 between Highway 5 and Highway 298, from north of the proposed northern terminus of the 2018 Selected Alternative to the entrance to HSV. Total length of the proposed improvements is approximately 2.5 miles. This project is planned for summer of 2019.

East of the proposed northern terminus of the 2018 Selected Alternative, Job Number 061439 is proposing geometric improvements on Highway 5, with construction of a center turn lane and shoulder widening for a 1.28-mile section of Highway 5 from Highway 7 to Deerpark Road. The project is planned for early 2020.

Land Use

Most of the land along and adjacent to the 2018 Selected Alternative is undeveloped with a few residential properties scattered throughout the area. These residences are accessed by local/county roads, many with thin asphalt, gravel, or dirt surfaces.

The southern terminus of the project will connect to the existing interchange of US Highways 70, 70B and 270. Local roads connecting to the Highway 70 frontage road provide access to area homes. There are several commercial properties near the northern terminus. These are either accessed from driveways located on Highways 7 or 5.

OPERATIONAL ANALYSIS

Traffic Volumes

Traffic volumes and projected diversions for the year 2040 were estimated using the State Traffic Demand Model. Existing traffic volumes were projected using historical traffic volume count trends. Existing and projected traffic volumes are shown in Figures 2 through 4. Figure 2 shows existing and projected traffic. Figure 3 shows estimated and projected traffic with the 2018 Selected Alternative. Figure 4 shows the estimated and projected traffic with the 2018 Selected Alternative with Highway 7S closed to through traffic.

Traffic Operations Analysis

The traffic operational performance of a roadway can be described by its level of service (LOS), with LOS A being best and LOS F being worst. The 2010 Highway Capacity Manual defines LOS as a quality measure to describe traffic conditions that may include speed, travel time, delay, maneuverability, traffic interruptions, and comfort. LOS D or better is considered acceptable for urban roadways such as Highway 7 between Whittington Avenue and Highway 5. LOS C is considered acceptable for rural roadways such as Highway 5 and the proposed 2018 Selected Alternative. See Table 1 for existing and future LOS.

Table 1 Existing and Future LOS		
Route	LOS	
	2017	2037
Highway 7 (Whittington to Highway 7S)	E	E
Highway 7 and 7S Intersection	D ¹	D ¹
Highway 7 (Highway 7S to Fox Pass Cutoff)	E	E
Highway 7 (Fox Pass Cutoff to Highway 5)	D ²	D ²
Highway 7 and Highway 5 Intersection	C	C
Highway 7S	E	E
2018 Selected Alternative	C	C

¹ LOS B is experienced by left-turn traffic from Highway 7 in the southbound direction, but LOS F is experienced by left-turn traffic from Highway 7S.

² LOS F is experienced in front of Fountain Lake School.

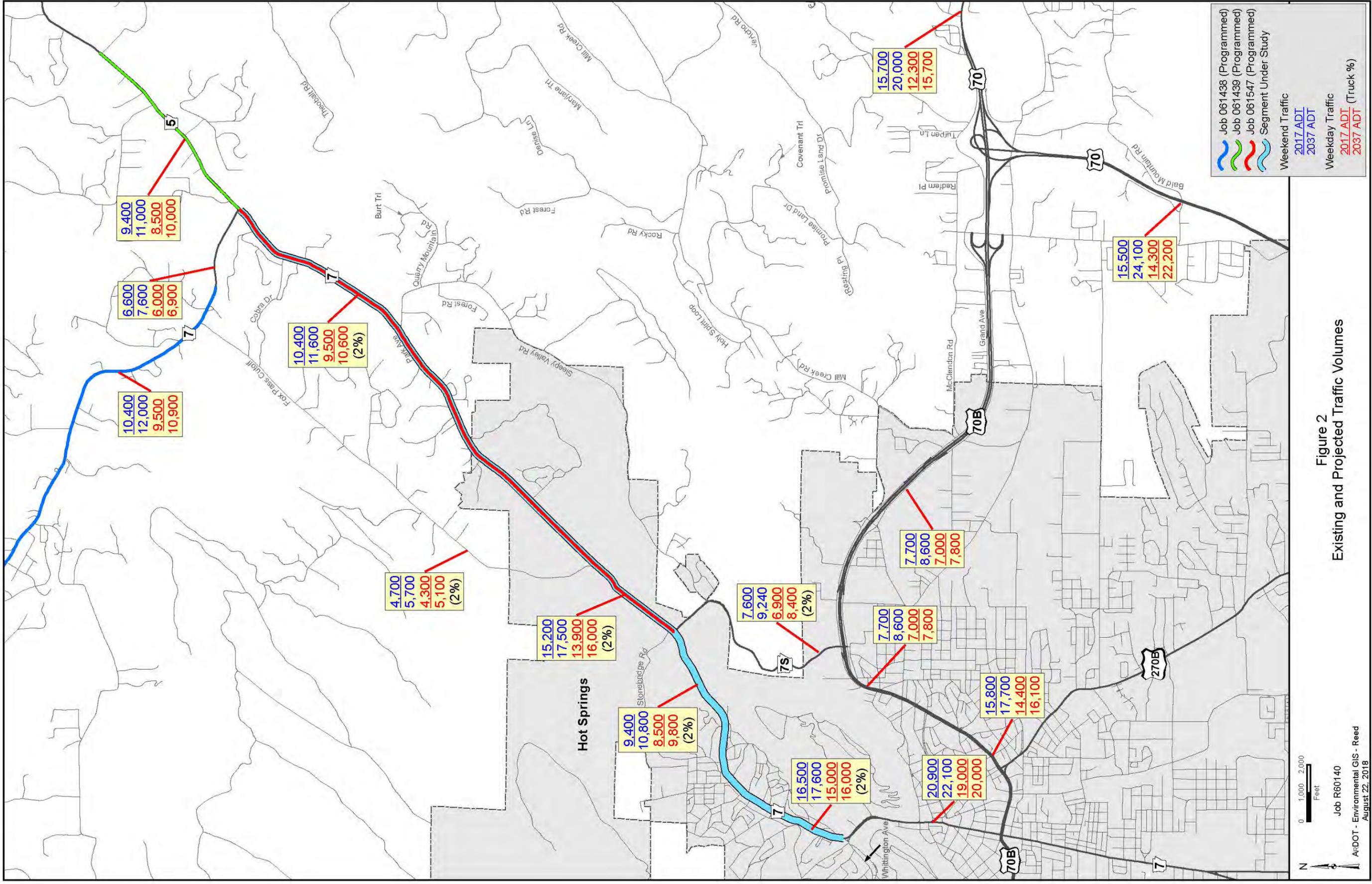
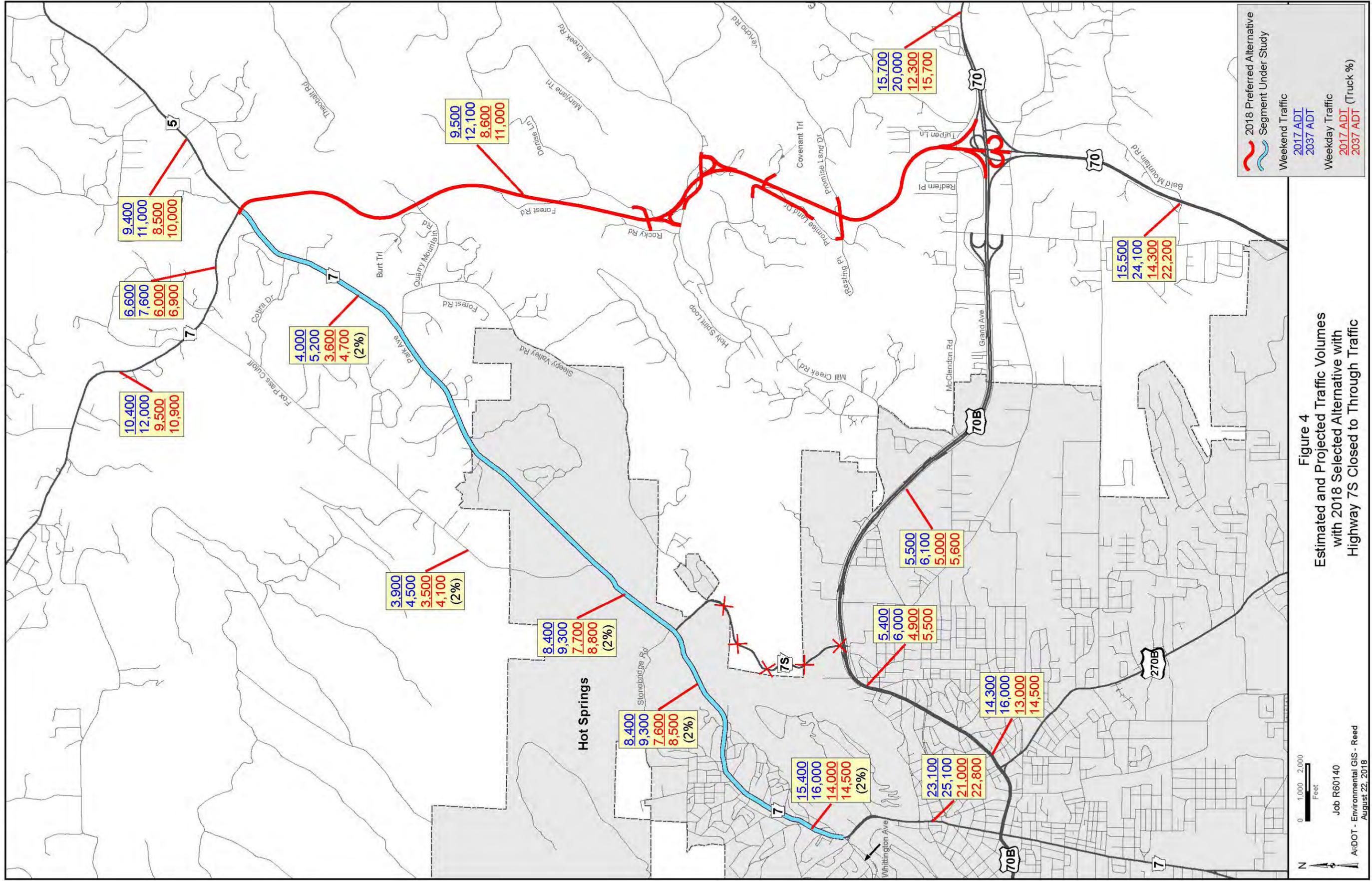


Figure 2
Existing and Projected Traffic Volumes

0 1,000 2,000 Feet
 Job R60140
 A-DOT - Environmental GIS - Reed
 August 22, 2018

This page left blank intentionally.

This page left blank intentionally.



This page left blank intentionally.

Safety Analysis

Crash rates are an effective tool to measure the relative safety of a highway. The combination of crash frequency, traffic volumes, and length of the highway segment being evaluated are used to calculate crash rates. See Table 2 for 2011-2015 crash rates on Highway 7.

Annual average crash rates were calculated using crash records for 2010 – 2014, the most recent years for which data is available. Crash rates are expressed as the total number of crashes (all levels of severity) per million vehicle miles traveled (mvm). Additionally, fatal (K) and serious injury (A) crash rates were evaluated separately and are expressed as KA per 100 mvm traveled. Crash rates were below the statewide average in each of the five years evaluated. However, the KA Crash rates were above the statewide average in three of the five years and for the five-year average.

A crash analysis was conducted for Highway 7 between Highways 7S and 5, the segment of Highway 7 from which most traffic will be diverted by construction of the proposed project. In addition, the closing of Highway 7S to through traffic will eliminate the south to west left turn at the Highways 7/7S intersection for traffic not directly accessing the campground. This will further reduce delays and the potential for rear-end crashes in queues. The reduction in traffic volumes on the route will reduce the potential traffic conflicts from vehicles entering and exiting the traffic stream at intersections and driveways. See Figure 5 for the locations and severity of the crashes analyzed.

Year	Crashes	KA Crashes	Weighted ADT	Length	Crash Rate ¹	Statewide Average ²	KA Crash Rate ²	KA Statewide Average ³
2014	21	0	9,200	4.18	1.50	2.37	0.00	9.94
2013	27	4	10,200	4.18	1.73	2.34	24.97	11.43
2012	22	3	9,900	4.18	1.46	2.78	18.73	12.47
2011	21	3	9,200	4.18	1.50	2.81	20.70	11.53
2010	28	0	9,900	4.18	1.85	2.60	0.00	8.01
5-year average	23.8	2	9,680	4.18	1.61	2.58	12.88	10.68

¹ Crash rates (all severity types) are expressed in per million vehicle miles traveled (MVM).
² Two-lane, undivided, urban highways
³ KA crash rates are expressed per 100 VM.

This page left blank intentionally.



Figure 5
Crash Severity

This page left blank intentionally.

PROJECT DESIGN MODIFICATIONS AND COST INFORMATION

Modifications to the project were developed during the design process to reduce costs and environmental impacts, or were a result of changes from other projects proposed in the area. Table 3 lists the design modifications that were incorporated into the 2018 Selected Alternative. The locations of these modifications are shown on Figure 6.

Table 3 Design Modification Summary	
Location	Design Modification
Overall	The design speed was changed from 65 mph to 50 mph. This dramatically changed both the vertical and horizontal alignments resulting in less cost, and impacts to the environment.
A	The Garland County Judge requested a Promise Land Drive Interchange. The interchange was designed and shown at the Design Public Hearing. Public comments received at the hearing, subsequent property owner objections deemed the interchange unnecessary, and the interchange was removed from the project.
B	Addition of the Mill Creek Interchange as requested by the Garland County Judge and approved by the ARDOT.
C	Mill Creek Road rerouted with an overpass bridge over the highway.
D	Control of access measures will be implemented to minimize impacts to the whole route and the HOSP groundwater recharge area, north of Mill Creek Road.
E	North termini-connection to roundabout at Hwy. 7/5 intersection to be constructed under Job 061547.

A comparison of the design and cost data for the 2005 and 2018 Selected Alternatives is shown in Table 4. All costs are estimates shown in 2018 dollars and reflect the construction of the ultimate 4-lane facility.

A combination of Congestion Mitigation and Air Quality Improvement (CMAQ) Program funds, Congressional Earmark Funds, and local funding will be used to construct the 5.49-mile project.

**Table 4
Design and Cost Information**

	2005 Selected Alternative	2018 Selected Alternative
Length	5.47 miles	5.49 miles
Roadway Cost ¹	116.5 million ²	69.4 million
Right of Way Cost ³	0.115 million	11.9 million
Stream Mitigation	0	4.1 million
Total Cost	116.6 million ²	85.4 million

¹ The roadway costs reflect the construction of the ultimate 4-lane bypass.

² Projected construction costs calculated using Quantum® cost estimation software included bridge costs.

³ Reflects relocation costs for 2005 only, 2018 cost reflect relocation, acquisition, and utility.

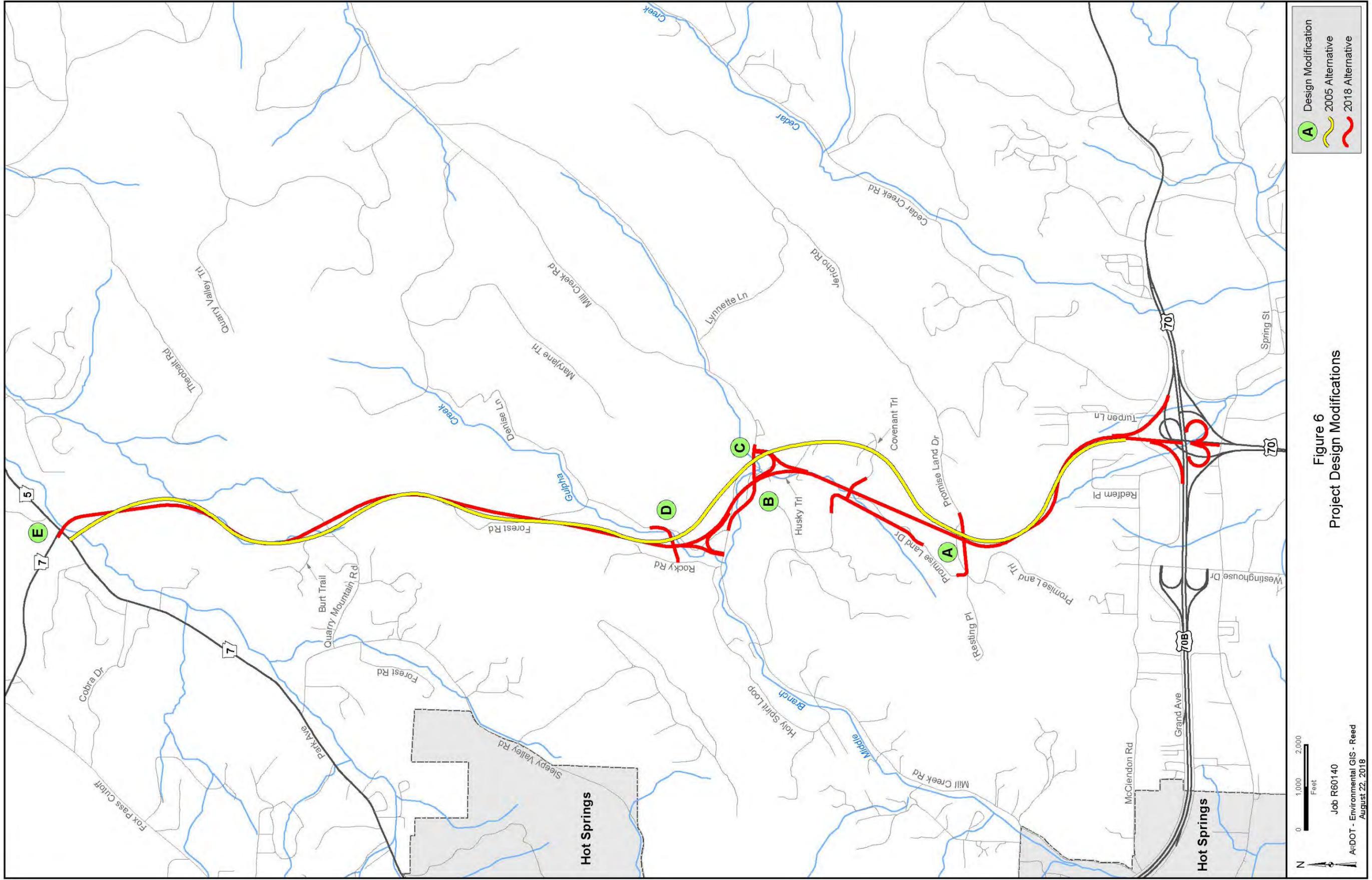


Figure 6
Project Design Modifications

This page left blank intentionally.

ENVIRONMENTAL IMPACTS

Environmental impacts outlined in this Re-evaluation are those impacts that have changed between the 2005 Selected Alternative and the 2018 Selected Alternative. The Re-evaluation found that there would not have been a difference in impacts for the 2018 Selected Alternative for the following: Wild and Scenic Rivers, Water Quality, Natural Environment, Prime Farmlands and Public Lands.

Air Quality

This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

Visual Environment

Visual impacts were addressed in 2005 and adverse visual impacts were predicted for residents and visitors to the Dripping Springs and Panther Valley Ranch areas (e.g., neighbors). Beneficial visual impacts were predicted for roadway users (e.g., travelers). The 2018 Selected Alternative will introduce permanent changes to the existing environment. Such permanent changes include larger cut and fill areas, tree and vegetation clearing, and elevated bridge structures. Among other factors, Design Public Hearing comments indicated a high level of visual sensitivity on the part of both neighbors and travelers valuing the project area's scenic qualities. Comments indicated that more adverse visual impacts are expected with the 2018 Selected Alternative than were received for the 2005 Selected Alternative.

Relocations

Comparisons of total relocations for the 2005 and 2018 Selected Alternatives are shown in Table 5. Increases in relocations can be attributed to the establishment of more homes and businesses along the 2018 Selected Alternative. The latest relocation study indicates that the 2018 Selected Alternative has eight additional residential owners, eight residential tenants, one less business relocation, and three additional landlord businesses. Although alignment shifts for the 2018 Selected Alternative were made to

minimize impacts to relocations, prior shifts in 2005 to avoid a groundwater recharge area, a known burial site, and utilities did not contribute to the increased number of relocations. The increase in the number of relocatees is attributable to population growth in and around the proposed route. The Conceptual Stage Relocation Statement can be found in Appendix B.

	2005 Selected Alternative	2018 Selected Alternative
Residential Owners	2	10
Residential Tenants	0	8
Businesses	3	2
Landlord Businesses	Not evaluated	3
Total	5	23
Minority Households	0	2
Elderly Households	0	3
Low Income Households	1	6

Environmental Justice/Title VI

A review of the 2005 EA did not indicate any Environmental Justice (EJ) or Title VI issues involved with the project at that time. The 2018 Re-evaluation identified EJ and Title VI populations in the project area. Although relocations were minimized as much as possible during design, two tenant households to be relocated are considered minority (Latino), three tenant households are considered low-income, and three households are considered low-income and elderly.

The following methods were utilized to determine if a disproportionate impact would occur to minority, elderly, and/or low-income households:

- Conducting field observations and holding a public involvement meeting.
- Utilizing census data gathered from the Environmental Justice Screening and Mapping Tool, along with the American Factfinder and the Department of Health and Human Services Poverty Guidelines. Census data for the immediate project area showed an 8.6% minority population (3.7% Latino), a 17.4% elderly population, and an 11.2% low-income population. The percentages of these

populations for Garland County are 12.4% minority (5.3% Latino), 21.7% elderly, and 20.6% low-income.

- Reviewing the Conceptual Stage Relocations Inventory Study to determine if replacement housing and businesses were available.

The relocatees in the project area will be made aware of their eligibility for relocation assistance. The Conceptual Stage Relocation Study showed that available comparable dwellings are in the project area that is within the financial means of those being relocated. Special relocation advisory services and assistance will be provided commensurate with the needs of these relocatees.

The proposed improvements would not result in any permanent disconnection or division of any community or neighborhood area, and would not eliminate the community service facilities currently existing in the project area. Although minority and low-income populations are affected by the project, a determination has been made that the proposed project will not have a disproportionate impact on the Environmental Justice and Title VI populations.

Geothermal Water Impacts

In March of 2006, a private well located 5.5 miles east of the HOSP and approximately one mile from the proposed project, was found to have thermal influences. The discovery of this domestic well with thermal water generated additional concern about potential impacts to the HOSP recharge area. This discovery led to a study to determine the potential for the proposed road project to impact the hot springs at HOSP. An agreement was signed by USGS, HOSP, ArDOT, and FHWA to complete an investigation resulting in the preliminary characterization of thermal waters east of the HOSP and to determine the degree of hydraulic connectivity between the thermal water in the well and the hot springs in HOSP. This study began in January 2007, and the highway project was suspended until the study was completed.

The 2006 – 2009 USGS study found that thermal influences to waters in the area were in similar geologic settings; along the nose of plunging anticlines and closely aligned with mapped thrust faults. The deep flow systems for thermal water are likely a result of the local hydrologic and geologic framework, and represent a similar geologic model to the one delivering groundwater to the hot springs in HOSP, rather than being systems in direct communication with the HOSP thermal system. Concerns related to diversion of water from the hot springs of HOSP by blasting near the thermal well sites were not supported by the data gathered in the 2006-2009 study.

The USGS in partnership with the HOSP is constructing a System-Based Model (Model) for use by the HOSP in protecting the recharge area for the hot springs of the HOSP. Since most of the hot springs recharge area lies outside the HOSP boundary, this makes management difficult. This Model would enhance HOSP ability to participate in meaningful discussions, planning, and decisions in regard to the degree and type of development that could occur in the hot springs recharge area. Data from previous and

ongoing studies will be used in conjunction with the Model to understand and predict the recharge and potential effects on recharge of the hot springs.

Available data and Model results indicate that the presumed recharge area for the hot springs of HOSP occurs on certain geological formations above 660 feet mean sea level (msl) elevations. The primary formations involved in recharge are the Stanley Shale, Hot Springs Sandstone, Arkansas Novaculite, and Bigfork Chert. These geological formations where they occur above 660' msl within the thrust-faulted anticlinal complex provide the hydro geologic frameworks for the Hot Springs flow system are found to play an important role in the recharge of the hot springs of HOSP. The Model shows that there is a variance of water infiltration (3 -12 inches of rain per year) throughout the recharge area. This recharge infiltrates into the subsurface, traveling slowly over a time of thousands of years down to depths sufficient to pick up heat along the local geothermal gradient, increasing water temperature to approximately 67 degrees Celsius (152 degrees Fahrenheit); the hot water then travels quickly up thrust-fault conduits to emerge at the Hot Springs area. Further data indicate that the hot springs include a shallow, very young, locally derived, cold-water component (averaging around 30% during periods of rainfall and about 5% during drier periods) of groundwater flow that mixes with the thermal component of flow of the hot springs of the HOSP. The recharge area for the cold-water component lies within a mile or less of the hot springs discharge area, and the cold-water recharge area is much smaller than the recharge area for the thermal-water component. Seasonal rains and short flow paths of the cold-water component of flow mixing with the thermal-water components result in near-immediate changes to the thermal-water systems outside of the Park, as well as to the hot springs of HOSP. Long-term or seasonally changing groundwater-levels in the thermal-water recharge area cause pressure changes along the thermal-water flow path that also can result in near-instantaneous changes in thermal-water discharge rates at the springs.

Formerly, five springs were identified that would be impacted by the 2005 Selected Alternative. The USGS study found four additional cold-water springs and one warm water spring that will be directly impacted by construction of the 2018 Selected Alternative, bringing the total number to ten. In 2011, the USGS determined that there were no hydraulic connections between the domestic wells in the project area and the HOSP springs. However, the studies found that the northern portion of the proposed project was within the probable recharge area for the HOSP springs.

The proposed 2018 Selected Alternative could impact approximately 189 acres (0.8%) of the estimated 23,838-acre recharge area, as shown on Figure 7- Groundwater and Geothermal Map. Of these 189 acres, 59.6 acres are above the 660' msl elevation. The ARDOT will purchase 60 acres of mitigation land above 660' msl in the recharge area and permanently protect it from development. Discussion of cumulative impacts to the HOSP recharge area can be found in the Cumulative Impacts Section.

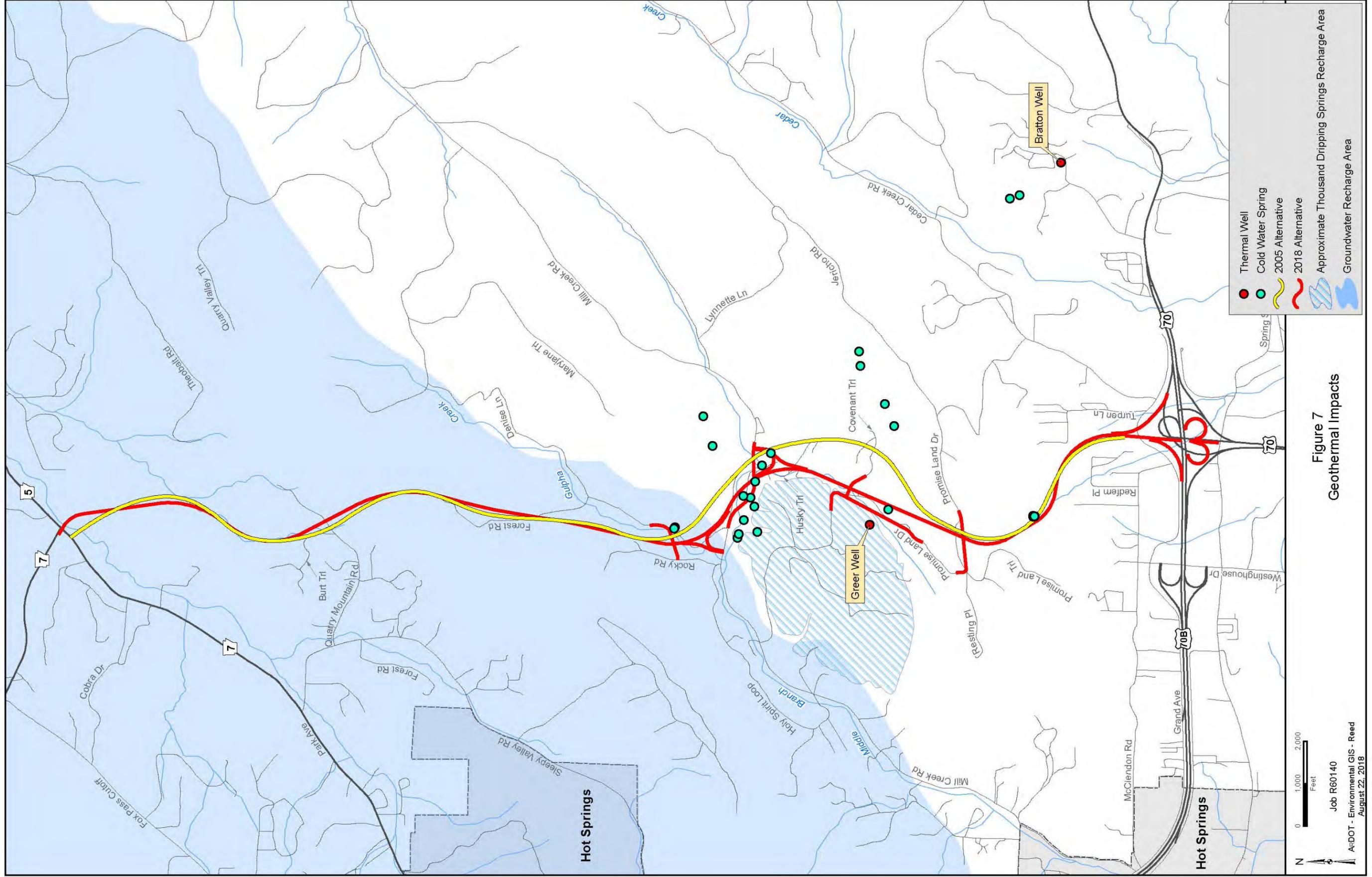


Figure 7
Geothermal Impacts

This page left blank intentionally.

Floodways and Floodplains

The 2005 Selected Alternative would impact 300 linear feet of Special Flood Hazard Area (SFHA) along an unnamed tributary of the South Fork of the Saline River. The 2018 Selected Alternative would impact 457 linear feet of an SFHA.

The proposed construction will not cause a significant reduction of floodwater storage or retention functions. Bridges and/or drainage structures have been sized sufficiently to minimize impacts on natural and beneficial floodplain values. Adjacent properties should not be impacted nor have a greater flood risk than existed before construction of the project. None of the encroachments will constitute a significant floodplain encroachment or a significant risk to property or life.

Wetlands and Waters of the U.S.

Wetlands

There would be 1.3 acres of jurisdictional wetland impacts for the 2018 Selected Alternative, in the locations shown on Figures 9 and 10. The 2005 Selected Alternative would have impacted less than 0.5 acre of wetlands.

Streams

In the time between the 2005 Selected Alternative and 2018 Selected Alternative, new regulations, and guidance from the US Army Corp of Engineers (USACE) concerning stream impacts under Section 404 of the Clean Water Act were implemented. Stream impacts were not discussed in depth in the original EA.

The 2018 Selected Alternative will impact 17 streams for approximately 17,992 linear feet. Stream relocations will occur at 3 of the 17 streams. There would be 20 pipe culverts, five concrete box culverts, and one bridge.

A Standard Section 404 Permit will be required for construction related impacts to waters of the US. Compensatory mitigation for unavoidable impacts to waters of the US will be required. Compensatory mitigation was calculated utilizing the 2002 Charleston Methodology for wetland impacts and the Little Rock Stream Methodology for stream impacts. Approximately 8.5 wetland credits and 136,215 stream credits will be offered as compensatory mitigation for impacts to waters of the US.

Table 6 summarizes stream impacts for the 2018 Selected Alternative. Locations of these stream crossings are shown on Figures 8 through 13.

Public/Private Water Supplies

No impacts to public drinking water systems or wellhead protection areas were identified for the 2005 Selected Alternative. The 2018 Re-evaluation identified three public drinking water systems' Surface Water Protection Areas within the proposed project area. These protection areas are the Kimzey Regional Water District, City of Malvern Waterworks, and the HOSP water system. The Kimzey and Malvern waterworks are noted by the e-mail in Appendix E-Correspondence. Due to the distance of the water intakes from the project

areas, no impacts to these water systems are expected. In addition, Hot Springs Off Road Vehicle Park (previously Superlift) installed a new well in 2003. Because this wellhead is located within two miles of the project, a Wellhead Protection Special Provision will be incorporated into the construction contract to prevent impacts to the wellhead.

If any permanent impacts to private drinking water sources occur due to this project, the Department will take appropriate action to mitigate these impacts. Impacts to private water sources due to the contractor neglect or misconduct are the responsibility of the contractor.

Hazardous Materials

A hazardous materials Re-evaluation was conducted for the 2018 Selected Alternative to determine if any additional hazardous substances or solid wastes beyond those identified in the original EA were present. The numerous illegal dumps that litter the project area are still there and are comprised mainly of scrap metal, household trash, discarded appliances, mattress sets, abandoned vehicles, and tires. All of these small dumpsites have been reassessed for hazardous materials. It was found that the dump area north of Denise Lane has been partially cleaned up of the old cars and mobile homes that were in the area back in 2003. The large and old Hot Springs Dump is still present. The illegal dumps pose no imminent threat to the environment but will be dealt with on an individual basis during construction. The 2018 Alternative Alignment will impact four small illegal dumps scattered throughout the project area. The sizes of these small dumps range from 4 to 12 cubic yards of waste material.

The Commitments Section of this document contains information about what actions the ARDOT will take in case an illegal dump, asbestos site, or hazardous material is discovered.

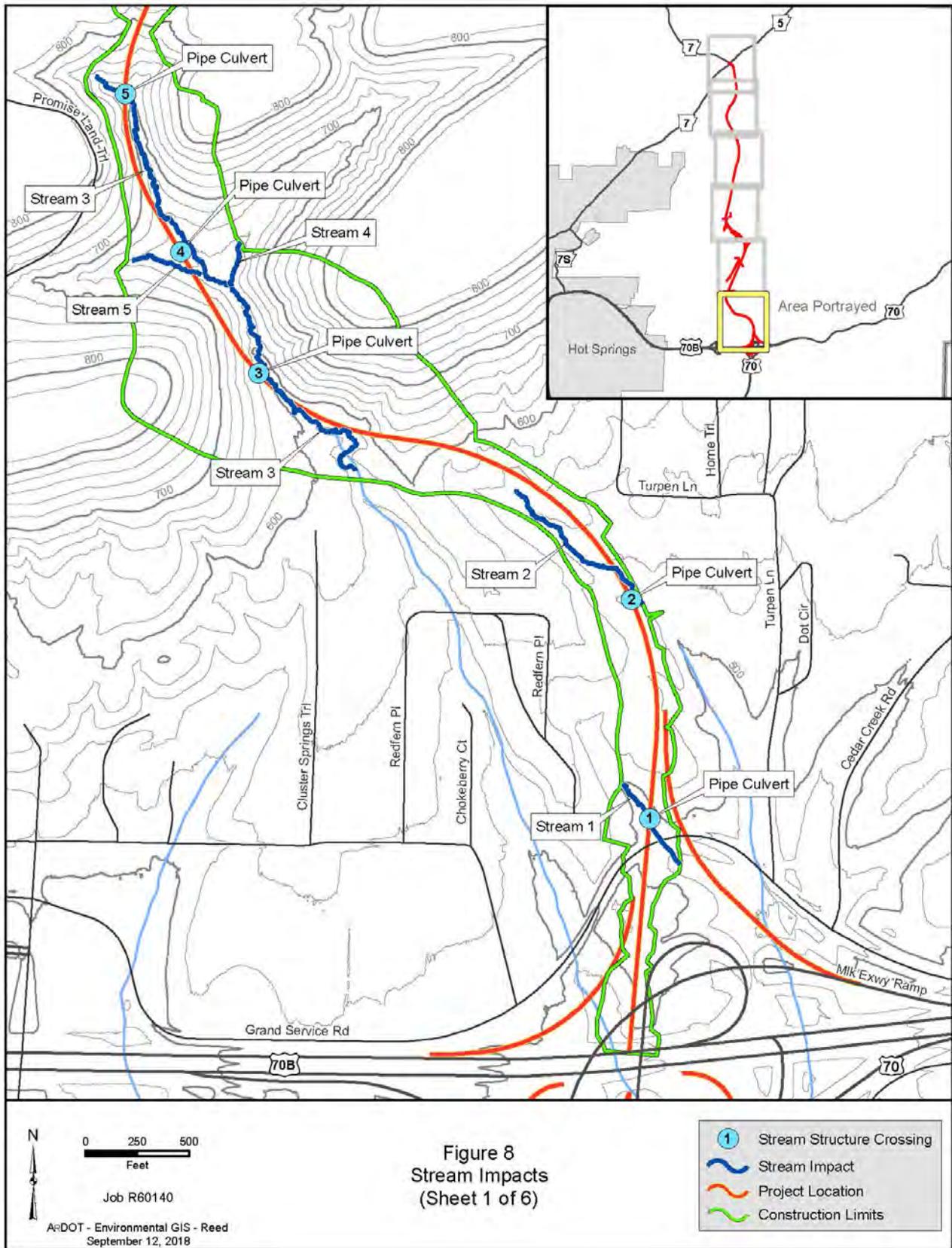
Cultural Resources

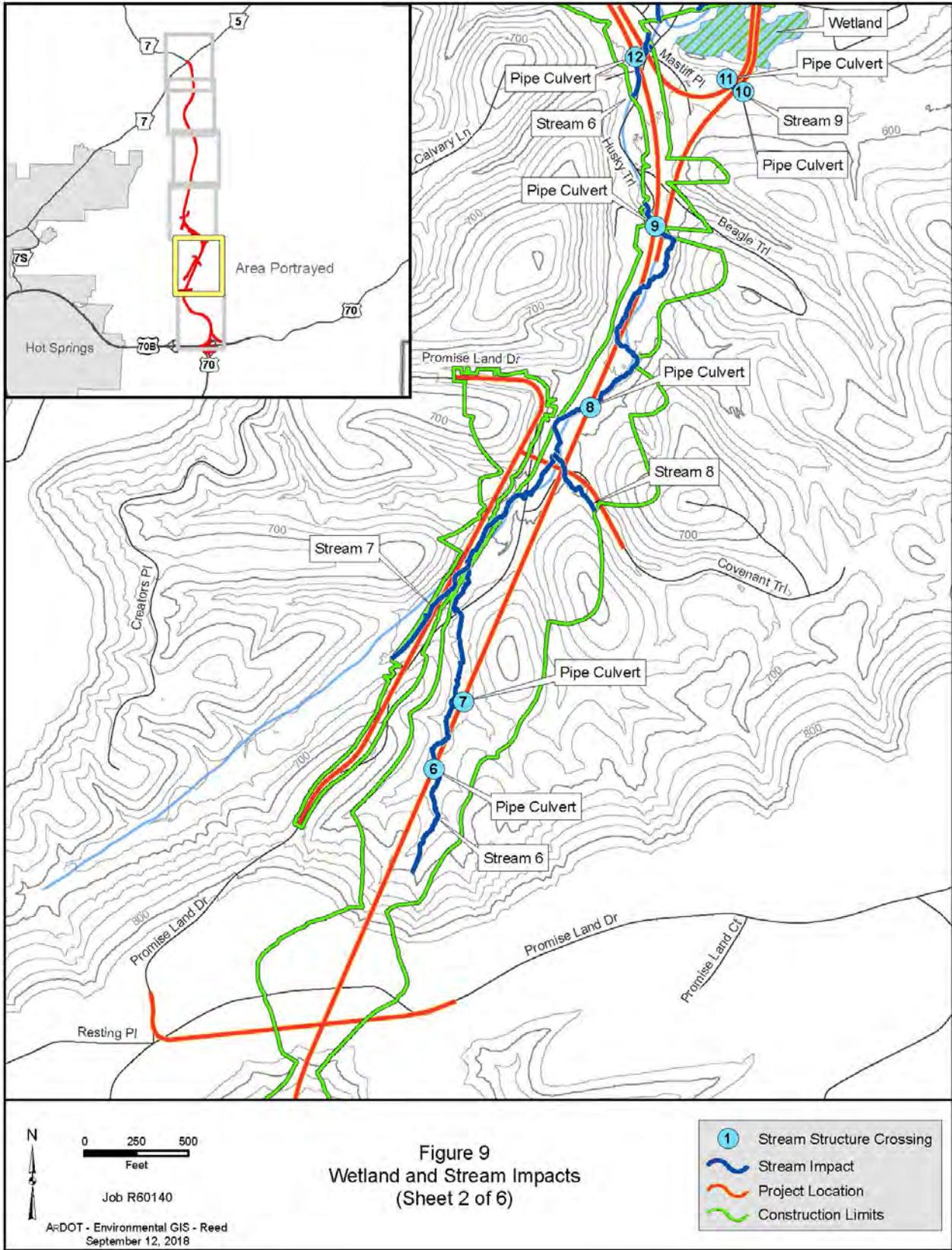
The analysis of cultural resources for the EA and the 2005 Selected Alternative was based upon a proposed centerline and an estimated 300-foot wide right of way. It included probable impacts to two archeological sites and possible impacts to three other archeological sites depending upon final design and right of way. There were no National Register of Historic Places (NRHP) eligible properties located within the 2005 Selected Alternative.

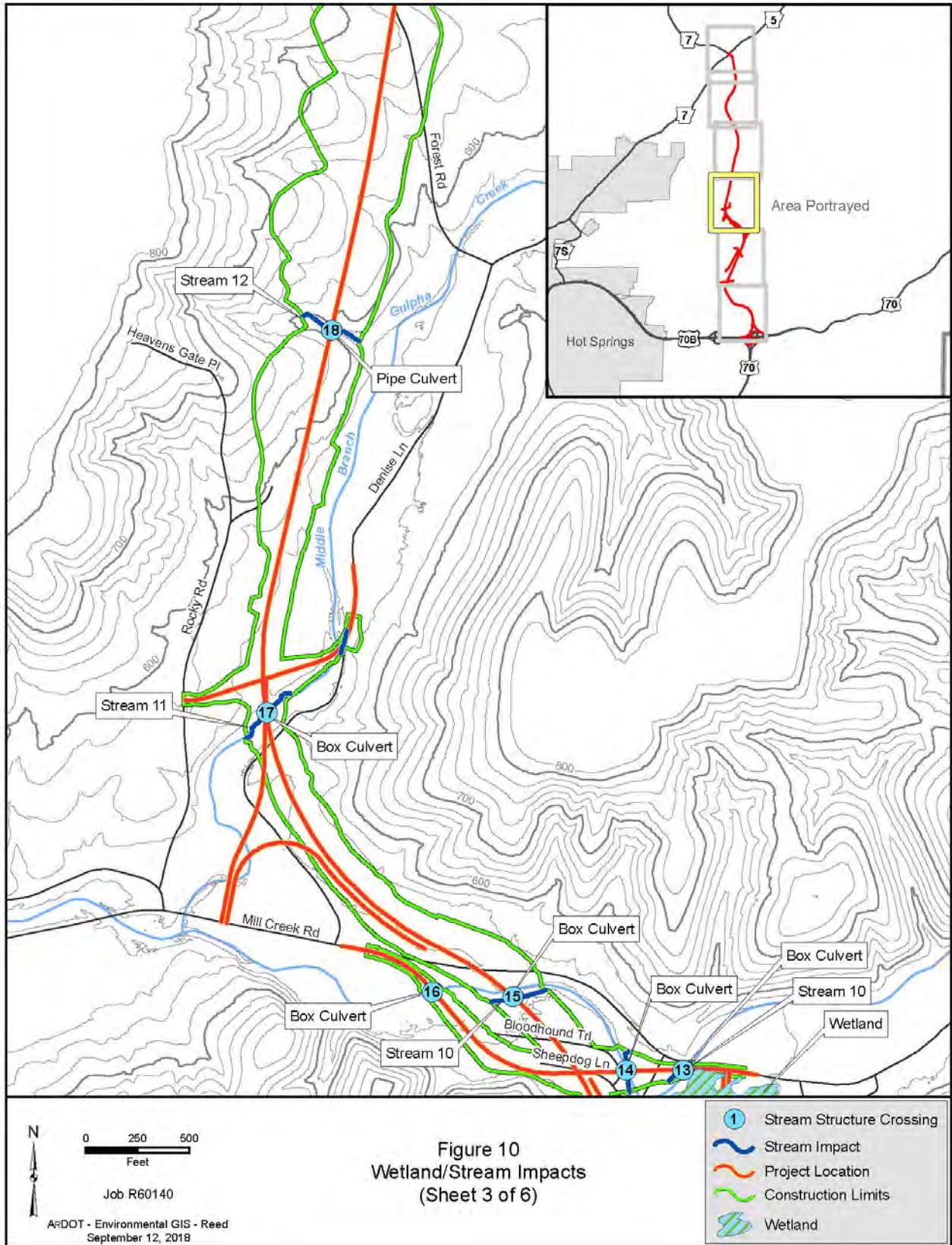
Based upon the design of the 2018 Selected Alternative there are now 22 archeological sites, and one NRHP eligible property located within the proposed right of way. The proposed impacts to the NRHP property (3GA1079, Cluster Springs Complex) received an adverse effect determination under Section 106 of the National Historic Preservation Act. A Programmatic Agreement (PA) has been approved by the State Historic Preservation Office (SHPO) detailing the mitigation to be performed on the property. Four sites are recommended for Phase II testing with one site avoided by revising design plans. The remaining sites were determined not eligible for the NRHP. All correspondence with the SHPO and Native American Nations can be found in Appendix E-Correspondence.

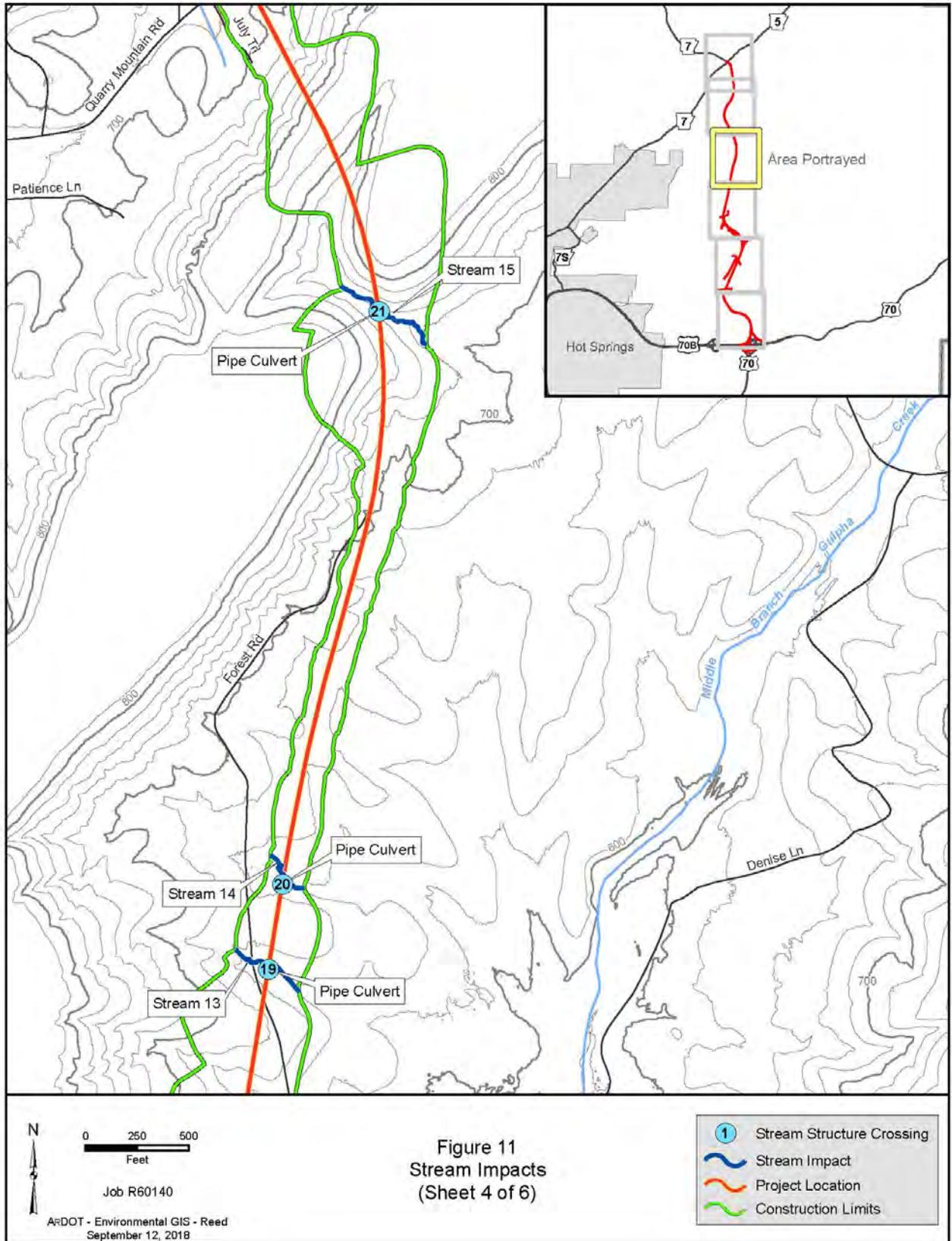
**Table 6
2018 Selected Alternative Stream Impacts**

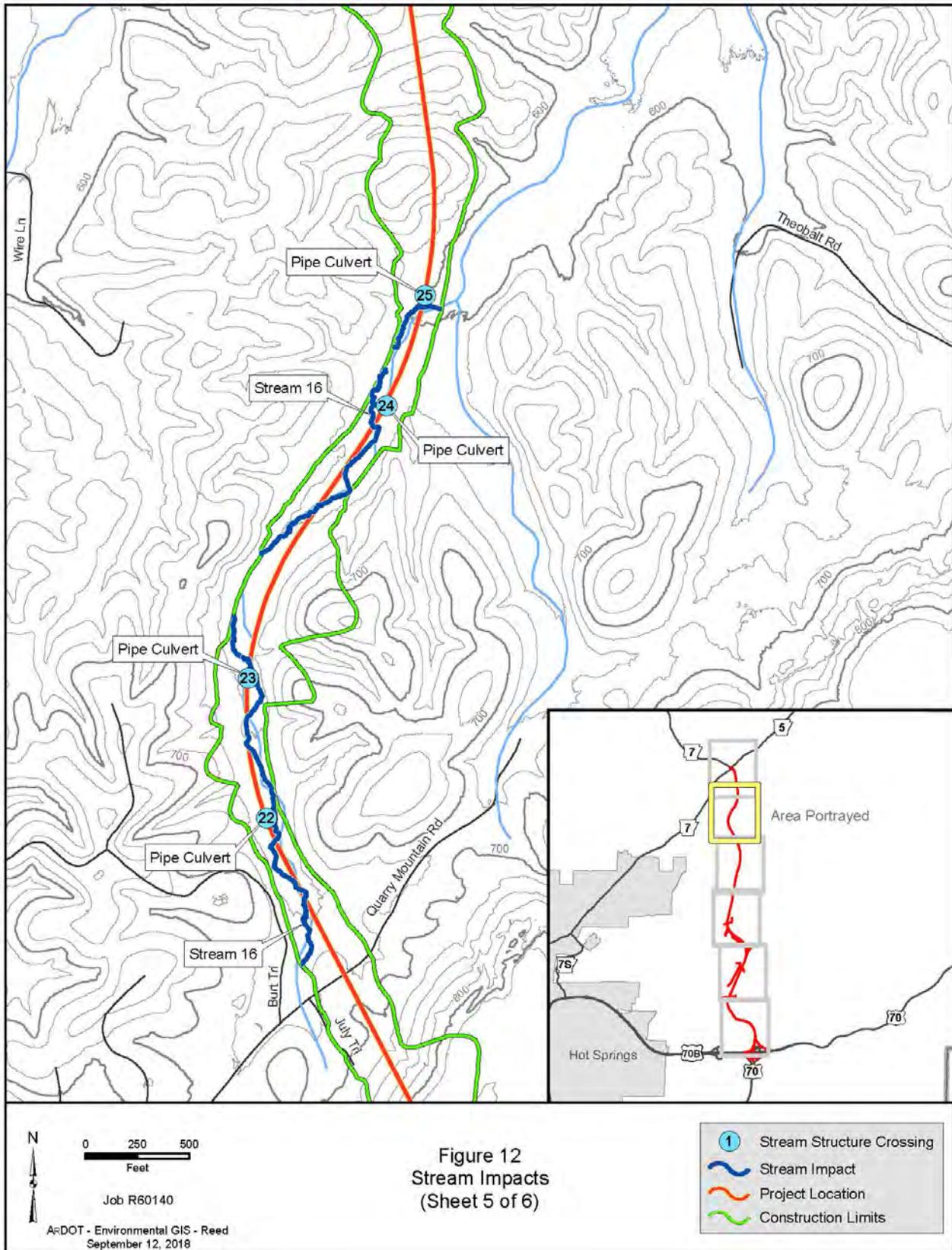
Structure	Structure Type	Stream Classification	Stream	Stream Length Impacts (linear feet)
1	Pipe Culvert	Ephemeral	1	509
2	Pipe Culvert	Ephemeral	2	959
3	Pipe Culvert	Perennial	3	3,153
4	Pipe Culvert			
5	Pipe Culvert			
-	-	Intermittent	4	237
-	-	Ephemeral	5	388
6	Pipe Culvert	Perennial	6	4,759
7	Pipe Culvert			
8	Pipe Culvert			
9	Pipe Culvert			
10	Pipe Culvert			
-	-	Ephemeral	7	634
-	-	Ephemeral	8	387
11	Pipe Culvert	Intermittent	9	209
12	Pipe Culvert	Intermittent		
13	Box Culvert	Perennial	10	665
14	Box Culvert			
15	Box Culvert			
16	Box Culvert			
17	Box Culvert	Intermittent	11	490
18	Pipe Culvert	Ephemeral	12	351
19	Pipe Culvert	Ephemeral	13	409
20	Pipe Culvert	Ephemeral	14	283
21	Pipe Culvert	Ephemeral	15	588
22	Pipe Culvert	Intermittent	16	3,971
23	Pipe Culvert			
24	Pipe Culvert			
25	Pipe Culvert			
26	Bridge	Perennial	17	0
Total				17,992

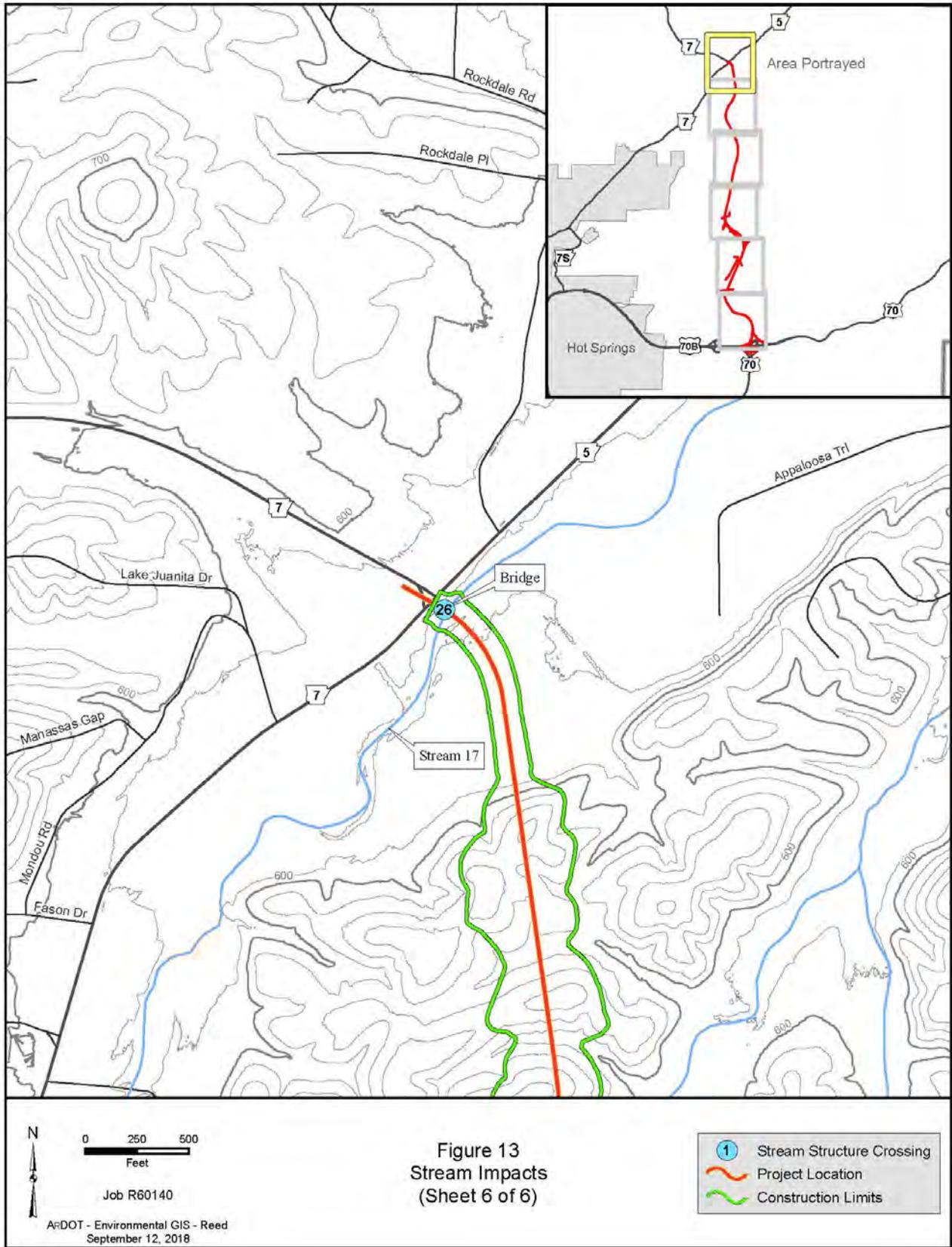












This page left blank intentionally.

Section 4(f) Resources

It is anticipated that no lands will be used from a significant publicly owned public park, recreation area, wildlife/waterfowl refuge by this project.

However, a historic structure, known as the Cluster Springs Complex, was determined to be eligible for inclusion to the NRHP by the AHPP. The site was discovered in February 2017 by environmental personnel surveying the area for the Re-evaluation. Archeological staff visited the site the following week and found that it consists of five “improved” springs or seeps on the western foot of a mountain. A 66-foot long rock and mortar path approaches the spring complex from the south-southwest, crosses the tributary on a 15-foot, 3-foot wide concrete footbridge and continues upslope on concrete and stone steps to the improved springs. The path continues for a short distance to the north on the east side of the steep side drainage before disappearing.

The Cluster Springs Complex consists of eight structures that have been determined eligible to the NRHP under Criteria C because it embodies distinctive characteristics of a type, period, or method of construction. It is eligible for inclusion to the NRHP as a unique natural spring improvement area as well as being part of early Hot Spring and Garland County recreational ventures and part of an early health resort outside of the formal Hot Springs city area. A Section 4(f) Evaluation is enclosed in Appendix C-Section 4(f) Evaluation.

Threatened and Endangered Species

The 2005 EA identified only the Ouachita Madtom (*Noturus lachneri*) as occurring locally, but not found in the immediate project area. The Ouachita Madtom is very rare in Arkansas and imperiled globally. The Ouachita Madtom has not been recorded in the immediate project area and since then has been removed from the state list.

In 2018, a federally listed species search identified four threatened and two endangered species as potentially occurring within the project boundaries. The threatened species were identified as the northern long-eared bat (*Myotis septentrionalis*) which was listed in 2015; the Arkansas fatmucket (*Lampsilis powellii*) listed in 1990; Missouri bladderpod (*Physaria filiformis*) listed in 1987; and the rabbitsfoot mussel (*Quadrula cylindrica*) listed in 2013. The two endangered species are the pink mucket mussel (*Lampsilis abrupta*) listed in 1976; and the plant harperella (*Ptilimnium nodosum*) listed in 1988. These threatened and endangered species are known to inhabit this range, but no species were found in the project area.

The ARDOT has determined that the project may affect, but is not likely to adversely affect the northern long-eared bat. The Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form is enclosed in Appendix D. Correspondence concerning the bats from the Arkansas Natural Heritage Commission and the US Fish and Wildlife Service can be found in Appendix E-Correspondence

Land Use

The primary land cover in the immediate project area is oak-hickory-pine upland hardwood forest. Current land use is similar as it is what was back in 2005, only with additional scattered homes, businesses, and pastureland. One large neighborhood is located along Indian Mountain to the northwest of the project area. Scattered residential homes and businesses are located along the northern and southern limits of the project area and along Mill Creek Road, Promise Land Drive, and Denise Lane. Direct impacts to land use will be the conversion of land to transportation right of way (ROW). No calculations were tabulated for the 2005 Selected Alternative land use due to a lack of detailed design information. The 2018 Selected Alternative will convert 326 acres of oak-hickory-pine forests, 11.6 acres of residential property, and 5.4 acres of commercial property for a total of 345 acres to ROW. Table 8 contains the land use data tabulated for the 2018 Selected Alternative.

Secondary Impacts

Secondary impacts are those caused by an action that occurs later in time or farther removed in distance, but is still reasonably foreseeable. Changes in land use, temporary impacts to water quality, visual impacts, and population increases are probable along the route. It was recommended by the HOSP and Garland County that a control of access be implemented for the 2018 Selected Alternative to limit growth along the route. The ARDOT recommends and is designing control of access along the entire project. By controlling access in the area, secondary development in the HOSP recharge area and other areas along the route can perhaps be curtailed. However, ARDOT is not able to control local land use along the facility; this is under the purview of the local governments.

Cumulative Impacts

Cumulative impacts are impacts that result from past, present, and reasonably foreseeable future actions, including the potential impacts from this project. This Re-evaluation considers those resources that could be affected by this project such as air quality, water quality, land use, the HOSP recharge area, and visual features. The ARDOT assessed the need for mitigation, and ARDOT commitments to address the cumulative impacts are included in this section. Planning documents and studies were reviewed to identify potential future projects and improvements that may contribute to the cumulative effects on resources within the project corridors.

ARDOT projects identified for cumulative impact analysis included this project plus five other ARDOT projects. These projects are under construction or programmed in the near future on Highways 70B, 7, 5, and this project on new location. All these projects are within the HOSP recharge area, are listed in Table 7, and shown in Figure 14. New right of way that will be needed in the future for future projects is listed as Additional Acres in HOSP Recharge in Table 7.

Air Quality

Cumulative impacts must consider the past, present and future impacts to air resources. The Office of Air Policy and Planning in the Office of Air Quality at ADEQ is responsible

for incorporating federal CAA requirements into State regulations through its rulemaking process and for developing SIPs and CAA section 111(d) state plans to implement federal requirements. SIPs look at the maintenance of air quality standards for the region. The Tri-Lakes MPO, ARDOT, and the FHWA rely upon ADEQ to develop the SIPs and their major role in air quality planning. SIPs are collections of regulations and measures used by the State to reduce emissions from stationary, area, and mobile sources and demonstrate attainment and maintenance of air quality standards.

The Re-evaluation found no differences in air quality factors for the 2005 and 2018 Selected Alternatives based upon State of the Air Reports from ADEQ concerning air quality in the state. The air quality in the area has been found to be in attainment for the six criteria pollutants [particulate pollution (PM_{2.5} and PM₁₀), ground-level ozone, nitrogen oxides, lead, carbon monoxide, and sulfur dioxide] in the National Ambient Air Quality Standards (NAAQS) for the past 15 years. Presently the air quality is still in attainment. The projects proposed in the recharge area are expected to increase traffic mobility. Reduction of automotive emissions will be improved by avoiding stagnant traffic and excessive idle times. Free flowing traffic provides better air quality than stagnant traffic. These projects support movement of traffic lowering emission numbers through better emission technologies. Over time, total emissions will decline, even with vehicle numbers increasing.

Water Quality

Limited information about the HOSP recharge area and how the recharge is tied to geological formations above the 660' msl elevation is available from the USGS. This ongoing assessment will help identify cumulative ground water quality impacts and will play an important role in ARDOT's proposed projects that may affect the HOSP ground-water recharge areas. The ongoing study with the USGS will help ARDOT determine present and future impacts to this resource and will help guide ARDOT in limiting or avoiding severe impacts to the resource.

The cumulative effect to surface water quality will be increased sediment loads, higher turbidity, and decreased oxygen content. These impacts to surface water quality could originate from highway and development runoff from urban and suburban areas. These runoff events are usually associated with pollutants that fall into the following categories: solids, oxygen-demanding substances, nitrogen and phosphorus, pathogens, petroleum hydrocarbons, metals and synthetic organics. Cumulative impacts to surface water quality are likely to occur due to the development of this project and other projects in the recharge area.

Land Use

Development patterns in the project area have followed a sprawling land use pattern following existing highway systems. When a new highway or existing highway is expanded, new employment centers, homes, and shopping are developed along these highways. Low-density residential neighborhoods and single residences have been constructed in isolated areas of the project area. Urban sprawl will increase and encroach further into the rural areas of the recharge area. The effect upon land use in the HOSP

recharge area will be loss of open space, degradation of water and air quality, increased commuting times, and increases in auto dependency and fuel consumption.

The Department will try to limit land use impacts by instituting control of access along the proposed highway. This action does not stop development, but acts as a deterrent for easy access to the properties along the highway.

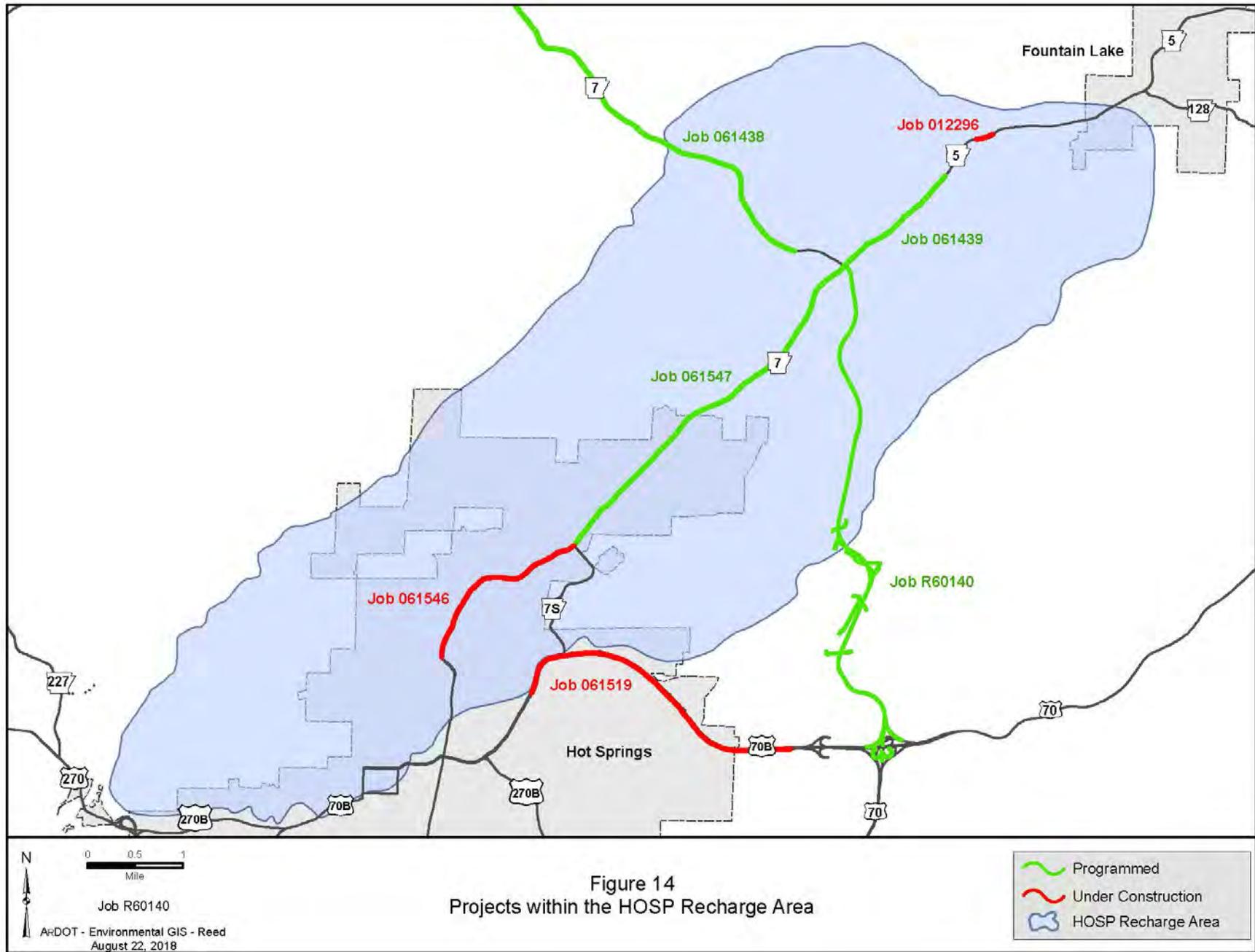
Monitoring wells placed along the proposed route by the USGS will be monitored by the USGS after completion of the job. These wells will help the USGS and the HOSP in their endeavors to produce a System-Based Model of the HOSP recharge. With physical controls (fencing, control of access), written guidance (HOSP System-Based Model) and cooperation between the ARDOT, HOSP, USGS, Garland County and private individuals/groups; measures to protect and learn about the recharge area can be improved.

HOSP Recharge

The past effects upon the HOSP recharge area have been incremental impacts to the resource over the past 200 years. Past changes to the recharge area include deforestation, introduction of roads, and the introduction of utility systems. Denuded mountains in the area increased runoff and sediment problems with the areas creeks back in the early days. Gradually these forests regenerated and water quality improved. Population levels were lower in the early years, but as human occupancy increased so did human impacts. The introduction of Highways 7, 5, 70, and their arterial roads/streets have brought more people, buildings, and their waste and potential contaminants into the area. Presently the highway construction, and associated development could have an effect upon the HOSP recharge by changes to the physics of the flow system; opening or closing fracture conduits; changing surface recharge characteristics through introduction of impervious surfaces; removing soil and rock strata; changing vegetation cover types and densities; changing drainage patterns-particularly moving water to lower elevations before any infiltration can occur, and altering surface-water runoff/infiltration ratios. Predicting future impacts to the recharge area can only be speculative, as more encroachment upon the recharge area could be accelerated by the introduction of new highways and roads in the area. However, the impacts related to development can be limited by implementation of land use controls by local governments.

Visual Features

The highway projects expected in the area will bring about visual changes such as timber loss, topography changes, and changes to stream alignments along existing Highways 7 and 5, and the 2018 Selected Alternative. Existing Highways 7 and 5 currently consist of two 12-foot travel lanes with 2-foot shoulders. The addition of a 12-foot left turn lane, curb and gutter shoulders, 3-foot grass berms and a 5-foot sidewalk on both sides of the Highway 7 will improve the driving experience. Visually, the highways will look more attractive both to the travelers and the locals.



This page left blank intentionally.

**Table 7
Projects within the HOSP Recharge Area**

Job Number/Agency(s)	Project Name	Type of Project	Additional Acres in HOSP Recharge	Job Status
R60140 ARDOT, Garland County	Hwy. 70 East – Hwy. 7 North	New location, ultimate 4-lane divided facility	189	Programmed
061547 ARDOT, City of Hot Springs, Tri-Lakes MPO, Garland County	Hwy. 7S- Hwy. 5 (Park Avenue)	Safety improvements, including bike lanes and pedestrian improvements	27	Programmed
061438 ARDOT, Garland County	Bryant Rd. – Hwy. 298 West (Safety Impvts.) (Sel. Secs.)	Shoulder/centerline mumble strips, traffic signals, two-way left turn lanes, left turn lanes, shoulder widening.	6	Programmed
061439 ARDOT	Hwy. 7 – Deerpark Rd. (Safety Impvts.)	Safety improvements	5	Programmed
061519 ARDOT, City of Hot Springs, Tri-Lakes MPO	Spring St. – Persimmon St. (Hot Springs)	Highway rehabilitation (mill & inlay)	0	Completed
012296 ARDOT	Districts 2, 6, 7, & 8 Pavement Friction Impvts. (Sel. Secs.)	High friction surface treatment	0	Completed

Mitigation and Recommendations

To lessen impacts to the HOSP recharge area, the ARDOT will implement these measures:

- Control of access will be implemented along the route to minimize development.
- Purchase of 60 acres above the 660' elevation to mitigate for impacts to the HOSP recharge area.

- Implementation of pipes and culverts to allow natural drainage patterns to occur, particularly avoiding carrying drainage to lower elevations before any chance of infiltration into groundwater can occur, especially in areas of the HOSP recharge area, will be implemented into the plans.

COMMITMENTS

The ARDOT's standard commitments associated with relocation procedures, hazardous waste abatement, cultural resources discovery, and control of water quality impacts have been made in association with this project. They are as follows:

- See the Conceptual Stage Relocation Statement located in Appendix B for standard commitments regarding relocations of homes and businesses.
- If additional hazardous materials are identified, observed or accidentally uncovered by any ARDOT personnel, contracting company(s) or state regulating agency and found to be within the acquired right of way, it will be the ARDOT's responsibility to determine the type, size and extent of contamination. The ARDOT will identify the type of contaminant, develop a remediation plan, and coordinate disposal methods to be employed for that particular type of contamination. All remediation work will be conducted in conformance with the Arkansas Department of Environmental Quality, Environmental Protection Agency, and Garland County Solid Waste Department regulations.
- An asbestos survey will be conducted by a certified asbestos inspector on each building slated for acquisition and demolition. If the survey detects the presence of any asbestos-containing materials, plans will be developed to accomplish the safe removal of these materials prior to demolition. All asbestos abatement work will be conducted in conformance with ADEQ, EPA, and OSHA asbestos abatement regulations.
- Prior to the cultural resources survey, FHWA initiated consultation with the appropriate Native American Tribes, and consultation will continue for any sites that require Phase II testing (see Appendix E-Correspondence). An intensive cultural resources survey has been conducted for the Selected Alternative. A full report, documenting the results of the survey and stating the ARDOT's recommendations for archeological sites, has been prepared and submitted to the State Historic Preservation Officer (SHPO) for review. One historic property, Cluster Springs, has been determined eligible to the National Register of Historic Places (NRHP). A Programmatic Agreement has been prepared and signed to mitigate the adverse effect to the historic property and address the additional Phase II testing recommended by SHPO for three prehistoric sites. Should any of the sites be found to be eligible or potentially eligible for nomination to the NHRP and avoidance is not possible, then site-specific treatment plans will be prepared,

and data recovery conducted in accordance with the Programmatic Agreement. All borrow pits, waste areas and work roads will be surveyed for cultural resources when locations are requested.

- The ARDOT will comply with all requirements of the *Clean Water Act*, as amended, for the construction of this project. This includes Section 401-Water Quality Certification, Section 402-NPDES, and Section 404-Permit for Dredged or Fill Material. Stream and wetland mitigation will be offered at an USACE approved mitigation bank site at a ratio approved by the USACE during the Section 404 permitting process. A Water Pollution Control Special Provision will be incorporated into the contract to minimize potential water quality impacts.
- Stream and wetland mitigation will be offered at an USACE approved mitigation bank site at a ratio approved by the USACE during the Section 404 permitting process.
- The ARDOT will comply with all requirements of the Clean Water Act, as amended, for the construction of this project. This includes Section 401-Water Quality Certification, Section 402-NPDES, and Section 404-Permit for Dredged or Fill Material.
- If any permanent impacts to private drinking water sources occur due to this project, the ARDOT will take appropriate action to mitigate these impacts.
- A wildflower seed mix will be included in the permanent seeding for the project.

Additional commitments include:

- Control of access will be implemented along the entire route, to minimize development along the route.
- Purchase of 60 acres above the 660' elevation to mitigate for impacts to the HOSP recharge area.
- Installation of pipes and culverts to allow natural drainage patterns to occur above elevation 660' msl within the delineated HOSP recharge area will be implemented into the plans.

SUMMARY

Table 8 compares the overall impacts for the 2005 and the 2018 Selected Alternatives. This reevaluation of the environmental impacts resulting from design modifications was conducted through site visits, document review, and evaluation of the Design Public Hearing comments. The revised impacts detailed in this Re-evaluation are not deemed significant.

APPROVAL OF RE-EVALUATION

Approving Official: RL Looney Date: 4/25/2019

Randal Looney
Environmental Coordinator
Federal Highway Administration

References:

- ARDOT, *Hot Springs East-West Arterial Extension, Feasibility Study*, October 20, 1994.
- Arkansas Department of Environmental Quality. 2013. State of Arkansas Water Quality Monitoring and Assessment Program, Revision 5.
- Arkansas Department of Environmental Quality. 2018. Facility and Permit Summary Permit Data System Database. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2018. Complaints and Inspections Database. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2018. EnviroView v4.0. Little Rock, Arkansas.
- Arkansas Department of Environmental Quality. 2018 Underground Storage Tanks Database. Little Rock, Arkansas.
- Arkansas Department of Health. 2018 Non-Community Water Supply database. Little Rock, Arkansas.
- Arkansas Pollution Control and Ecology Commission. 2013. Regulation 2: Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas.
- Bedinger, M.S., Pearson, F.J., Jr., Reed, J.E., Sniegocki, R.T., and Stone, C.G., 1979, *The Waters of Hot Springs National Park, Arkansas—Their nature and origin: U.S. Geological Survey Professional Paper 1044-C*, 33p.
- Executive Order 11988. (42 FR 26051), 1977. Floodplain Management Policy.
- Executive Order 11900 (42 FR 26961), 1977. Protection of Wetlands.
- Executive Order 12898. (59 FR 7629), 1994. Federal Action to Address Environmental Justice in Minority Populations.
- FHWA, U.S. Department of Transportation, January 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*.
- USGS, U.S. Department of the Interior U.S. Geological Survey, Scientific Investigations Report 2009-5263, Revised February 2011. *Geochemistry, Comparative Analysis, and Physical and Chemical Characteristics of the Thermal Waters East of Hot Springs National Park, Arkansas, 2006- 09*.
- Updated *Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, Federal Highway Administration, October 12, 2016.

This page left blank intentionally.

**Table 8
IMPACTS SUMMARY**

2018 Selected Alternative	Length (miles)	Acreage	Total Cost ¹ (million \$)	Existing Land Use Converted to Highway Right of Way					Cultural Resources	
				Commercial (acres)	Residential (acres)	Industrial (acres)	Woodland (acres)	Agricultural (acres)	Recorded Archeological Sites	Historic Properties
2005	5.47	-.2	116.6	-.2	-.2	-.2	-.2	-.2	5	0
2018	5.49	345	85.4	5.4	11.6	0	326	2.0	22	1
2018 Selected Alternative	Relocations									
	Residential Owners	Residential Tenants	Businesses	Landlord Businesses	Total	Minority Households	Elderly Households	Low Income Households		
2005	2	0	3	0	5	0	0	0	0	
2018	10	8	2	3	23	2	3	6		
2018 Selected Alternative	Floodplain Impacts		USACE Section 404 Impacts							
	SFHA ³ (Linear Ft.)	Wetlands (acres)	Springs	Stream Impacts					Length (ft.)	Total
				Ephemeral	Intermittent	Perennial				
2005	300	<0.5	5	0	2	3	3,000	5		
2018	457	1.3	10	9	4	4	17,992	17		

¹ Includes road construction, bridge construction, ROW and design costs for a four-lane divided highway with a barrier-wall median (interstate style) in 2018 dollars.
² No design is available for the 2005 Selected Alternative to calculate these numbers.
³ Special Flood Hazard Area.

This page left blank intentionally.

Appendix A

**Disposition of Comments from the
February 27, 2018 Design Public Hearing**

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

An Open Forum Design Public Hearing for this project was held on February 27, 2018 at Fountain Lake School District (Safe Room- A). The proposed design was displayed on an aerial photograph, depicting design features on an approximate scale of 1":200'. Representatives of various ARDOT Divisions as well as District 6 were present to explain the proposed design and to answer questions. Copies of the Environmental Assessment and other general project information were available.

Forty-six (46) written comments were received. Summaries of these comments and responses thereto follow:

COMMENT: Terry Falconer has concerns regarding his property, Promise Land Drive interchange, Cluster Springs, Novaculite, rock formations (studied by LSU & Henderson State University) between Promise Land Drive and Mill Creek Road, wildlife, and well water quality. He proposes 3 alternatives in order of preference, rather than the proposed Promise Land Drive interchange. Alternative 1 contains no interchange, but rather just the new bridge overpass and paving of all of Promise Land Drive from Mill Creek Road to Cedar Creek Road. Alternative 2 is providing access to the bypass at Covenant Trail. Alternative 3 is to relocate Promise Land Drive interchange Ramps 3 & 4 to tie into Promise Land Trail.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive

The ARDOT is aware of the location of Cluster Springs and its eligibility to the National Register of Historic Places (NRHP). If final design shows that the features associated with the springs are impacted or destroyed, the ARDOT will recommend and undertake mitigation measures to ensure that the site is properly documented and recorded as per the standards and procedures outlined in the Section 106 Review process of the National Historic Preservation Act prior to their destruction. Unaltered novaculite and novaculite outcrops are common throughout much of the Ouachita National Forest. Unless actively altered (quarried) by Native American or historic cultures, they are naturally occurring phenomena and normally do not fall under the Section 106 Review process. The cultural resources survey that has been conducted for this project has identified numerous novaculite quarries and other outcrops showing evidence of possible Native American resource extraction. Phase I testing of these has been conducted. The testing has not resulted in a collection of artifacts nor identified any information that would suggest that they are eligible for consideration for nomination to the NRHP.

COMMENT: Jeffery Burrow stated, "The current plan looks good to me, but only as long as you do not remove access to Promise Land."

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive.

COMMENT: Harvey Shelton stated, “The preliminary design looks good. I’m looking forward to seeing construction work started.”

RESPONSE: Comment noted.

COMMENT: Ernest Buck stated, “Great- the sooner, the better.”

RESPONSE: Comment noted.

COMMENT: Tim & Dorothy See stated, “Very informative.”

RESPONSE: Comment noted.

COMMENT: Brian Kessinger stated, “Can’t wait for you all to get started.”

RESPONSE: Comment noted.

COMMENT: Joyce Ingle stated, “Please proceed as quickly as possible.”

RESPONSE: Comment noted.

COMMENT: Ronald Gibson stated, “I understand the need for a bypass. It will be used by many and good overall. We have no negative feelings concerning this improvement.”

RESPONSE: Comment noted.

COMMENT: David Ellison stated, “Just wish it could be built sooner, or ASAP.”

RESPONSE: Comment noted.

COMMENT: Dennis Sawyer sent a blank comment form.

RESPONSE: Comment noted.

COMMENT: David Taylor stated, “Been hearing about the bypass for years. Ready for it. Get it started.”

RESPONSE: Comment noted.

COMMENT: Mark Curry stated, “This is exciting and an integral part of the growth economically and help for our medical access from Hot Springs to Hot Springs Village. It can’t happen sooner.”

RESPONSE: Comment noted.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

COMMENT: C.E. Foshee stated, “Promise Land changes with different accesses takes too many homesteads vs. one overpass.”

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass.

COMMENT: Jerry Vaughn stated, “On affecting my mini storages.”

RESPONSE: There will be no direct or indirect impacts to the property.

COMMENT: Bill & Gail Manson (460 Rockdale Road, Hot Springs, AR 71901) asked, “What will be our impact at our address?”

RESPONSE: There will be no direct or indirect impacts to the property.

COMMENT: Timothy Korpi stated, “Somewhat informational, but my concern is a time line. Really not very much info on that.”

RESPONSE: Comment noted.

COMMENT: Aaron Robertson stated and asked, “The proposed route will be decimating one of the few naturally reproducing quail populations in the area. The section north of Rocky Road around the Forrest Road has a rather large, reproducing quail population. Has this been brought to ARDOT and AGFC attention?”

RESPONSE: The Arkansas Game and Fish Commission (AGFC) has responsibility for the management of quail populations in the state. Mr. Robertson’s comment was forwarded to them. No response was received from AGFC.

COMMENT: Jimmy Turner stated, “Can’t wait.”

RESPONSE: Comment noted.

COMMENT: Stacie Robbins stated that she is upset that her quiet neighborhood will be disrupted by the bypass coming so close to it. She is also concerned about her property value dropping due to the proximity of the bypass. She wants either: 1) the state to buy the properties on Turpen Lane, rezone it as commercial, then sell the land back to businesses, or 2) the property owners to be compensated for the destruction of property values and quality of life.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

COMMENT: Kenneth Needles stated, “I attended the Public Input Forum in 2005 and there was a great need for this connector then- more so now- for the safety and emergency response. We must remove the trucks and excess traffic from Gulpha Gorge, the pedestrians, and the tourists in the Hot Springs downtown central business district. Please expedite this project.”

RESPONSE: Comment noted.

COMMENT: Paige Falconer has concerns regarding Cluster Springs, Novaculite, rock formations (studied by LSU & Henderson State University) between Promise Land Drive and Mill Creek Road, wildlife, and well water quality.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

The ARDOT is aware of the location of Cluster Springs and its eligibility to the National Register of Historic Places (NRHP). If final design shows that the features associated with the springs are impacted or destroyed, the ARDOT will recommend and undertake mitigation measures to ensure that the site is properly documented and recorded as per the standards and procedures outlined in the Section 106 Review process of the National Historic Preservation Act prior to their destruction. Unaltered novaculite and novaculite outcrops are common throughout much of the Ouachita National Forest. Unless actively altered (quarried) by Native American or historic cultures, they are naturally occurring phenomena and normally do not fall under the Section 106 Review process. The cultural resources survey that has been conducted for this project has identified numerous novaculite quarries and other outcrops showing evidence of possible Native American resource extraction. Phase I testing of these has been conducted. The testing has not resulted in a collection of artifacts nor identified any information that would suggest that they are eligible for consideration for nomination to the NRHP.

COMMENT: Larry Mohine stated, “I am concerned about my propane business at 4409 Park Ave. It is a retirement income for me.”

RESPONSE: There will be no direct or indirect impacts to the property.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

COMMENT: Rhonda Haynes stated, “Many of us in the village are eager for the completion of extension. While I agree with a 40 mph speed on the southern half, it appears the northern half of the extension could safely accommodate a faster speed. Please consider it.”

RESPONSE: The entire bypass is designed with a 50 mph design speed. The posted regulatory signs will be determined by ARDOT at a later date.

COMMENT: Linda Holman is concerned about flooding at Mill Creek Road from Gulpha Creek. She wanted to inform of arrowhead surface finds across her property throughout the years. She also wanted to inform about a rusted out culvert that has now caused a large cavity to be washed out under Rocky Road.

RESPONSE: Any design and construction within existing and proposed ARDOT right of way will meet current design and construction standards including sizing of the drainage structures at Mill Creek Road. Many of the concerns brought forth are not within the scope of this project and should be addressed by the county.

The ARDOT has conducted shovel testing across this property and has identified a large site(s) covering several landforms. The Phase I cultural resources survey resulted in the identification of a moderately to heavily disturbed surface and subsurface lithic scatter. No evidence of intact features or evidence of long-term habitation was found through the intensive shovel testing. This appears to be a lithic reduction/workshop area utilized periodically for several thousands of years by numerous cultures. It appears doubtful that additional archeological testing would significantly contribute to the knowledge of the site or further our understanding of prehistoric cultures either on a local or regional basis. The apparent lack of intact deposits/features, high level of site disturbances coupled with the apparent intensity of artifact removal from the site appears to have rendered the site ineligible for consideration for nomination to the NRHP.

COMMENT: Harry Meredith asked, “When will property be appraised? When will property be bought? Will there be ways to get to land not being purchased to build a new house? How much time to move after appraisal?”

RESPONSE: Affected properties will be appraised after the location and design has been verified for the project, and maps identifying ownership, areas required for right of way, locations of improvements, points of access and approximate areas of remaining lands have been developed. Accessibility to the remaining lands will be considered in the appraisal process.

Upon completion of the appraisals, property owners will be contacted by ARDOT acquisition agents and presented a written offer of just compensation for the affected property.

Property owners that are required to move as a result of the project will be given a minimum of 90 days from the written notice of ARDOT’s offer and thirty days written notice from the date of payment for the property.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

COMMENT: Jeromy Haight stated that he is upset about the proposed bypass going through the Cluster Springs area. He also wants to talk to someone about compensation for loss in his property value.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

The ARDOT is aware of the location of Cluster Springs and its eligibility to the National Register of Historic Places (NRHP). If final design shows that the features associated with the springs are impacted or destroyed, the ARDOT will recommend and undertake mitigation measures to ensure that the site is properly documented and recorded as per the standards and procedures outlined in the Section 106 Review process of the National Historic Preservation Act prior to their destruction.

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose property has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

COMMENT: Rose Mary Dauber stated, “Please do not destroy the junction of 5 & 7. Leave those family businesses alone. Bring your road over 5 further east, go behind power plant, and dump onto 7 at bottom of hill. Leave Brashear’s alone.”

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes

The junction of Hwy 5 & Hwy 7 will be maintained and improved upon within Job 061547.

COMMENT: Nathan & Sarah Day stated, “Hoping that this additional artery will result in better maintenance and repair of Hwy. 5 & 7 in the Fountain Lake area. Hwy. 5 is in desperate need of resurfacing. There is a definite difference between Saline County Hwy. 5 and Garland County Hwy 5.”

RESPONSE: Maintenance of Hwy 5 and Hwy 7 are not within the scope for this project; however, some upcoming projects that will provide improvements to Hwy. 5 & Hwy. 7 include

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

Job 061547, Job 061438, and Job 061439, which will include resurfacing and widening along Hwy 5 & Hwy 7.

COMMENT: Steve Greeson stated, “I have lived here for 15 years. I moved out here for the seclusion and peace. The proposed right of way will take all of my neighbor’s property and the state will only purchase a portion of mine as needed. My property value will decrease drastically. I do not want to look out my backdoor and see a highway and no one else will either. You should either find an alternate route or purchase all of my property. My property is by station 653.”

RESPONSE: Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

COMMENT: Ernest Turpen is concerned about the bypass alignment, separation of his property, and building 2 lanes now rather than 4 lanes.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

In cases of bisecting property, if ARDOT is unable to provide access to the property, it is not uncommon for the unusable property to be acquired. It is not anticipated that traffic volumes will warrant the ultimate design at this time, therefore the project will construct 2 lanes of the ultimate 4 and evaluate the volumes after the completion of the first two lanes.

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

COMMENT: Chris & Kelly Mitchell have concerns regarding access to their driveway, the Promise Land Drive interchange, 2 quarries in area, and 3 springs on property. They prefer that there is no Promise Land Drive interchange, but rather just the new bridge overpass and paving of all of Promise Land Drive from Mill Creek Road to Cedar Creek Road. If access to the bypass from Promise Land Drive is retained, then they want all of their property to be purchased.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive.

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation. If access to the property cannot be established and is identified as landlocked as a result of the project, property owners will be afforded the opportunity to sell the landlocked parcel to ARDOT at the time the just compensation is offered.

The ARDOT has documented numerous quarries and springs located within the project footprint. Some of these are eligible for the National Register of Historic Places (NRHP). If final design shows that the features associated with NRHP eligible springs or quarries will be impacted or destroyed, the ARDOT will recommend and undertake mitigation measures to ensure that the site is properly documented and recorded as per the standards and procedures outlined in the Section 106 Review process of the National Historic Preservation Act prior to their destruction.

COMMENT: Nancy (Willow) Wood does not consent for the bypass to be constructed. She is upset about the displacement of people and wildlife.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes

COMMENT: Larry Tucker stated, "I feel another route should be considered. Cedar Creek Road to Mill Creek Road to Hwy. 5 & 7 would be so much better and would not disturb animals, families with property that will have bypass out their back door or front door."

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

COMMENT: Debbie Tucker feels as though another route should be considered. The noise of the bypass will disturb the Turpen Lane neighborhood and wildlife.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

COMMENT: Bruce Hughes has concerns regarding the Promise Land Drive interchange and the removal of access to his property on Promise Land Trail.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive. Due to the removal of the interchange at Promise Land Drive, access along Promise Land Trail will be maintained.

COMMENT: Lawrence Grim is concerned about the proposed Denise Lane encroaching onto his property. He would like the entirety of his property to be purchased.

RESPONSE: The proposed bypass bisects the existing access from Denise Lane to Mill Creek Road. Denise Lane is being realigned to connect with Rocky Road, which will maintain access to Mill Creek Road. The realigned Denise Lane will include a bridge to overpass the main lanes of the bypass. The proposed alignment for Denise Lane crosses the main lanes with minimal skew and ideal horizontal curves to tie into the existing Denise Lane and Rocky Road. His property will be impacted directly by the proposed Denise Lane.

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

COMMENT: Riley Art Glass Studio is curious if the project will infringe on their property at parcel #100-04965-000. If the project does infringe on their property, they are interested in selling it.

RESPONSE: There will be no direct or indirect impacts to the property.

COMMENT: Tollie Green is concerned about the project detrimentally affecting the water quality of her 400' deep well at 140 Higher Ground Trail.

DISPOSITION OF PUBLIC COMMENTS

Job R60140
Hwy. 70 East – Hwy. 7 North (F)
Garland County

RESPONSE: If private wells are impacted due to construction of the project, the contractor will be responsible for repair or replacement of the well.

COMMENT: Janet Mentesane has concerns regarding the Promise Land Drive interchange and the potential acquisition of her property at 825 Promise Land Drive.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive

COMMENT: Bob & Lisa Walter have concerns regarding the Promise Land Drive interchange and the removal of access to their property on Promise Land Trail.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive.

COMMENT: Linda Simmerman is concerned about access to her property at 202 Covenant Trail. She is concerned about being landlocked during construction of access to her property. She is also concerned about the environmental effects of blasting the top of Promise Land Drive.

RESPONSE: Access to your property will be maintained during construction of the bypass.

The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this re-evaluation process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

COMMENT: Stephanie Jackson is concerned about her mother, Linda Holman's property at 1763 Mill Creek Road. She wanted to inform us that the property was previously one of Garland Counties dump sites. She also wanted to inform of a couple springs and arrowhead surface finds on the property. She wants us to consider an alternate route due to the historical and sentimental value of this area to the community.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this reassessment process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

The ARDOT is aware of several dump sites in the project area. Any dump sites discovered during construction will be cleaned up in accordance with solid waste regulations.

The ARDOT has conducted shovel testing across this property and has identified a large site(s) covering several landforms. The Phase I cultural resources survey resulted in the identification of a moderately to heavily disturbed surface and subsurface lithic scatter. No evidence of intact features or evidence of long-term habitation was found through the intensive shovel testing. This appears to be a lithic reduction/workshop area utilized periodically for several thousands of years by numerous cultures. It appears doubtful that additional archeological testing would significantly contribute to the knowledge of the site or further our understanding of prehistoric cultures either on a local or regional basis. The apparent lack of intact deposits/features, high level of site disturbances coupled with the apparent intensity of artifact removal from the site appears to have rendered the site ineligible for consideration for nomination to the NRHP.

COMMENT: ralfee13@gmail.com is disappointed that McClendon Springs Village and Cutter Morning Star area will be impacted and no meeting will be held in that area.

RESPONSE: The ARDOT determined that the Fountain Lake School facilities were the best location for the Design Public Hearing. This determination was based on the school's location in relation to the project area, the size, and quality of the facilities, and the amount of attendees that were expected.

COMMENT: Ronnie Duncan is upset with the adverse impacts to himself and his community. He is displeased with the communication between the state and property owners who will be impacted.

RESPONSE: The location of the bypass extension has been studied since 2003, and initially documented in an Environmental Assessment (EA) completed in February of 2005. A Selected Alternative was identified and a Finding of No Significant Impacts (FONSI) for the project was approved by the FHWA in June of 2005. The original EA and this reassessment process have included opportunities for public comment on the proposed alignment. Public comments and impacts of the alignment to the social, natural, and cultural environment have been considered when making design changes.

DISPOSITION OF PUBLIC COMMENTS

Job R60140
Hwy. 70 East – Hwy. 7 North (F)
Garland County

Affected properties will be appraised after the exact location and design has been selected for the project, and maps identifying ownership, areas required for right of way, locations of improvements, points of access and approximate areas of remaining lands have been developed. During the appraisal phase, property owners will be contacted either by mail or in person to conduct a property inspection.

Upon completion of the appraisals, property owners will be contacted by ARDOT acquisition agents to explain the acquisition procedure, the appraisal, the right of way maps, the effect upon the ownership, and to present a written offer of just compensation for the affected property.

COMMENT: Linda Weadock is concerned about her home at 263 Promise Land Drive. She wants to know when and how she will be notified concerning the impacts to her property.

RESPONSE: There will be impacts to the eastern portion of the property due to the proximity of the proposed bypass.

Affected properties will be appraised after the exact location and design has been selected for the project, and maps identifying ownership, areas required for right of way, locations of improvements, points of access and approximate areas of remaining lands have been developed. During the appraisal phase, property owners will be contacted either by mail or in person to conduct a property inspection.

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Upon completion of the appraisals, property owners will be contacted by ARDOT acquisition agents to explain the acquisition procedure, the appraisal, the right of way maps, the effect upon the ownership, and to present a written offer of just compensation for the affected property.

COMMENT: Dennis & Vicki Wissing have concerns regarding the Promise Land Drive interchange, access to their drive way, and separation of property located at 902 Promise Land Drive. They want to make sure that the proposed Promise Land Drive will not encroach upon their front yard and will provide improved access to their property.

RESPONSE: Per a revision to an agreement with Garland County, the interchange at Promise Land Drive has been removed from the scope of this job. An overpass will be constructed at Promise Land Drive to provide connectivity across the main lanes of the bypass. The Promise Land Drive overpass will be paved with transitions back to the existing roadway on both sides of the overpass within the limits of this project. Paving of the portions of Promise Land Drive that fall outside of the limits for this project will not be included as they are part of a private drive. The proposed Promise Land Drive will not encroach upon the property and current access to the property will be maintained.

DISPOSITION OF PUBLIC COMMENTS

Job R60140

Hwy. 70 East – Hwy. 7 North (F)

Garland County

Property required for the project will be identified and appraised accordingly. Just compensation will be determined for the loss sustained by the owner whose land has been taken plus damages to the remaining property caused by the acquisition. Property owners will be presented an offer of just compensation.

In the instance where acquisition for highway purposes results in leaving a non-economic parcel on the property owner's remaining lands, the valuation process will recognize and value this parcel. Property owners will be afforded the opportunity to sell the non-economic parcel to ARDOT at the time the just compensation is offered.

Appendix B

Conceptual Stage Relocation Statement



INTEROFFICE MEMORANDUM

TO: John Fleming, Environmental Division Head

FROM: Jennifer R. Williams, P.E., Division Head, Right of Way Division

DATE: October 26, 2018

SUBJECT: Job R60140
Hwy. 70 East –Hwy. 7 North (F)
Garland County
**CONCEPTUAL STAGE RELOCATION STATEMENT
REVISED**

GENERAL STATEMENT OF RELOCATION PROCEDURE

Persons displaced as a direct result of acquisition for the proposed project will be eligible for relocation assistance in accordance with Public Law 91-646, 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. No lawful occupant shall be required to move without receiving a minimum of 90 days advance written notice. All displaced persons; residential, business, farm, nonprofit organization, and personal property relocatees are eligible for reimbursement for actual reasonable moving costs.

Construction of the project will not begin until decent, safe and sanitary replacement housing is in place and offered to all affected persons. It is the Department's Policy that adequate replacement housing will be made available, built if necessary, before any person is required to move from their dwelling. All replacement housing must be fair housing and offered to all affected persons regardless of race, color, religion, sex or national origin.

There are two basic types of residential relocation payments: (1) Replacement Housing payments and (2) Moving Expense payments. Replacement Housing payments are made to qualified owners and tenants. An owner may receive a payment of up to \$31,000.00 for the increased cost of a comparable replacement dwelling. The amount of this payment is determined by a study of the housing market. Owners may also be eligible for payments to compensate them for the increased interest cost for a new mortgage and the incidental expenses incurred in connection with the purchase of a replacement dwelling. A tenant may receive a rental subsidy payment of up to \$7,200.00. Tenants may elect to receive a down payment rather than a rental subsidy to enable them to purchase a replacement dwelling. Replacement housing payments are made in addition to moving expense payments.

Businesses, farms and nonprofit organizations are eligible for reestablishment payments, not to exceed \$25,000.00. Reestablishment expense 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 Uniform Relocation Act and cannot exceed \$40,000.00.

If the displacee 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 displacee, and the facts of 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 replacement housing and commercial properties. Information is also maintained concerning other Federal and State Programs offering assistance to displaced persons.

=====

Based on preliminary construction plans, aerial photographs, and an on-site project review, it is estimated that the subject project could cause the following displacements and costs:

Proposed Project:

10 Residential Owners	\$ 350,000.00
8 Residential Tenants	\$ 96,000.00
2 Businesses	\$ 250,000.00
3 Landlord Businesses	\$ 75,000.00
8 Personal Properties	\$ 80,000.00
Services	<u>\$ 153,000.00</u>
Total	\$1,004,000.00

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 displacement locations by Relocation Coordinators. The Relocation Coordinators utilize area demographic data, visual inspections, past experiences and knowledge in making this determination.

An available housing inventory has been compiled and it indicates there are at one hundred and eleven comparable replacement dwellings available for sale and twenty comparable replacement dwellings available for rent within a reasonable proximity of the project area. At least sixteen developed commercial properties and twenty-four vacant land commercial properties are currently for sale in the project area. A breakdown of the available properties is as follows:

Residential (For Sale)	<u>Number Of Units</u>
\$ 50,001 - 99,999	38
100,000 - 149,999	25
150,000 - 199,999	15

200,000 - 299,999	18
300,000 -399,999	<u>15</u>
Total	111

Residential (Monthly Rent)	
\$ 0.00 - 500.00	2
501.00 - 600.00	7
601.00 - 700.00	4
701.00 - 800.00	4
801.00 - 900.00	2
901.00 - 1,000.00	0
1,001.00 and up	<u>1</u>
Total	20

Commercial Properties (For Sale)	
\$ 0 - 100,000	1
100,001 - 200,000	1
200,001 - 300,000	1
300,001 - 400,000	2
400,001 - 600,000	3
600,001 - 700,000	1
700,001 and up	<u>7</u>
Total	16

Commercial Land (For Sale)	
\$ 0 - 100,000	5
100,001 - 200,000	4
200,001 - 300,000	0
300,001 - 400,000	4
400,001 - 600,000	4
600,001 - 700,000	2
700,001 and up	<u>5</u>
Total	24

This is an east/west route around the city of Hot Springs for through traffic and will relieve congestion and improve travel times along Highway 7, Highway 70, and Highway 70B through the downtown area. The units contained in the housing inventory are in Garland County. The dwellings and number of dwellings are comparable and adequate to provide replacement housing for the families displaced on the project. The housing market should not be detrimentally affected and there should be no problems with insufficient housing at this time. In the event housing cannot be found or can be found but not within the displacees' economic means at the time of displacement, Section 206 of Public Law 91-646 (Housing of Last Resort) will be utilized to its fullest and practical extent.

The replacement property inventory was compiled from data obtained from real estate companies, web sites, and local newspapers for the subject area. The dwellings contained in the inventory have been determined to be comparable and decent, safe and sanitary. The locations of the comparable dwellings are not less desirable in regard to public utilities and public and commercial facilities, are reasonably accessible to the displacees' places of employment, adequate to accommodate the displacees, and in neighborhoods which are not subject to unreasonable adverse environmental factors. It has also been determined that the available housing is within the financial means of the displacees and is fair housing open to all persons regardless of race, color, sex, religion or national origin consistent with the requirements of 49 CFR, Subpart A, Section 24.2 and Title VIII of the Civil Rights Act of 1968.

A commercial property inventory indicates there are at least sixteen properties available in the subject area at this time. The businesses displaced on 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 nonprofit organizations in relocating, the State will explore all possible sources of funding or other resources that may be available to businesses and nonprofit organizations. 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 businesses and nonprofit organizations. 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 businesses and nonprofit organizations to relocate within the same community.

It is estimated that there will be two minority, six low-income, and three elderly residential households displaced by the project. All displacees will be offered relocation assistance under provisions in the applicable FHWA regulations. At the time of displacement another inventory of available housing in the subject area will be obtained and an analysis of the market made to ensure that there are dwellings adequate to meet the needs of all displacees. Also, special relocation advisory services and assistance will be administered commensurate with displacees' needs, when necessary. Examples of these include, but are not limited to, Housing of Last Resort as previously mentioned and consultation with local officials, social and federal agencies and community groups.

There are no other identified unusual conditions involved with this project.

The estimated number of displaced persons has been revised based on the removal of the interchange at Promised Land Road and interchange modifications at Mill Creek. The acquisition area for all other locations are assumed to be unchanged from the February 23, 2018 Conceptual Stage Relocation Statement. The available replacement property inventory has not been updated as the market continues to demonstrate an ample supply of available replacement properties.

ARKANSAS DEPARTMENT OF TRANSPORTATION
 CONCEPTUAL STAGE RELOCATION INVENTORY

Job No.: R60140 Job Name: Hwy. 70 East-Hwy. 7 North (F) Date of Revised Inventory: October 26, 2018

Type Relocation	Number	Residential Property Values or Rental Rates	Number in Household (Range)	Employees Affected (Range)	Length of Occupancy (Range)	Minority Households	Elderly Households	Low Income Households
Residential Owners	10	\$5,000 to \$250,000	1 to 4	N/A	8 to 30	0	3	3
Residential Tenants	8	\$200 to \$500 per Month	1 to 10	N/A	1 to 8	2	0	3
Businesses	2			5 to 16	1 to 25			
Land Lord Businesses	3			4				
Nonprofit Organizations	0							
Personal Properties	8							
Totals	31	N/A	N/A	5 to 20	N/A	2	3	6

Appendix C

Section 4(f) Evaluation

**Section 4(f) Evaluation
for Federally-Aided Highway Projects**

**Cluster Springs Complex
Hot Springs, Arkansas**

ARDOT Job Number R60140
FAP Number NCPD-9210(16)
Hwy. 70 East – Hwy. 7 North (F)
Garland County, AR

Submitted Pursuant to 49 U.S.C. Section 303(c) and 23 U.S.C. Section 138
By the
U.S. Department of Transportation
Federal Highway Administration
and the
Arkansas Department of Transportation

April 23, 2019

Introduction

The Secretary of Transportation may approve a project that requires the use of land from a significant publicly-owned public park, recreation area, wildlife/waterfowl refuge, or any historic site of national, state, or local significance only if the following determinations have been made: (1) there is no feasible and prudent alternative to the use of such land; and (2) all possible planning has been undertaken to minimize harm to the property resulting from such use. These determinations, submitted pursuant to 49 U.S.C. Section 303 and 23 U.S.C. Section 138, are set forth in this Section 4(f) Evaluation.

Project Information

The Arkansas Department of Transportation (ARDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing an extension of the Highway 270 Bypass around Hot Springs from its interchange with Highway 70, north to the intersection of Highways 5 and 7, in Garland County, Arkansas (Figure 1). Due to funding constraints, the proposed project would initially consist of two 12-foot wide travel lanes with eight-foot wide shoulders. The right of way for the future build out will be purchased for the initial construction project. When funding becomes available, the planned future addition of two 12-foot travel lanes and a median barrier wall will result in the project meeting American Association of State Highway and Transportation Officials Freeway Standards. This final project will be a fully controlled access facility, with interchanges planned at Highway 70/270, Mill Creek Road, and at the intersection of Highways 7 and 5. The project is 5.5 miles in length and would be constructed on new location with a variable right of way width from 400 to 600 feet.

Purpose and Need

The purpose of the project is to provide safe and efficient movement of traffic and to alleviate congestion along Highway 7 by diverting through traffic to the proposed bypass. The project is expected to reduce delays for traffic and improve safety for vehicles and pedestrians within the City of Hot Springs by construction of a new location connector. This bypass would remove much of the through traffic from the section of Highway 7 most heavily used by tourists and pedestrians.

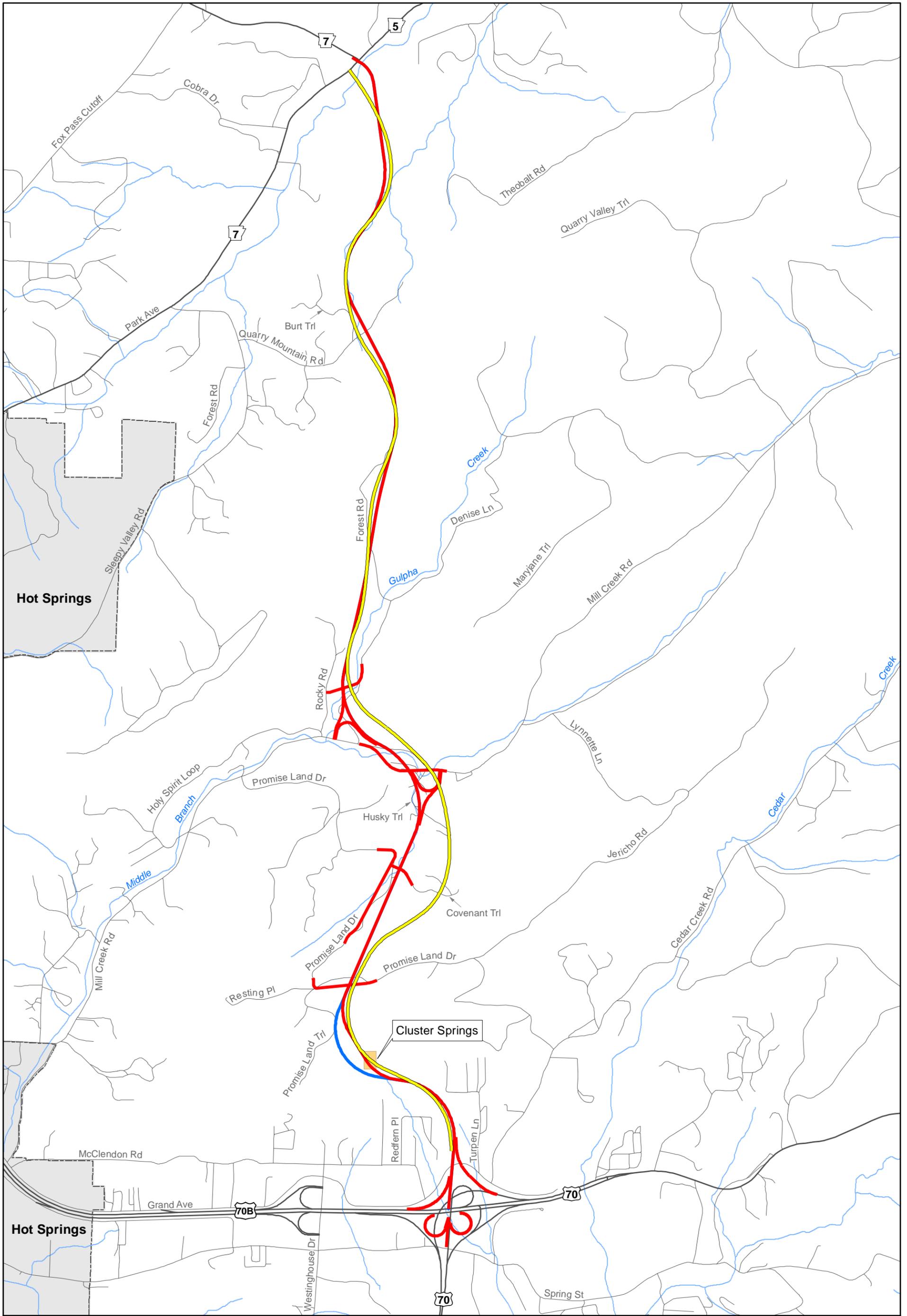
Description and Significance of Section 4(f) Property

The historic property being evaluated is known as the Cluster Springs Complex and was not discovered during the investigation of preliminary alignments for the 2005 Selected Alternative because those alignments were east of the property at that time. Not until a re-evaluation in the winter of 2017 was the complex found and further investigations warranted.

The Cluster Springs Complex includes mortared rock footpaths, a cement footbridge, and four improved springs and seeps. The structures are shown in Figures 2 through 7. During the late 1800s the site was variously called "Cutter's Cluster Springs", "Courtney's Cluster", "Pool Springs" (Robbins 2014; Anthony and Robbins 2009) "Cutter's and Cartney's Cluster Springs" (Griswold 1892). The primary namesake is Charles Cutter who published numerous editions of *Cutter's Guide to Hot Springs Arkansas*, a tourist

publication, in which Cutter's Cluster Springs is noted. Cutter notes William Cartney as making improvements to nearly 20 springs (Cutter 1891). An undated map (Circa 1890) included in an article *White Sulphur Springs and the Victoria Hotel* (Anthony and Robbins 2009) notes Cluster Springs included on a horse/foot trail system that included stops at Thousand Dripping Springs and Hell's Half Acre (Anthony and Robbins 2009).

The Cluster Springs Complex has been determined eligible to the National Register of Historic Places (NRHP) under Criteria C because it embodies distinctive characteristics of a type, period, or method of construction. It is eligible for inclusion to the NRHP as a unique natural spring improvement area as well as being part of early Hot Spring and Garland County recreational ventures and part of an early health resort outside of the formal Hot Springs city area. Coordination with the State Historic Preservation Officer (SHPO) for the Cluster Springs Complex can be found in Appendix 1. Eligibility of this property to the NRHP qualifies it as a 4(f) resource.



Job R60140

ARDOT - Environmental GIS - Reed
January 3, 2019

Figure 1
Project Location

- 2005 Alternative
- 2018 Selected Alternative
- 2018 Avoidance Alternative



Figure 2: Photo of part of the Cluster Springs complex showing the stone sidewalk to the left, the formed concrete bridge, and mortared stone walkway up to the covered spring boxes.



Figure 3. Looking south (left to right) shows the mortared stone walkway, the concrete bridge, and the concrete and stone sidewalk along the creek.



Figure 4. Spring box 1.



Figure 5. Spring box 2.



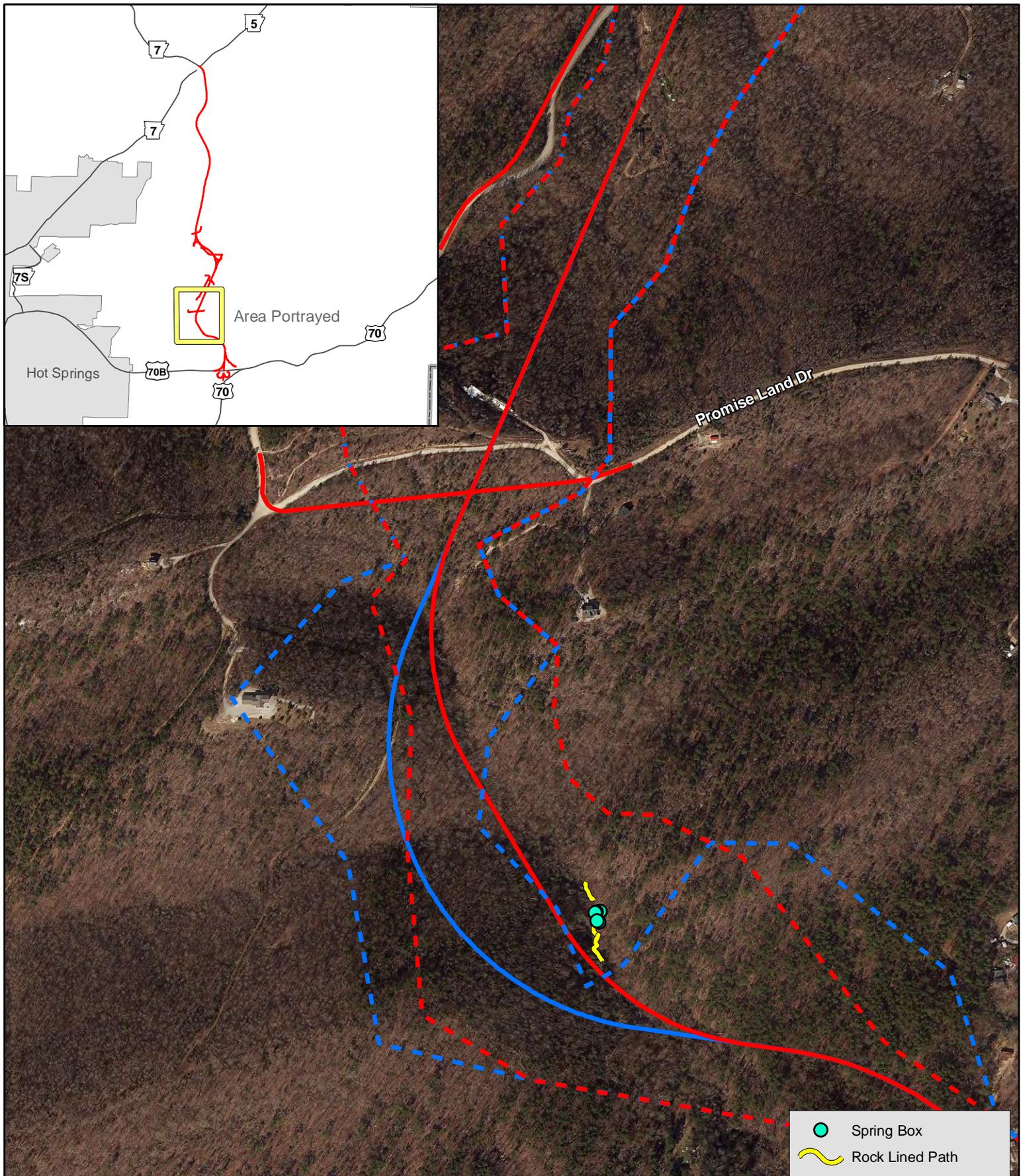
Figure 6. Spring box 3.



Figure 7. Spring box 5.

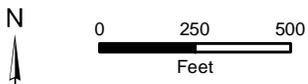


Figure 8. Spring box 4 with alcove.



-  Spring Box
-  Rock Lined Path
-  Selected Alternative Proposed Right of Way
-  Selected Alternative
-  Avoidance Alternative Proposed Right of Way
-  Avoidance

Figure 9
Avoidance Alternative



Job R60140

ARDOT - Environmental GIS - Reed
September 4, 2018

Photography Date: January 2017

Alternatives/Findings

In the vicinity of the Cluster Springs Complex, the Selected Alternative alignment goes through a natural depression in the ridge line that allows for a more direct route, less impacts, and lower construction costs in this very rugged landscape. Due to the parallel orientations (north/south) of the Selected Alternative and the Cluster Springs Complex, and because the Cluster Springs Complex occurs in the bottom of a valley that extends from the natural depression in the ridge line, an alternative could not be developed that would only impact part of the property. An Avoidance Alternative with an alignment to the west of the Cluster Springs Complex was developed to determine if it was feasible and prudent. An alignment to the east of the Cluster Springs Complex was not evaluated due to the greater relief in the topography in that direction. An alignment to the east would not be reasonable based upon sound engineering judgement.

The Avoidance Alternative was evaluated for only that portion of the project where the design needed to change to avoid the historic property; and did not include other portions of the project. Alternative comparisons were based upon where the two alternatives diverged and converged. These alternatives and their impacts are discussed in the following sections are shown on Figure 9.

No-Action Alternative

The No-Action Alternative would result in no impacts to the Cluster Springs Complex. Although the No-Action Alternative is feasible, it is not prudent because it would not alleviate the traffic problems in downtown Hot Springs and provide an alternative route for residents along Highway 7 north and east of Hot Springs.

Avoidance Alternative

The Avoidance Alternative consists of moving the alignment to the west for approximately 0.3 mile to align the project around the Cluster Springs Complex and avoid impacts to it. One residential property owner will be relocated and three additional property owners will have to be compensated for severing access to their property. The Avoidance Alternative will impact 1,568 linear feet of streams and require 12.6 additional acres of right of way.

While this alternative is feasible, it is not considered prudent; shifting the roadway to avoid the Cluster Spring Complex would result in an additional cost of \$4.28 million, and have additional impacts as summarized in Table 1.

Selected Alternative

The Selected Alternative will demolish the walkway, bridge, steps and concrete spring structures, install drainage pipes in the creek, and will fill in the stream with adjacent earthen fill. The adverse effect to this property would be mitigated in accordance with the State Historic Preservation Officer (SHPO) requirements.

In comparison with the Avoidance Alternative, the Selected Alternative would cost less to construct, have one less relocation, and have 2,210 linear feet of additional stream impacts. This alternative is considered feasible and prudent.

Coordination

After the identification of the Cluster Springs Complex as eligible for the NRHP, the ARDOT requested guidance from the SHPO on appropriate mitigation for the acquisition and demolition of the Section 4(f) property. The SHPO indicated that the property would require documentation that meets the Arkansas Historic Preservation Program's (AHPP's) architectural documentation standards. The ARDOT coordinated with the SHPO and developed a Programmatic Agreement. This documentation is included in Appendix 1.

Coordination with the Native American Nations was conducted by FHWA and can be found in Appendix E-Correspondence of the Re-evaluation.

Measures to Minimize Harm

A Programmatic Agreement between the FHWA and the SHPO was developed through the Section 106 process (36 CFR 800) of the National Historic Preservation Act (NHPA) (16 U.S.C) (470) on measures needed to mitigate the adverse impact to the historic property.

Summary

Table 1 contains a summary of the analysis and decision-making information included in this evaluation.

Table 1 Section 4(f) Alternative Analysis Summary			
	No-Action	Avoidance Alternative	Selected Alternative
Feasible	Yes	Yes	Yes
Prudent	No	No	Yes
Uses Section 4(f) Property	No	No	Yes
Harm to Section 4(f) Property (With Mitigation)	None	None	Impacts Section 4(f) Property*
Impact Comparison**	None	One additional relocation and \$4.28 million more than the Selected Alternative	2,210 linear feet of additional stream impacts

*This alternative yielded a determination that any adverse effect will be mitigated by the implementation of the Programmatic Agreement in accordance with AHPP's standards.

**These estimates represent only that portion of the project that would change to avoid the Section 4(f) property. The Avoidance Alternative cost includes the construction cost, right of way cost, and stream mitigation costs.

Table 2 Factors to be Considered under 23 CFR Part 774.3(c)(1)		
Factors	Avoidance Alternative	Selected Alternative
(i) The ability to mitigate adverse impacts to each Section 4(f) property;	N/A	The adverse effect will be fully mitigated by the implementation of the MOA
(ii) The relative severity of the remaining harm, after mitigation, to the protected features that qualify each Section 4(f) property for protection;	N/A	The Cluster Springs Complex is eligible to the NHRP under Criteria C, because it embodies distinctive characteristics of a type, period, or method of construction
(iii) The relative significance of the Section 4(f) property;	The Cluster Springs Complex is eligible to the NHRP under Criteria C, because it embodies distinctive characteristics of a type, period, or method of construction.	The Cluster Springs Complex is eligible to the NHRP under Criteria C, because it embodies distinctive characteristics of a type, period, or method of construction.
(iv) The views of the official(s) with jurisdiction over each Section 4(f) property;	N/A	The SHPO determined mitigation for Cluster Springs Complex was acceptable.
(v) The degree to which each alternative meets the purpose and need for the project;	Fully meets the projects Purpose and Need.	Fully meets the projects Purpose and Need.
(vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f);	1 relocation and 3 additional properties impacted by control of access.	Impacts to the natural springs located in the area.
(vii) Substantial differences in costs among the alternatives.	*\$4.28 million more; 5.0% increase in overall project costs.	\$4.28 million less.

* These estimates represent the entire project costs needed to avoid the Section 4(f) property. They represent construction cost, right of way, and stream mitigation impacts for the entire alternative.

Conclusion

Based upon the above considerations, there is no feasible and prudent alternative to the use of the Cluster Springs Complex, and the action includes all possible planning to minimize harm to the property resulting from such use. In accordance with 23 CFR Part 774.3(c) (1), the Selected Alternative causes the least overall harm after consideration of the factors shown in Table 1. The Avoidance Alternative causes severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property, which has been mitigated to a no adverse effect.

It is the recommendation of the Arkansas Department of Transportation that the Selected Alternative be built to those specifications, drawings, and agreements as set forth by the FHWA and the ARDOT. The Cluster Springs Complex will be demolished by the construction of the Selected Alternative, and will be documented to AHPP standards as mitigation for the adverse effect.

Appendix 1

Arkansas State Historic Preservation Office Coordination



ARKANSAS DEPARTMENT OF TRANSPORTATION

ARDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director

10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261

Phone: 501.569.2000 | Voice/TTY 711 | Fax: 501.569.2400

April 19, 2019

Ms. Stacy Hurst
Arkansas Historic Preservation Program
1100 North Street
Little Rock, Arkansas 72201

RE: Job Number R60140
Hwy. 70 East – Hwy. 7 (North) (F)
Garland County

Dear Ms. Hurst:

Enclosed is the signed Final Programmatic Agreement for your office's records regarding the above referenced project. If you have any questions or need additional information, contact Kristina Boykin of my staff at (501) 569-2079.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John Fleming', is written above the typed name.

for

John Fleming
Division Head
Environmental Division

JF:KB:cb

Enclosure
Final Programmatic Agreement

**PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER, AND
THE ARKANSAS DEPARTMENT OF TRANSPORTATION
REGARDING
ARDOT JOB NUMBER R60140
HWY. 70 – HWY. 7 NORTH (F)
GARLAND COUNTY, ARKANSAS**

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT) plan to carry out Job Number R60140, which is a federal undertaking as defined under 36 CFR 800.16(y); and

WHEREAS, the undertaking consists of constructing two lanes of an eventual 5.49 miles of a four-lane divided highway between Highway 70 East and Highway 7 North in Garland County (the Project) in order to serve the transportation needs of the area; and

WHEREAS, the Arkansas FHWA Division Administrator is the "Agency Official" responsible for ensuring that the Program in Arkansas complies with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (54 U.S.C. § 306108), and codified in its implementing regulations, 36 *Code of Federal Regulations* (CFR) Part 800, as amended; and

WHEREAS, the Project will have federal involvement from FHWA funding, which constitutes an undertaking under Section 106 of the NHPA; and

WHEREAS, ARDOT administers Federal-aid projects throughout Arkansas as authorized by Title 23 U.S.C 302; and

WHEREAS, the responsibilities of the Arkansas State Historic Preservation Officer (SHPO) under Section 106 of the NHPA and 36 CFR Part 800 are to advise, assist, review, and consult with federal agencies as they carry out their historic preservation responsibilities; and

WHEREAS, a Preferred Alternative was not identified in the February 2005 Environmental Assessment due to future consideration of public input, estimated project costs, relocatees, and environmental constraints; and

WHEREAS, a Selected Alternative was identified in the June 2005 Finding of No Significant Impact (FONSI) based on public input, estimated project costs, relocatees, and other environmental constraints; and

WHEREAS, preliminary design has been completed, and a reevaluation of the project is underway due to the design changes that have occurred to the Selected Alternative since the FONSI;

WHEREAS, the FHWA has established the Project's area of potential effects (APE), as defined by 36 CFR 800.16(d), as the proposed right-of-way acquired for the four-lane divided highway of the 2018 Selected Alternative (Attachment 1); and

WHEREAS, ARDOT, in consultation with the SHPO, has completed studies to identify all architectural resources meeting the criteria for listing to the National Register of Historic Places (NRHP) located within the Project's APE in correspondences dated March 10, 2017, April 27, 2017, February 16, 2018, and July 17, 2018; and SHPO concurred with these findings on May 1, 2017, February 26, 2018, and July 18, 2018; and

WHEREAS, ARDOT, in consultation with SHPO, has identified one property (Property 1/3GA1079) eligible for listing to the NRHP within the APE as shown in Attachment 2; and

WHEREAS, ARDOT has completed a Phase I cultural resources pedestrian survey within the Project's APE and conveyed its initial findings, described in the report, *A Cultural Resources Survey of ARDOT Job Number R60140* (August 2018), and in Attachment 3, and SHPO reviewed the report in correspondence dated September 27, 2018; and

WHEREAS, ARDOT disagreed with SHPO's determinations for archeological sites 3GA0832-3GA0836, 3GA1080, 3GA1103, and 3GA1107 and responded in a letter dated October 4, 2018; and

WHEREAS, SHPO addressed the response letter in correspondence dated October 18, 2018 as well as informally consulted with ARDOT to provide clarity on the additional information requested; and

WHEREAS, SHPO and ARDOT agree that a more detailed written narrative of novaculite quarrying and mining activities and development of the springs in the local area is necessary in order to concur that sites 3GA0832-3GA0836, 3GA1080, 3GA1103, and 3GA1107 are not eligible to the NRHP in a letter dated October 18, 2018; and

WHEREAS, ARDOT submitted an *Addendum to the Report* on December 7, 2018, and SHPO concurred that sites 3GA0832-3GA0836, 3GA1080, 3GA1103, and 3GA1107 are not eligible to the NRHP in a letter dated January 3, 2019; and

WHEREAS, SHPO and ARDOT agree that four archeological sites (3GA0851, 3GA1102, 3GA1120, and 3GA1126) require Phase II testing within the APE to determine their eligibility to the NRHP in a letter dated September 27, 2018;

WHEREAS, ARDOT Roadway Design Division revised design plans to avoid impacting one site (3GA1120) recommended for Phase II testing on January 28, 2019, now resulting in three sites (3GA0851, 3GA1102, and 3GA1126) requiring Phase II testing; and

WHEREAS, additional archeological sites, previously considered outside of the project area and unevaluated for eligibility to the NRHP, may require reassessment since design plans were not finalized at the time of the Phase I survey; and

WHEREAS, FHWA has determined that the undertaking will have an adverse effect on an improved historic spring cluster (Property 1/3GA1079), which is eligible for listing in the NRHP under Criterion A, and SHPO has concurred with this determination in letters dated May 1, 2017 and September 27, 2018; and

WHEREAS, FHWA has consulted with the Caddo Nation, the Osage Nation, Quapaw Nation, the United Keetoowah Band of Cherokee Indians, and the Tunica-Biloxi Tribe of Louisiana, Inc. regarding the effects of the undertaking on historic properties of religious or cultural significance in letters dated April 26, 2017, and the Osage Nation responded with no known adverse impacts to cultural resources or humans remains for the Project in a letter dated March 7, 2018; and

WHEREAS, FHWA has invited the Caddo Nation, the Osage Nation, Quapaw Nation, the United Keetoowah Band of Cherokee Indians, and the Tunica-Biloxi Tribe of Louisiana, Inc. to participate and comment on the draft Programmatic Agreement (Agreement) in letters dated February 27, 2019 and has received no responses to date; and

WHEREAS, FHWA has determined that the development of a Programmatic Agreement (Agreement), in accordance with 36 CFR 800.14(b)(1)(ii) and in consultation with SHPO, a Signatory to this Agreement, is warranted to ensure all commitments are implemented; and

WHEREAS, because of its role and responsibilities as project partner with FHWA, FHWA has invited ARDOT to sign this Agreement as a Signatory; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), FHWA notified the Advisory Council on Historic Preservation (ACHP) of its decision to pursue an Agreement and invited their participation on October 30, 2018, and the ACHP has chosen *not to* participate in the consultation pursuant to 36 CFR 800.6(a)(1)(iii) by failing to respond within the 15 day-review period of the submission; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Agreement; and

NOW THEREFORE, FHWA, SHPO, and ARDOT agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The FHWA, through ARDOT, will ensure that the following measures are carried out.

I. MODIFICATION OF THE AREA OF POTENTIAL EFFECTS

The APE is defined as the proposed right of way for the 2018 Selected Alternative, consisting of 5.49 miles of a four-lane divided highway between Highway 70 East and Highway 7 North. Should the APE change, FHWA shall follow the stipulations for identification, evaluation, and treatment of archeological and architectural resources (Stipulation II and III).

II. ARCHEOLOGICAL RESOURCES

A. Evaluation

Prior to initiating Project construction, ARDOT or its archeological contractor shall reassess final design plans to see if archeological sites, previously considered outside of the project area and unevaluated for eligibility to the NRHP, are within or outside of the APE (see Attachment 3). If these sites are now within the APE, additional Phase I surveys may be necessary. All fieldwork and report writing shall be done in accordance with Appendix B of the Arkansas State Plan: Guidelines for Archeological Fieldwork and Report Writing (2010 or any revisions or replacements to that document).

- a. ARDOT or its contractor shall conduct Phase I level surveys pursuant to this Agreement and shall provide SHPO the opportunity to review and concur on all reports, findings, and recommendations.
- b. ARDOT or its contractor shall conduct Phase II testing necessary to evaluate the NRHP eligibility of archeological sites (3GA851, 3GA1102, and 3GA1126) and any additional sites identified within the APE and shall provide SHPO the opportunity to review and concur on all reports, findings, and recommendations. The evaluations shall be conducted in accordance with 36 CFR 800.4(c), and pursuant to the requirements in this Agreement.

B. Assessment of Effects

If archeological sites meeting the criteria for listing in the NRHP are identified as a result of the Project, FHWA and ARDOT shall assess the effects of the Project on these sites in a manner consistent with 36 CFR 800.5 and submit its recommendations to the SHPO for review and concurrence.

C. Treatment of Archeological Sites Determined Eligible for Listing in the NRHP

- a. If FHWA and ARDOT, in consultation with SHPO, determine that an

archeological site(s) eligible for listing in the NRHP will be adversely affected by the Project, FHWA and ARDOT shall determine whether avoidance or minimization of the adverse effect is practicable. If the adverse effect cannot practicably be avoided or the effect sufficiently minimized so that it is no longer adverse, ARDOT, in consultation with SHPO, shall develop a treatment plan for the archeological site(s). ARDOT shall provide the SHPO the opportunity to review and concur with the treatment plan.

- b. Any treatment plan ARDOT or its contractor develops for an archeological site(s) under the terms of this stipulation shall be consistent with the requirements of Stipulation VIII, below, and shall include, at a minimum:
 1. Information on the portion of the site(s) where data recovery or controlled site burial, as appropriate, is to be carried out, and the context in which the property is eligible for the NRHP;
 2. The results of the previous research relevant to the Project;
 3. Research problems or questions to be addressed, with an explanation of their relevance and importance;
 4. The field and laboratory analysis methods to be used, with a justification of their cost-effectiveness and how they apply to this particular site(s) and the research needs;
 5. The methods to be used in artifact, data, and other records management;
 6. Explicit provisions for disseminating in a timely manner the research findings to professional peers;
 7. Arrangements for presenting to the public the research findings, focusing particularly on the community or communities that may have interests in the results;
 8. The curation of recovered materials and records resulting from the data recovery in accordance with 36 CFR Part 79;
 9. Procedures for evaluating and treating discoveries of unexpected remains during the course of the excavation, including necessary consultation with the consulting parties.
- c. ARDOT shall ensure the treatment plan is implemented and that any agreed-upon data recovery field operations have been completed before ground disturbing activities are initiated at or near the affected archeological site(s). ARDOT shall notify the SHPO and the consulting parties when the treatment plan is initiated and again once data recovery has been completed. ARDOT or its contractor shall provide a Management Summary report of the findings to SHPO and consulting parties.
- d. Project construction may proceed following the written approval by SHPO of the Management Summary report, while the technical report is in

preparation. If the technical report is not complete within six (6) months of the completion of the data recovery, ARDOT shall provide the SHPO and consulting parties a written update on the progress of the investigation. ARDOT or its contractor shall provide SHPO and consulting parties a draft of the technical report for review and comment. ARDOT or its contractor shall provide a final report to the SHPO and consulting parties. ARDOT shall ensure that the archeological site form on file in the Arkansas Archeological Survey's (AAS) Automated Management of Archeological Site Data in Arkansas (AMASDA) is updated to reflect the data recovery done for each affected site.

III. ARCHITECTURAL RESOURCES

- A. Architectural resources are defined as all non-archeological resources consisting of historic buildings, structures, objects, and districts.
- B. Prior to initiating Project construction, ARDOT shall reassess final design plans to see if architectural resources, previously considered outside of the project area and unevaluated for eligibility to the NRHP, are within or outside of the APE. The ARDOT shall identify and evaluate any additional architectural resources located within the APE for NRHP eligibility in accordance with 36 CFR 800.4. The assessment of architectural resources will consist of a level of effort required to determine NRHP eligibility and adverse effect determination.
- C. If concurrence on eligibility of an architectural resource cannot be reached, FHWA shall obtain a determination from the Keeper in accordance with 36 CFR 800.4.
- D. If an adverse effect to an architectural resource determined eligible for inclusion in the NRHP occurs, mitigation as discussed in Stipulation IV will be prepared or other creative mitigation options will be developed in consultation with SHPO.
- E. Avoidance is the preferred option, if prudent and feasible alternatives exist that avoids the use of that architectural resource(s) for highway construction.

IV. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTY: (Cluster Springs – 3GA1079).

- A. An AAS Site Form that follows the guidelines in Appendix B of the Arkansas State Plan: Guidelines for Archeological Fieldwork and Report Writing (2010 or any revisions or replacements to that document) has been completed and submitted for the Cluster Springs site. A State Site Revisit form will be

- submitted and will include additional historical research, information, and documentation regarding the site.
- B. ARDOT shall produce documentation for the Cluster Springs site that will include scaled plan and profile drawings of each feature.
 - C. ARDOT shall create a detailed overview map of the spring complex and associated features of the site.
 - D. ARDOT shall take high resolution photographs of the site to include overview landscape and features.
 - E. ARDOT shall conduct two public historical outreach lectures on the Project, Cluster Springs, and the mitigation efforts pertaining to Section 106 of the National Historic Preservation Act.
 - F. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.
 - G. The FHWA shall ensure that adequate time and funding are provided to carry out all aspects of the required mitigation.

V. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA, in consultation with SHPO, shall determine if the discovery is eligible for inclusion in the NRHP. If so, the FHWA and the ARDOT will develop a treatment plan for historic properties which shall be reviewed by SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation IX.

VI. HUMAN REMAINS

Human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the Project, all activity in the vicinity of the discovery shall cease. The treatment of human remains shall follow the guidelines developed for the *Arkansas Burial Law* (Act 753 of 1991, as amended) and the ACHP's *Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects* published February 23, 2007. As such a permit will be obtained from the AHPP prior to the excavation of any remains.

VII. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic

preservation activities to this Agreement are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-44739).

VIII. PREPARATION AND REVIEW OF DOCUMENTS

- A. All archeological studies, technical reports, and treatment plans prepared pursuant to this Agreement shall be consistent with the federal and state standards titled Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation set forth in 48 FR 44716, Appendix B of the Arkansas State Plan: Guidelines for Archeological Fieldwork and Report Writing (2010 or any revisions or replacements to that document), and AHPP's Survey Procedures Manual (2016).
- B. The SHPO and consulting parties to this Agreement agree to provide comments to ARDOT on all technical materials, findings, and other documentation arising from this Agreement within thirty (30) calendar days of receipt. If no comments are received from the SHPO and consulting parties within the thirty (30)-calendar-day review period, ARDOT may assume that the non-responsive party has no comment. The ARDOT shall take into consideration all comments received in writing from the SHPO and consulting parties within the thirty (30)-calendar-day review period.
- C. All archeological studies, technical reports, and treatment plans prepared pursuant to this Agreement shall be submitted in electronic format to SHPO. ARDOT will provide hard copies if requested.

IX. DISPUTE RESOLUTION

Should any Signatory or consulting party to this Agreement object at any time to any documentation or materials submitted for review, actions proposed, review comments submitted pursuant to this Agreement, or the manner in which the terms of this Agreement are implemented, FHWA shall notify the other Signatories of the objection and consult with the objecting party and/or parties to resolve the objection. If FHWA determines that such objection cannot be resolved through consultation, FHWA shall:

- A. Forward all documentation relevant to the dispute, including the FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely

advice or comments regarding the dispute from the ACHP, Signatories, Invited Signatories and Concurring Parties, and provide them with a copy of this written response.

- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30)-day time period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and consulting parties to the Agreement, and provide them and the ACHP with a copy of such written response.
- C. Notify the Signatories and consulting parties of its final decision. FHWA shall then proceed according to its final decision.
- D. Carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute.

Should a member of the public raise an objection or disagree with the findings pursuant to the Agreement, FHWA shall immediately inform the Signatories in writing and take the objection into account. FHWA shall consult with the objecting party and other Signatories as requested for no more than thirty (30) days. FHWA shall render a decision regarding the objection and notify all parties of this decision in writing within fourteen (14) days following the closure of the consulting period. In reaching the decision, FHWA shall take comments from all parties into account. FHWA's decision regarding the resolution of the objection will be final.

X. AMENDMENTS

Any Signatory to this Agreement may propose that it be amended in accordance with 36 CFR 800.6, whereupon the Signatory shall consult with the other Signatories within 30 days of the proposal to consider an amendment. Any such amendment will be effective on the date a fully executed copy is filed with the ACHP.

XI. TERMINATION

- A. If any Signatory to the Agreement determines that the Agreement's terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment, per Stipulation X. If an amendment cannot be reached, any Signatory may terminate the Agreement upon written notification to the other Signatories.
- B. Once the Agreement is terminated, and prior to work continuing on the Project, FHWA must either: 1) execute a subsequent agreement pursuant to 36 CFR

800.6, or 2) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7.

C. FHWA shall notify the Consulting Parties of its final decision.

XII. DURATION

The terms of this Agreement shall commence on the date the last signature is affixed hereto and will expire when all Stipulations are completed, or 10 years from the date of execution. Prior to such time, the FHWA may consult with the other Signatories to reconsider the terms of the Agreement and amend it in accordance with Stipulation X.

Execution of this Agreement by the FHWA, the SHPO, and ARDOT, and its submission to the ACHP in accordance with 36 CFR 800.6(b)(1)(iv) shall be considered to be an agreement with the ACHP for the purposes of Section 110(1) of the NHPA. Execution of this Agreement and implementation of its terms evidences that the FHWA has afforded the ACHP an opportunity to comment on the proposed Project and has taken into account the effects of the undertaking on historic properties and has fulfilled its Section 106 responsibilities under the NHPA of 1966, as amended.

Signatory

FEDERAL HIGHWAY ADMINISTRATION



Angel L. Correa
Arkansas Division Administrator



Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER



Stacy Hurst
Arkansas State Historic Preservation Officer

4-8-19

Date

Signatory

ARKANSAS DEPARTMENT OF TRANSPORTATION



Scott E. Bennett, P.E.
Director

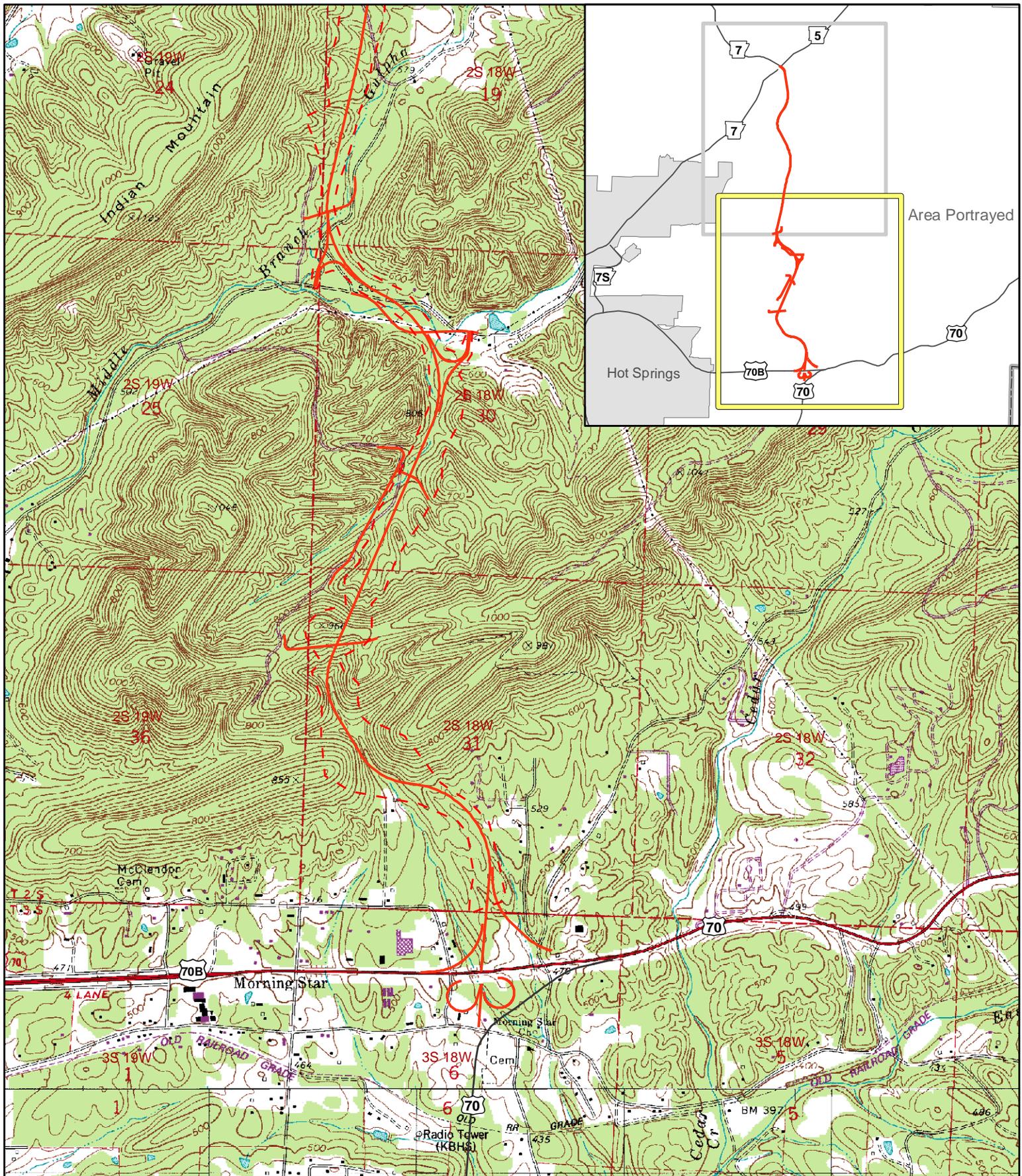


4.15.2019

Date

ARDOT Job Number R60140
Programmatic Agreement

Attachment 1
Selected Alternative APE and Project Location Maps



Scale - 1:24,000

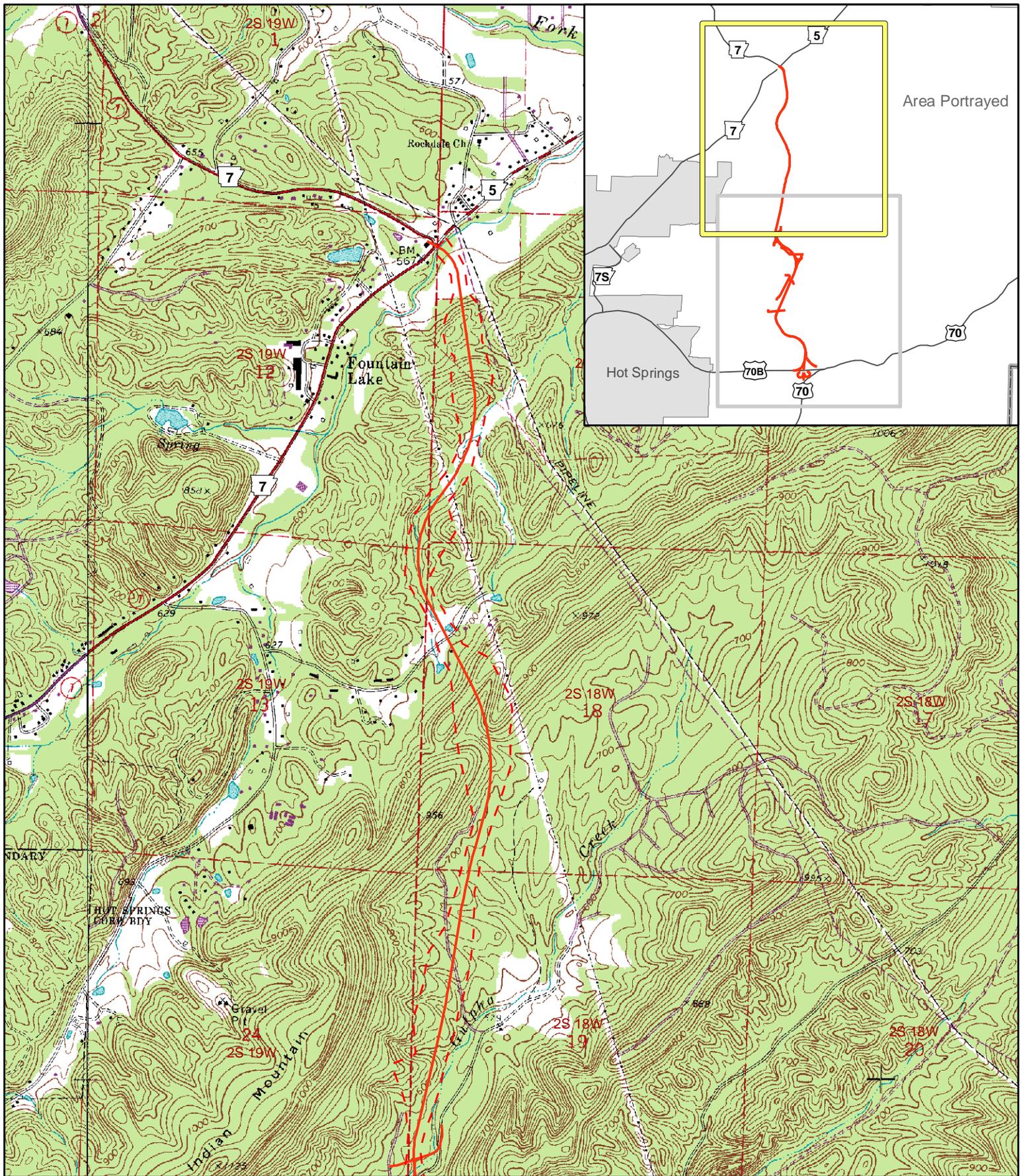
Job R60140

ARDOT - Environmental GIS - Reed
February 11, 2019

Attachment 1
Selected Alternative APE
and Project Location
Sheet 1 of 2

-  Selected Alternative
-  Proposed Right of Way

USGS Topographic Map:
Fountain Lake 1988



Scale - 1:24,000

Job R60140

ARDOT - Environmental GIS - Reed
February 11, 2019

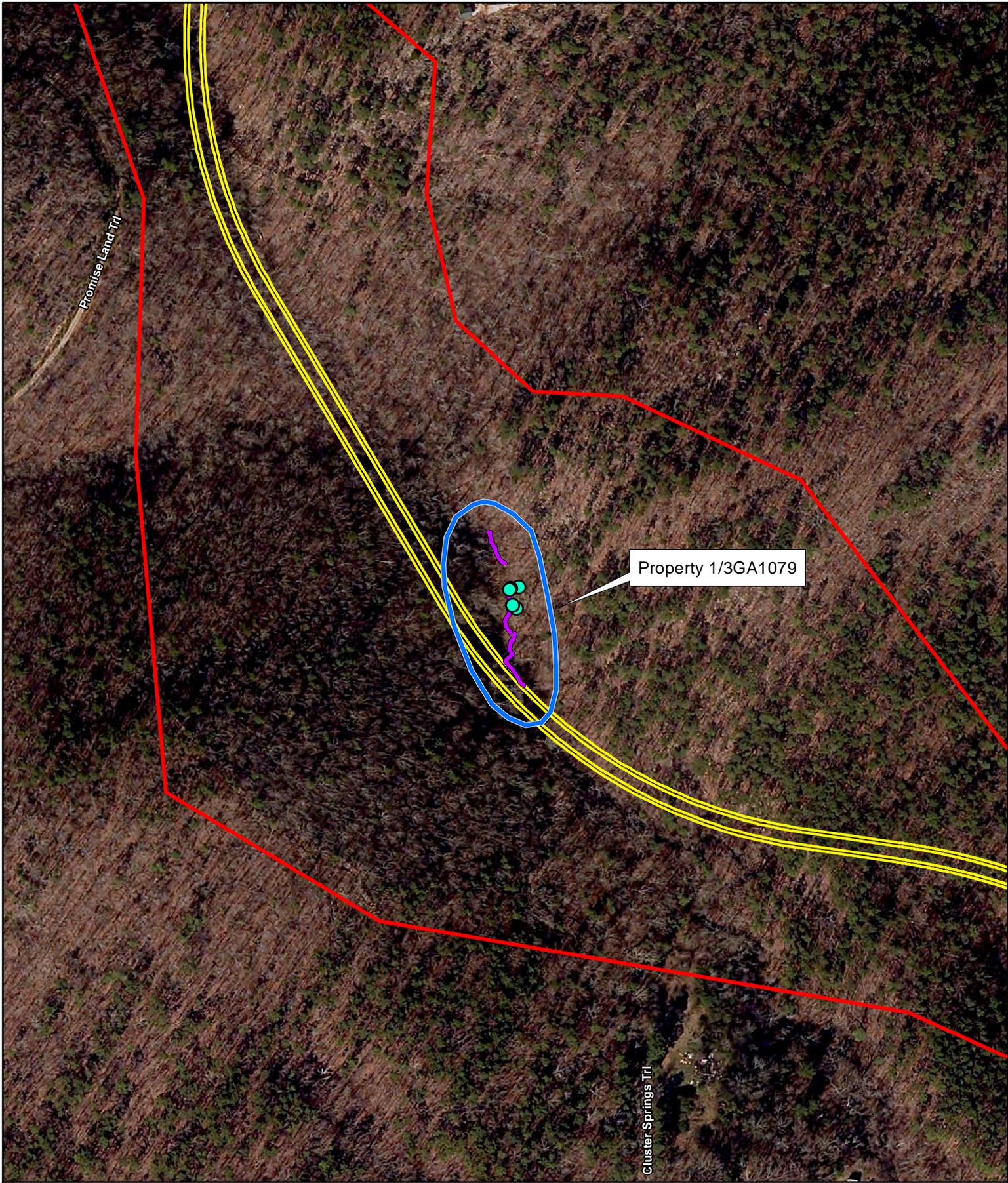
Attachment 1
Selected Alternative APE
and Project Location
Sheet 2 of 2

-  Selected Alternative
-  Proposed Right of Way

USGS Topographic Map:
Fountain Lake 1988

ARDOT Job Number R60140
Programmatic Agreement

Attachment 2
Cluster Springs (Property 1/3GA1079)



Job R60140

Attachment 2 Cluster Springs

ARDOT - Environmental GIS - Reed
November 21, 2018

-  Spring Box
-  Rock Lined Path
-  Proposed Right of Way
-  Proposed Road

Photography Date: January 2017

Attachment 3 Archeological sites

AAS Site No.	Type	NRHP Status	APE
3GA0139	Native American (NA), historic quarry	Unevaluated	outside
3GA0831	NA workshop	Not Eligible	within
3GA0832-3GA0836	Historic novaculite quarries and prospecting pits	Not Eligible	within
3GA0837		Unevaluated	outside
3GA0838		Unevaluated	outside
3GA0839		Unevaluated	outside
3GA0840		Unevaluated	outside
3GA0851	NA lithic, historic farmstead	NA potentially eligible-Phase II testing	within
3GA0858	NA lithic workshop	Unevaluated	outside
3GA1079	Cluster Springs	Eligible	within
3GA1080	NA lithic extraction, historic mining	Not Eligible	within
3GA1097	NA site based on landowner information and artifact collection	Unevaluated	no evidence of site found within APE
3GA1098	European Cemetery (Whittington)	Unevaluated	outside
3GA1100	NA lithic scatter	Not Eligible	within
3GA1101	Mid-twentieth century historic	Not Eligible	within
3GA1102	NA lithic workshop	Phase II testing	within
3GA1103	Late 1800s-early 1900s trail	Not Eligible	within
3GA1104	Historic borrow/mining pit	Not Eligible	within
3GA1107	Late 1800s-circa 1950s road	Not Eligible	partially within
3GA1108	NA isolated find	Unevaluated	outside
3GA1109	Historic mining	Not Eligible	within
3GA1110	Historic illegal dump	Not Eligible	within
3GA1111	NA lithic extraction	Unevaluated	outside
3GA1112	NA lithic extraction	Unevaluated	outside
3GA1113	NA lithic extraction	Unevaluated	outside
3GA1114	NA lithic extraction	Not Eligible	within
3GA1115	NA lithic extraction	Not Eligible	within
3GA1116	NA lithic extraction	Not Eligible	within
3GA1117	NA lithic extraction	Not Eligible	within
3GA1118	NA lithic extraction	Unevaluated	outside
3GA1119	NA lithic extraction	Unevaluated	outside
3GA1120	NA lithic extraction	Phase II testing	outside
3GA1121	NA lithic extraction	Not Eligible	within
3GA1122	NA lithic extraction	Unevaluated	outside
3GA1123	NA lithic workshop	Not Eligible	within
3GA1124	NA lithic extraction	Unevaluated	outside

ARDOT Job Number R60140
Programmatic Agreement

3GA1125	NA lithic extraction	Not Eligible	within
3GA1126	NA lithic workshop, historic farmstead	NA potentially eligible-Phase II testing	partially within
3GA1127	NA lithic extraction	Not Eligible	within
3GA1128	NA lithic extraction	Unevaluated	outside
3GA1129	NA lithic extraction	Unevaluated	outside

This page left blank intentionally.

Appendix D

The Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:

YES NO

Information to Determine 4(d) Rule Compliance:	YES	NO
1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant³ Arkansas Department of Transportation, clinton.hutcheson@ardot.gov, 501-569-2084

Project Name: Hwy. 70 – Hwy. 7 East (F)

Project Location (include coordinates if known): Garland County (34.543799, -92.981625)

Basic Project Description (provide narrative below or attach additional information): Construction of this project will construct two lanes of an ultimate four lane divided highway between Highway 70 and Highway 7 North.

¹ <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of forest conversion		
If known, estimated acres ⁵ of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 ⁶		
Does the project include timber harvest? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of timber harvest	328 acres	
If known, estimated acres of timber harvest from April 1 to October 31	0	
If known, estimated acres of timber harvest from June 1 to July 31	0	
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: Hutcherson

Date Submitted: 10/4/2018

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.

This page left blank intentionally.

Appendix E

Correspondence



THE DEPARTMENT OF ARKANSAS
HERITAGE

Asa Hutchinson
Governor

Stacy Hurst
Director

Date: March 31, 2017
Subject: Elements of Special Concern
East-West Arterial (Hot Springs) P.E.
AHTD Job Number R60016
Garland County, AR
ANHC No.: S-AHTD-17-005

Mr. John Fleming
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Fleming:

Staff members of the Arkansas Natural Heritage Commission have reviewed the information you provided related to the environmental reassessment for a proposed project to extend the East-West Arterial in Hot Springs. The original Environmental Assessment was completed in 2005. The project would extend the East-West Arterial around Hot Springs from U.S. Highway 70 north to the junction of State Highways 7 and 5 near Fountain Lake. The facility would be constructed on new location and would consist of 5.5 miles of roadway (two-lanes of an ultimate four-lane divided highway). Our records indicate the potential occurrence of species and communities of conservation concern within the project area.

Although we currently have no records mapped within the proposed corridor, this is likely indicative of a lack of inventory along the project route. The following species of conservation concern have been mapped in relative close proximity to the project:

- Noturus lachneri*, Ouachita madtom – State Concern
- Myotis septentrionalis*, Northern long-eared bat – Federal Concern (Threatened)

Ouachita madtom has been recorded from the Middle Branch of Gulpha Creek which would be crossed by the proposed roadway. Ouachita madtom is endemic to the Ouachita region where it is found in the upper Saline, Ouachita Headwaters, and Upper Ouachita watersheds. It is a globally rare species and is listed in the State Wildlife Action Plan as a Species of Greatest Conservation Concern. Northern long-eared bat has been reported in the vicinity of Fountain Lake and Hot Springs and is likely present within the project corridor. This species is listed as threatened by the U.S. Fish and Wildlife Service. Northern long-eared bat numbers have declined dramatically in recent years due to the effects of White-nose syndrome.

The project area is also likely to include seepage wetland and glade habitat. These are significant and declining habitat types that frequently support rare species. Seepage wetlands (seeps) often occur along the lower slopes of smaller valleys where water seeps out of the hillsides and in the riparian zones of creeks. They are characterized by poorly drained soils, permanently saturated by groundwater. They can support a variety of rare and unusual species. Forested seeps can often be identified by lush growth of fern species including cinnamon fern, royal fern, lady fern and netted chain fern. Glades occur where the bedrock is at or near the surface. They are characterized by areas of bare rock, expanses with grasses and forbs, and,

Arkansas Arts Council

Arkansas Historic
Preservation Program

Arkansas State Archives

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum



1100 North Street
Little Rock, AR 72201

(501) 324-9619
fax: (501) 324-9618
tdd: 711

e-mail:
info@naturalheritage.com
website:
www.naturalheritage.com

where the soil is deeper, often cedar trees. In the past, these areas were subject to wildfires, which maintained an open character and reduced the number of cedar trees. Glades are often more biologically diverse than surrounding forests, support rare species, and provide important wildlife habitat. We recently contracted with The Central Hardwoods Joint Venture to map glades by interpreting aerial images using GIS. This work indicates the proposed roadway would cross a complex of glades in Section 31 of T2S/R18W. The GIS layer for glades may be found on-line at the following website:

<https://gcpolcc.databasin.org/datasets/a817fa247dd3440e814282f3063c51d0>

The proposed project appears to fall within the recharge area of Hot Springs National Park. It would be appropriate to consider the hydrologic implications of road construction to the hot springs system. We are aware of conservation efforts within this recharge area and encourage the Highway Department to consult with The Nature Conservancy and the Arkansas Forestry Commission.

The opportunity to comment is appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Osborne".

Cindy Osborne
Data Manager/Environmental Review Coordinator



THE DEPARTMENT OF ARKANSAS
HERITAGE

Asa Hutchinson
Governor

Stacy Hurst
Director

October 18, 2018

Mr. John Fleming
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

**RECEIVED
ARDOT**

OCT 22 2018

**ENVIRONMENTAL
DIVISION**

Arkansas Arts Council

Arkansas Natural
Heritage Commission

Arkansas State Archives

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum

RE: Garland County – General
Section 106 Review – FHWA
Response Letter: ArDOT Job Number R60140 HWY. 70-East –
HWY. 7 North (S) Garland County, Arkansas
ArDOT Job Number: R60140
AHPP Tracking Number: 50514.03

Dear Mr. Fleming:

The staff of the Arkansas Historic Preservation Program (AHPP) has reviewed the above-referenced response letter that was submitted on October 4, 2018. The AHPP will address each concern below:

1. The AHPP will concur that sites 3GA1103 and 3GA1107 are not associated with 3GA1079 and are not eligible for the National Register of Historic Places (NRHP) provided that a more detailed discussion is provided in the final version of the report.
2. The AHPP will concur that site 3GA1080 is not associated with 3GA1079 and is not eligible for the National Register of Historic Places (NRHP) provided that a more detailed discussion is provided in the final version of the report.
3. The AHPP is not disputing that ArDOT has fully recorded the physical attributes/features of that sites 3GA0832-3GA0836. The AHPP is simply requesting that additional historical and archival research be performed and included in the analysis. A more comprehensive history of the Novaculite Quarrying of the area needs to be included in the final report to strengthen the argument that these are not eligible. This additional historical research will help build a case that these five sites are not unique or associated with significant individuals associated with the area of industry.



ARKANSAS HISTORIC
PRESERVATION PROGRAM



1100 North Street
Little Rock, AR 72201

(501) 324-9880
fax: (501) 324-9184
tdd: 711

e-mail:

info@arkansaspreservation.org

website:

www.arkansaspreservation.com

An Equal Opportunity Employer

Tribes that have expressed an interest in the area include the Caddo Nation (Ms. Tamara Francis), the Osage Nation (Dr. Andrea Hunter), the Quapaw Nation of Oklahoma (Mr. Everett Bandy), and the Shawnee Tribe of Oklahoma (Ms. Tonya Tipton). We recommend that they be consulted in accordance with 36 CFR § 800.2 (c) (2).

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Tim Dodson of my staff at 501-324-9784.

Sincerely,



Scott Kaufman
Director, AHPP

cc: Mr. Randall Looney, Federal Highway Administration
Dr. Ann Early, Arkansas Archeological Survey



United States Department of the Interior
NATIONAL PARK SERVICE
Hot Springs National Park
101 Reserve Street
Hot Springs, Arkansas 71901



February 7, 2017

Environmental Division
Arkansas State Highway and Transportation Department
Post Office Box 2261
Little Rock, Arkansas 72203-2261

RECEIVED
AHTD

FEB 09 2017

ENVIRONMENTAL
DIVISION

Dear Mrs. Price and Mr. Tucker,

Hot Springs National Park would like to express our sincere thanks for your efforts to ensure that the thermal water recharge zone is not detrimentally impacted by the proposed Martin Luther King Highway extension, (Job R60140).

As was recently discussed in the January 30 meeting between AHTD, the U.S. Geological Survey (USGS), the Federal Highways Administration (FHWA), and the National Park Service (NPS), the conclusions of the USGS study that took place from 2006-2009 indicated that the highway extension would likely not harm the thermal waters, but that land use changes could potentially impact infiltration rates of precipitation into the recharge area.

In 2010, the USGS presented its results and there was general agreement that the extension would have controlled access between the Highways 5 and 7 and Highway 270 terminuses. The revised concept for the extension indicates that there will be access points at Mill Creek and Promised Land Road and we urge that Full Control Access be established for the balance of the extension (north of Millcreek and Promised Land Roads) to restrict future access points. We also look forward to the results of new USGS modeling for land use changes in that area, a study which will inform our future decisions.

We appreciate AHTD's commitment to resource research and monitoring, and to working with you as the planning and EA phases continue.

Thank you again for your assistance with this project.

Sincerely,

Josie Fernandez
Superintendent
Hot Springs National Park

cc: Randal Looney, FHWA
Jaysson Funkhouser, Timothy Kresse, and Phillip Hays, USGS



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032



March 5, 2018

Mr. John Fleming
c/o Clint Hutcheson
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, Arkansas 72209

Dear Mr. Fleming,

The Service has reviewed your assessment and determinations for Arkansas Department of Transportation (ArDOT) Job Number R60016, Garland County, Arkansas received on February 27, 2018. The project was described and assessed as follows (abbreviated):

The proposed project will construct two lanes of an ultimate 4 lane divided highway between Highway 70 and Highway 7 North. This project will be all on new location requiring approximately 180 acres of tree removal.

The official species list obtained for the project identified four threatened and two endangered species as potentially occurring within the project boundaries. The Northern Long-eared Bat (*Myotis septentrionalis*), Arkansas Fatmucket (*Lampsilis powellii*), Pink Mucket (*Lampsilis abrupta*), Rabbitsfoot (*Quadrula cylindrica*), Missouri Bladderpod (*Physaria filiformis*) and Harperella (*Ptilimnium nodosum*) were identified as listed species that may occur within the project area.

The Department has determined that the project may affect, but is not likely to adversely affect the Northern Long-eared Bat. The Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form is attached.

The Arkansas Fatmucket, Pink Mucket, Rabbitsfoot, Missouri Bladderpod and Harperella were also identified as possibly occurring within the project area. Based on the lack of habitat and distance to know locations for these species, it is our determination that the proposed project will have no effect on them.

The Department requests your concurrence in these determinations.

The Service has reviewed your determination that the proposed action will not result in any prohibited incidental take for Northern Long-eared Bat. This project may affect the Northern Long-eared Bat; however, there are no effects beyond those previously disclosed in the Service's

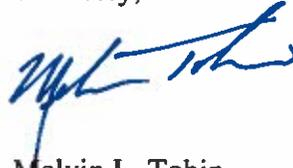
programmatic biological opinion for the final 4(d) rule dated January 5, 2016. Any taking that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR §17.40(o)). This project is consistent with the description of the proposed action in the programmatic biological opinion, and the 4(d) rule does not prohibit incidental take of the Northern Long-eared Bat that may occur as a result of this project. Therefore, the programmatic biological opinion satisfies the "action agency" responsibilities under ESA section 7(a)(2) relative to the Northern Long-eared Bat for this project.

Please keep in mind that you must report any departures from the plans submitted; results of any surveys conducted; or any dead, injured, or sick Northern Long-eared Bats that are found to this office. If this project is not completed within one year of this letter, you must update your determination and resubmit the required information.

Furthermore, due to the distance to any known species locations and standard application of sediment and erosion control measures, the Service agrees with your assessment. No further consultation is necessary at this time for the species identified.

For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or lindsey_lewis@fws.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Melvin L. Tobin', with a stylized flourish at the end.

Melvin L. Tobin
Field Supervisor



United States Department of the Interior

NATIONAL PARK SERVICE

Hot Springs National Park

101 Reserve Street

Hot Springs, Arkansas 71901



1.A.2 (Roads)

December 17, 2018

Mr. John Fleming
Division Head – Environmental Division
Arkansas Department of Transportation
Post Office Box 2261
Little Rock, Arkansas 72203-2261

RE: ArDOT Job Number R60140
Hwy. 70 East – Hwy. 7 North (S)
Garland County
Draft Reassessment

Dear Mr. Fleming:

Thank you for providing the draft reassessment for project R60140 regarding the proposed construction of a bypass extension between Hwy. 70 East and Hwy. 7 North. The National Park Service (NPS) concurs that designating the project as a fully controlled access facility is likely to help mitigate concerns about the project's potential secondary impacts to the thermal waters of Hot Springs National Park. We request your department maintain full control of access in perpetuity, with no additional interchanges, in order to maintain the value of the mitigation.

We appreciate and commend your department's partnership with the United States Geological Survey to monitor groundwater along the proposed bypass corridor. We also remain attentive to the possible cumulative impacts detailed in the draft reassessment, including decreased water quality and quantity of the hot springs, encroachment of urban sprawl into the recharge zone, and various environmental changes, such as altered recharge characteristics. As acknowledged within the document, development and land use changes are reasonably foreseeable future conditions that typically follow road construction and that are likely to result in negative environmental impacts. Such negative impacts to the park's natural resources, the visiting public, and the local community would be unacceptable.

The reassessment lacks detail with regard to potential direct and cumulative impacts to the thermal waters of the park, and we would appreciate more information about the planned mitigation measures to control access along the route and how natural drainage patterns will be maintained within the recharge area for the hot springs. In partnership with the United States Geological Survey, we wish to evaluate such measures prior to their implementation. To help mitigate the foreseeable cumulative impacts to the hot springs, we request that the Arkansas Department of Transportation preserve a portion of the recharge zone above 660' msl as its compensatory mitigation required for this project.

We also request that the Hot Springs National Park thermal water distribution system be added to the "Public/Private Water Supplies" section, found on page 27 of the draft reassessment. According to the Arkansas State Board of Health definition, the park's drinking water fountains and other elements of the distribution system are a Public Water System. Please ensure that potential impacts to public drinking water

supplied by the park are assessed in this section.

The NPS is concerned that there is incomplete information (per 40 CFR 1502.22) regarding connected and/or cumulative actions (per 40 CFR 1508.25) that could have significant impacts on hydrologic resources important to Hot Springs NP. Specifically, there is incomplete information and scientific uncertainty regarding the intensity of impacts to the recharge area. Further, the potential for future development and new local land uses along the facility, which would not occur in the absence this project, have not been adequately projected. This is relevant information that is essential to understanding potential impacts and making a decision about the project, and it could require that an Environmental Impact Statement be prepared, if the potential impacts are determined to be significant.

Again, thank you for the opportunity to comment on this project. If you have questions or need further information, please do not hesitate to contact me at 501-623-2824 or laura_a_miller@nps.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'L.A. Miller', is positioned above the typed name.

Laura A. Miller
Superintendent



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

ER 19/0023
File 9043.1

March 18, 2019

Randal Looney
Federal Highway Administration
Arkansas Division
700 W. Capitol Ave, Room 3130
Little Rock, AR 72201-3298

Dear Mr. Looney:

The Department of the Interior (Department) has reviewed the Draft Section 4(f) Evaluation associated with a re-evaluation of the Highway 70 East - Highway 7 North project in Garland County, Arkansas (project). The purpose of the project is to construct a four-lane divided highway with fully controlled access, to provide safe and efficient movement of local and through traffic and to alleviate congestion on Highway 7 by moving through traffic onto the proposed bypass. The southern terminus is outside the city limits of Hot Springs at the intersection of US Highways 70 and 270. From there, the route runs north on new location for 5.5 miles before terminating at the junction of Highways 5 and 7.

The project sponsors are the Arkansas Department of Transportation (DOT) and the Federal Highway Administration (FHWA). The document considers effects under Section 4(f) of the Department of Transportation Act of 1966 (codified at 49 U.S.C. 303) associated with the project, in addition to potential impacts to resources at Hot Springs National Park. The Department offers the following comments and recommendations for your consideration:

Section 4(f) Comments

The project would impact one Section 4(f) cultural resource. The Cluster Springs Complex includes mortared rock footpaths, a cement footbridge, and four improved springs and seeps. The Cluster Springs Complex has been determined eligible to the National Register of Historic Places (NRHP) under Criteria A for its local significance to the nearby City of Hot Springs as a unique spring natural improvement area. The selected alternative will demolish the walkway, bridge, steps and concrete spring structures, will install drainage pipes in the creek, and will fill in the stream.

The Department's review concurs with the determination that the project's selected alternative would constitute an adverse effect to the complex, and constitutes a use under Section 4(f). The

Department concurs that there is no feasible or prudent alternative that would meet the purpose and need of the project and avoid the use and impact of the Section 4(f) properties.

The Arkansas DOT and Arkansas SHPO are developing a Programmatic Agreement formalizing measures to mitigate the adverse effect to these resources. When the agreement is executed, the Department will have no objection to the 4(f) evaluations and concurs with the measures to mitigate the adverse effects of the project.

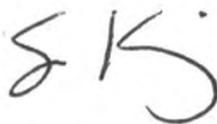
Hot Springs National Park Comments

In addition to the 4(f) evaluation, the review document includes updated information about potential impacts to geothermal waters and other water resources of interest to Hot Springs National Park. The National Park Service (NPS) has previously responded to these issues in a letter on December 17, 2018. The NPS concurs that a fully controlled access facility will mitigate project impacts to the thermal waters of Hot Springs National Park and recommends that Arkansas DOT maintain full access control in perpetuity, with no additional interchanges allowed to be constructed. The NPS requests that the thermal waters of Hot Springs National park be considered as part of the "Public and Private Water Supplies" evaluation, to ensure that potential impacts to drinking water supplied by the park are addressed. The NPS further recommends that the Arkansas DOT preserve certain high elevation property as its compensatory mitigation for the project. Complete NPS comments can be found in Attachment 1.

The Department has a continuing interest in working with the FHWA and the Arkansas DOT to ensure impacts to resources of concern are adequately addressed. For issues concerning Section 4(f) resources, please contact Tokey Boswell, Chief, Planning and Compliance Division, Midwest Regional Office, National Park Service, 601 Riverfront Drive, Omaha, Nebraska 68102, or by telephone at 402-661-1534.

We appreciate the opportunity to provide these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "S King".

Susan King
Acting Regional Environmental Officer
Office of Environmental Policy and Compliance

Attachment 1



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Arkansas Division
700 West Capitol Avenue, Room 3130
Little Rock, AR 72201-3298



June 24, 2003

IN REPLY REFER TO:
AHTD Job R60140
Hwy 70 East – Hwy 7 North
Garland County
HDA-AR

Robert Cast
Tribal Historic Preservation Officer
Caddo Nation of Oklahoma
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Cast:

This letter is written to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Caddo Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Caddo Nation. According to 36 CFR Part 800.4(a) of the National Historic Preservation Act of 1966, as amended, all Federal agencies are required to consult with pertinent Indian Tribes if an action may affect ancestral lands or properties that may be of religious or cultural significance.

The Arkansas Highway and Transportation Department (AHTD) is planning to construct a bypass east/northeast of Hot Springs, AR. It is likely that the bypass will be constructed entirely on new location. AHTD is beginning a broad, general corridor study, and no proposed alignments have yet been established.

To date, a survey of existing records regarding previously recorded archeological sites has been conducted. The records survey revealed three previously documented Native American sites (3GA137, 3GA139, and 3GA140) located within the proposed study corridor, one located adjacent to the eastern edge of the corridor (3GA132) and one located 300 meters to the west on Indian Mountain (3GA138). All sites have been documented as Native American novaculite quarries of varying sizes. The precise locations of 3GA132 and 3GA139 are unknown, but they are believed to be within 40 acres of their locations noted on site maps. An area map of the project location is attached for your review as well as a map indicating the locations of the sites within the selected corridor.

In an effort to determine the existence of archeological deposits within the study corridor at the previously documented sites and to locate any previously undocumented sites, the AHTD proposes to conduct intensive Phase I cultural resources surveys within the proposed project corridor. In the event that subsurface deposits or new sites are found, all work will cease and further consultation will be conducted with the Caddo Nation.

While these sites cannot be attributed to a particular tribe with certainty at this time, we do know that this area was historically occupied by the Caddo. For this reason we would greatly appreciate your input not only on this project but also sites or properties in the immediate area that might be of cultural or religious significance to your tribe. If you have any questions or need additional information, please contact me at (501) 324-6430. Should we not hear from you within a period of thirty days, we will proceed with plans for the formal testing phase. We will continue to coordinate with you throughout the implementation of the project, and keep you informed of changes or developments as they occur.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Randal Looney". The signature is fluid and cursive, with a large initial "R" and a long, sweeping tail.

Randal Looney
Environmental Specialist

cc:
Mr. Dan Flowers, AHTD, encls



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

April 26, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job Number R60016
East – West Arterial
(Hot Springs) P.E.
Garland County

Mr. Everett Bandy
Tribal Historic Preservation Officer
Quapaw Tribe of Oklahoma (O-Gah-Pah)
P.O. Box 765
Quapaw, OK 74363-0765

Dear Mr. Bandy:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Quapaw Tribe of Oklahoma regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to construct a two lane connector road between Highway 70 East and Highway 7 North (see project location map). All work will take place on new location. To date, a survey of existing records regarding previously recorded archeological sites has been conducted and the current alignment may impact previously documented Native American sites 3GA0851, 3GA0858 and 3GA1080. Archeological sites 3GA0832-3GA0836 were documented as Native American quarries in 2003 but recent reassessment has determined that they are historic in nature, likely dating to the 1930s. 3GA0851 and 3GA0858 are Native American lithic scatters and 3GA1080 appears to be a novaculite and/or Pitkin chert quarry that has produced a sandstone hammerstone, indicating Native American activity. While 3GA1080 is believed by the AHTD to be eligible for consideration for nomination to the National Register of Historic Places (NRHP), the AHTD is planning to conduct additional archeological work on 3GA851 and 3GA0858 to further assess their eligibility.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

April 26, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job Number R60016
East – West Arterial
(Hot Springs) P.E.
Garland County

Dr. Andrea Hunter
Tribal Historic Preservation Officer
Osage Nation
P.O. Box 779
Pawhuska, OK 74056

Dear Dr. Hunter:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Osage Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to construct a two lane connector road between Highway 70 East and Highway 7 North (see project location map). All work will take place on new location. To date, a survey of existing records regarding previously recorded archeological sites has been conducted and the current alignment may impact previously documented Native American sites 3GA0851, 3GA0858 and 3GA1080. Archeological sites 3GA0832-3GA0836 were documented as Native American quarries in 2003 but recent reassessment has determined that they are historic in nature, likely dating to the 1930s. 3GA0851 and 3GA0858 are Native American lithic scatters and 3GA1080 appears to be a novaculite and/or Pitkin chert quarry that has produced a sandstone hammerstone, indicating Native American activity. While 3GA1080 is believed by the AHTD to be eligible for consideration for nomination to the National Register of Historic Places (NRHP), the AHTD is planning to conduct additional archeological work on 3GA851 and 3GA0858 to further assess their eligibility.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

April 26, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job Number R60016
East – West Arterial
(Hot Springs) P.E.
Garland County

Mr. Eric Oosahwee-Voss
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians
P.O. Box 746
Tahlequah, OK 74465

Dear Mr. Oosahwee-Voss:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the United Keetoowah Band of Cherokee Indians regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to construct a two lane connector road between Highway 70 East and Highway 7 North (see project location map). All work will take place on new location. To date, a survey of existing records regarding previously recorded archeological sites has been conducted and the current alignment may impact previously documented Native American sites 3GA0851, 3GA0858 and 3GA1080. Archeological sites 3GA0832-3GA0836 were documented as Native American quarries in 2003 but recent reassessment has determined that they are historic in nature, likely dating to the 1930s. 3GA0851 and 3GA0858 are Native American lithic scatters and 3GA1080 appears to be a novaculite and/or Pitkin chert quarry that has produced a sandstone hammerstone, indicating Native American activity. While 3GA1080 is believed by the AHTD to be eligible for consideration for nomination to the National Register of Historic Places (NRHP), the AHTD is planning to conduct additional archeological work on 3GA851 and 3GA0858 to further assess their eligibility.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

April 26, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job Number R60016
East – West Arterial
(Hot Springs) P.E.
Garland County

Mr. Phil Cross
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, OK 73009

Dear Mr. Cross:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Caddo Nation regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to construct a two lane connector road between Highway 70 East and Highway 7 North (see project location map). All work will take place on new location. To date, a survey of existing records regarding previously recorded archeological sites has been conducted and the current alignment may impact previously documented Native American sites 3GA0851, 3GA0858 and 3GA1080. Archeological sites 3GA0832-3GA0836 were documented as Native American quarries in 2003 but recent reassessment has determined that they are historic in nature, likely dating to the 1930s. 3GA0851 and 3GA0858 are Native American lithic scatters and 3GA1080 appears to be a novaculite and/or Pitkin chert quarry that has produced a sandstone hammerstone, indicating Native American activity. While 3GA1080 is believed by the AHTD to be eligible for consideration for nomination to the National Register of Historic Places (NRHP), the AHTD is planning to conduct additional archeological work on 3GA851 and 3GA0858 to further assess their eligibility.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

April 26, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job Number R60016
East – West Arterial
(Hot Springs) P.E.
Garland County

Mr. Joey Barbry, Jr.
Tunica-Biloxi Tribe of Louisiana, Inc.
150 Melacon Road
Marksville, LA 71351

Dear Mr. Barbry:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Tunica-Biloxi Tribe of Louisiana regarding a federal-aid highway project that may potentially affect ancestral lands or properties that may be of religious or cultural significance to your Tribe.

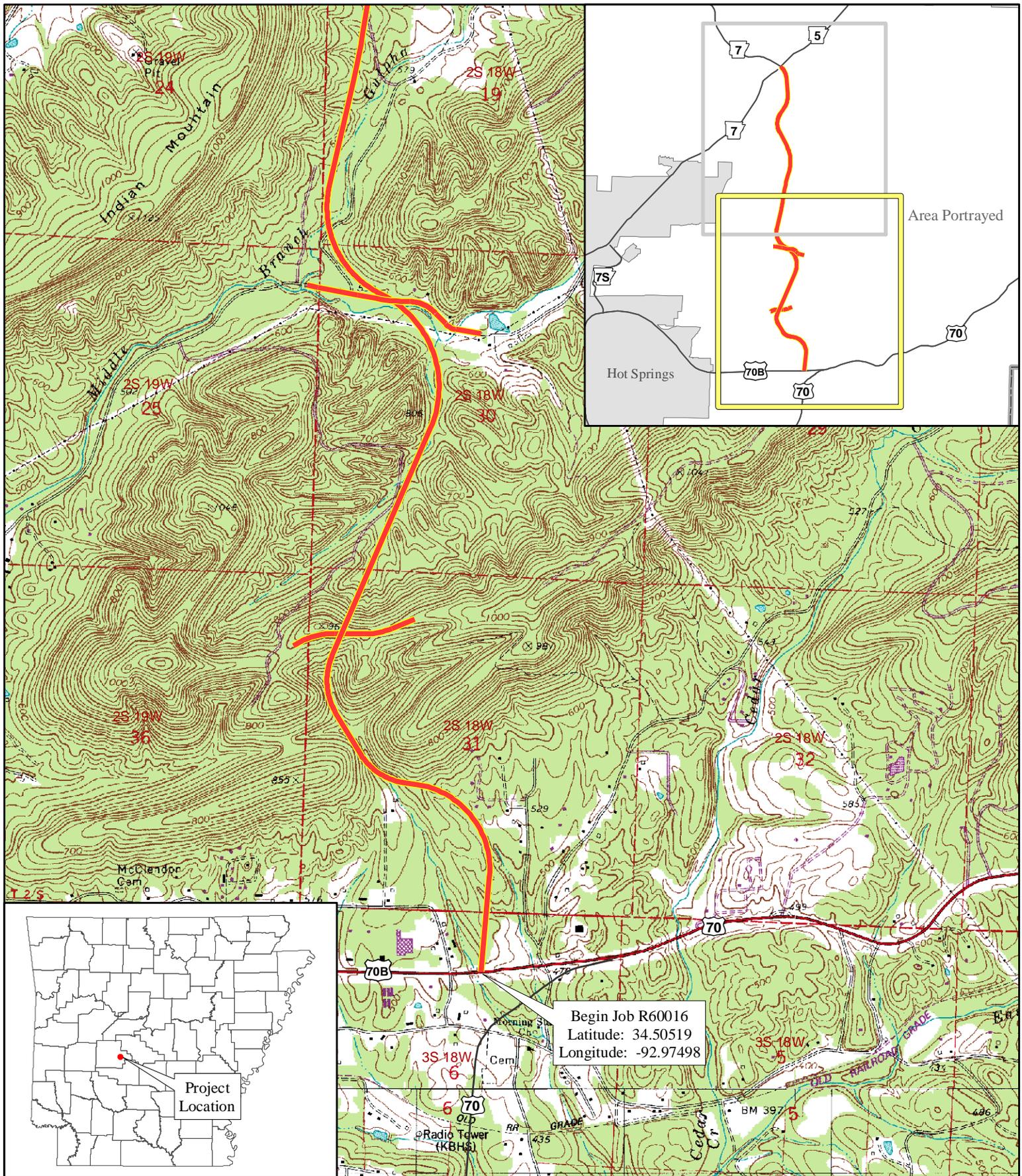
The Arkansas Highway and Transportation Department (AHTD) plans to construct a two lane connector road between Highway 70 East and Highway 7 North (see project location map). All work will take place on new location. To date, a survey of existing records regarding previously recorded archeological sites has been conducted and the current alignment may impact previously documented Native American sites 3GA0851, 3GA0858 and 3GA1080. Archeological sites 3GA0832-3GA0836 were documented as Native American quarries in 2003 but recent reassessment has determined that they are historic in nature, likely dating to the 1930s. 3GA0851 and 3GA0858 are Native American lithic scatters and 3GA1080 appears to be a novaculite and/or Pitkin chert quarry that has produced a sandstone hammerstone, indicating Native American activity. While 3GA1080 is believed by the AHTD to be eligible for consideration for nomination to the National Register of Historic Places (NRHP), the AHTD is planning to conduct additional archeological work on 3GA851 and 3GA0858 to further assess their eligibility.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

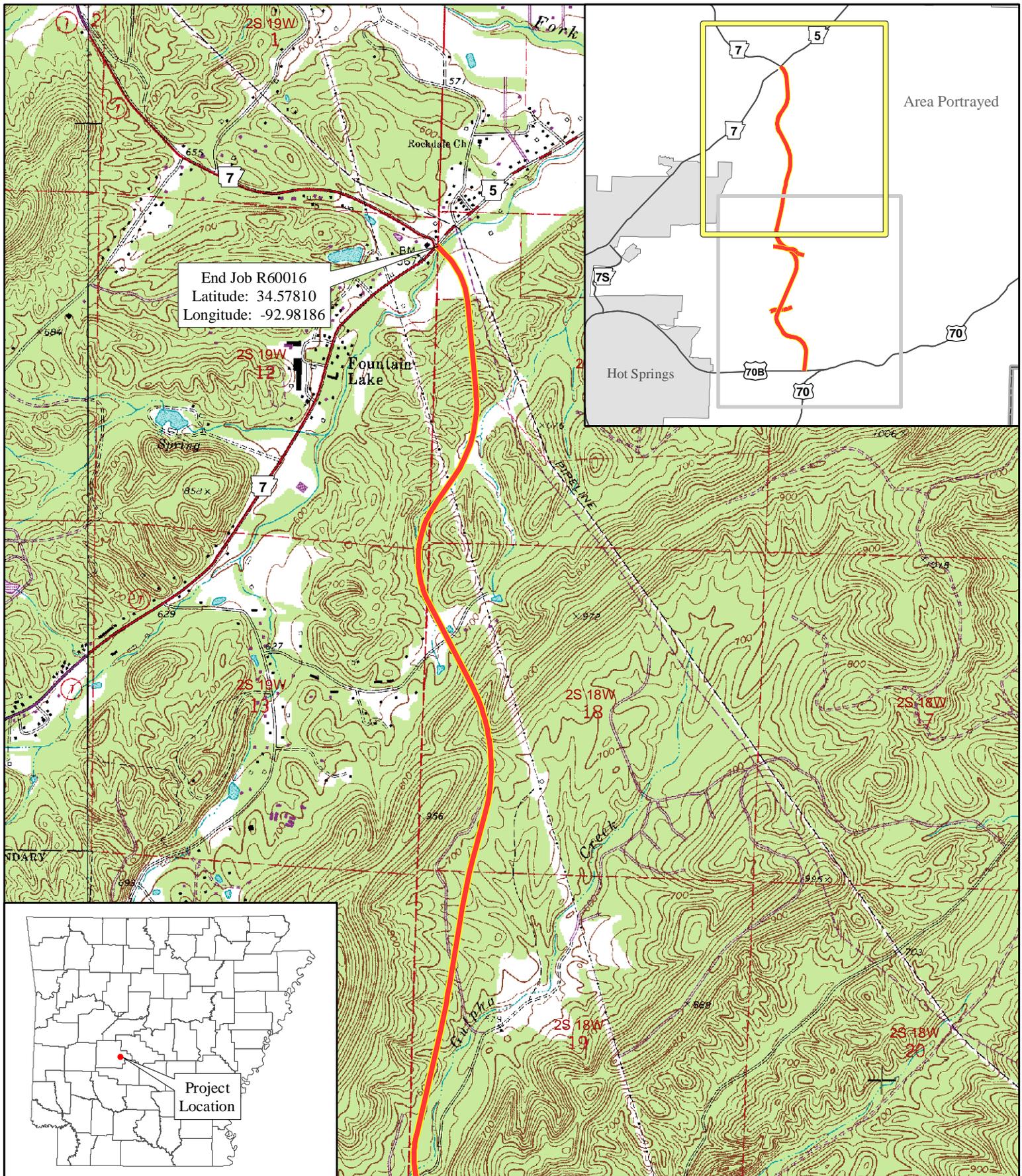
Enclosure



Scale - 1:24,000

Job R60016.
 East - West Arterial.
 (Hot Springs).
 Garland County.
 Sheet 1 of 2.





Scale - 1:24,000

Job R60016.
 East - West Arterial.
 (Hot Springs).
 Garland County.
 Sheet 2 of 2.





TRIBAL HISTORIC PRESERVATION OFFICE

Date: June 19, 2017

File: 1617-2656AR-5

RE: AHTD Job #: R60016 East – West Arterial (Hot Springs) P. E. in Garland County, Arkansas

Arkansas Highway & Transportation Department
Randal Looney
700 West Capitol Ave, Suite 3130
Little Rock, AR 72201

Dear Mr. Looney,

The Osage Nation Historic Preservation Office has received notification and accompanying information for the proposed project listed as AHTD Job #: R60016 East – West Arterial (Hot Springs) P. E. in Garland County, Arkansas. There are no known Osage cultural resources within the project area. This office looks forward to future updates and reviewing the final report.

Should you have any questions or need any additional information, please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Sincerely,


James Munkres
Archaeologist

RECEIVED

JUN 22 2017

FHWA
ARKANSAS
RECEIVED

JUN 2

FH
ARK



U.S. Department
of Transportation
**Federal Highway
Administration**

Arkansas Division

February 9, 2018

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
Job R60016
Lockett Creek Mitigation Area
Garland County, Arkansas

Dr. Andrea A. Hunter
Tribal Historic Preservation Officer
Osage Nation
P. O. Box 779
Pawhuska, OK 74056

Dear Dr. Hunter:

This letter is written as part of continuing consultation between the Federal Highway Administration, Arkansas Division Office and the Osage Nation.

The Arkansas Department of Transportation (ARDOT) has examined property associated with the above referenced job. Enclosed is a copy of the report. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Looney".

Randal Looney
Environmental Coordinator

Enclosure



Osage Nation Historic Preservation Office

ᏊᏊᏊᏊ ᏊᏊᏊ ᏊᏊᏊᏊ

RECEIVED

MAR 16 2018

FHWA
ARKANSAS

Date: March 7, 2018

File: 1718-734AR-10

RE: AHTD Job #: R60016 East – West Arterial (Hot Springs) P. E. in Garland County, Arkansas

Arkansas
Randal Looney
700 West Capitol Ave., Suite 3130
Little Rock, AR 72201

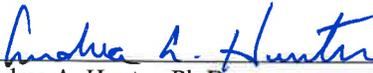
Dear Mr. Looney ,

The Osage Nation Historic Preservation Office has evaluated your submission regarding the proposed AHTD Job #: R60016 East – West Arterial (Hot Springs) P. E. in Garland County, Arkansas and determined that the proposed project **most likely will not adversely affect any sacred properties and/or properties of cultural significance to the Osage Nation.** For direct effect, the finding of this NHPA Section 106 review is a determination of "No Properties" eligible or potentially eligible for the National Register of Historic Places.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). **The Osage Nation concurs that the Department of Transportation fulfilled NHPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed project referenced as AHTD Job #: R60016 East – West Arterial (Hot Springs) P. E. in Garland County, Arkansas.**

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, the Native American Graves Protection and Repatriation Act, or Osage law. **If, however, artifacts or human remains are discovered during project construction, we ask that work cease immediately and the Osage Nation Historic Preservation Office be contacted.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.


Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer


James Munkres
Archaeologist

AGREEMENT OF UNDERSTANDING

BETWEEN

GARLAND COUNTY

AND

THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

RELATIVE TO

Design and construction of **U.S. Highway 70/270 extension (Martin Luther King Jr. Expressway)** in Garland County (hereinafter called the "Project").

WHEREAS, Garland County (hereinafter called the "County") and the Arkansas State Highway and Transportation Department (hereinafter called the "Department") have identified the need for an extension of U.S. Highway 70/270 (Martin Luther King Jr. Expressway) from Highway 70 to the junction of Highways 5 and 7; and

WHEREAS, the County passed Resolution No. R-17-03 agreeing to contribute 50% of the project costs, not to exceed \$30 million; and

WHEREAS, Arkansas State Highway Commission Minute Order 2016-121 has authorized the Director to enter into the necessary agreements with the County and to begin development and construction of the Project as funds become available.

IT IS HEREBY AGREED that the County and the Department will accept the additional responsibilities and assigned duties as described hereinafter.

THE COUNTY WILL:

1. When requested, provide the Department with funding for 50% of project costs, not to exceed \$30 million.
2. Upon completion of the project, accept ownership and responsibility for Highway 7, Section 9S between Highways 7 and 70.
3. Indemnify and hold harmless the Arkansas State Highway Commission, the Department, its officers and employees from any and all claims, lawsuits, judgments, damages, costs, expenses, and losses, including those arising from claims before the Arkansas Claims Commission or lawsuits brought in any other legal forum, sustained on account of the operations or actions of the County, including any act of omission, neglect or misconduct of said County. Further, the County shall take no action to compromise the immunity from civil suits afforded the State of Arkansas, the State Highway Commission, Arkansas Code 19-10-305, or the 11th Amendment of the United States Constitution. This obligation of indemnification shall survive the termination or expiration of this Agreement.

THE DEPARTMENT WILL:

1. Be responsible for all design, environmental documentation, right of way acquisition, and utility relocation for the Project.
2. Request funds from the County within the terms described heretofore to implement project development and construction of the Project.
3. Advertise, award, and perform construction inspection for the Project.
4. Upon completion of the Project, remove Highway 7, Section 9S from the State Highway System and transfer ownership to the County.

IN WITNESS WHEREOF, the parties thereto have executed this Agreement this 17 day of April, 2017.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

GARLAND COUNTY



Scott E. Bennett, P.E.

Director of Highways and Transportation

~~MEB~~
MEB
lht



Rick Davis
County Judge



~~Toni Harris~~ Ralph Ohm
County Attorney

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

NOTICE OF NONDISCRIMINATION

The Arkansas State Highway and Transportation Department (Department) complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance. Therefore, the Department does not discriminate on the basis of race, sex, color, age, national origin, religion (not applicable as a protected group under the Federal Motor Carrier Safety Administration Title VI Program), disability, Limited English Proficiency (LEP), or low-income status in the admission, access to and treatment in the Department's programs and activities, as well as the Department's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Department's nondiscrimination policies may be directed to Joanna P. McFadden Section Head - EEO/DBE (ADA/504/Title VI Coordinator), P. O. Box 2261, Little Rock, AR 72203, (501) 569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ahtd.ar.gov

Free language assistance for Limited English Proficient individuals is available upon request.

This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.