



FELSENTHAL AND OVERFLOW NATIONAL WILDLIFE REFUGES TRANSPORTATION STUDY

Short and Long Range Improvement Plan

Contract No. DTFH71-09-D-00001, Task Order: 11-017

US Department of Transportation, Federal Highway Administration, Eastern Federal Lands Highway Division
in cooperation with US Fish and Wildlife Service and the Felsenthal National Wildlife Refuge



 Kimley-Horn and Associates, Inc.

June 2012

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Transportation Study**

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1. Introduction

The South Arkansas National Wildlife Refuges Complex consists of three National Wildlife Refuges (NWR) in southern Arkansas. The two Refuges studied in this report are the Felsenthal National Wildlife Refuge and the Overflow National Wildlife Refuge. The Felsenthal and Overflow NWRs contain approximately 65,000 and 14,000 acres, respectively, of mainly bottomland hardwood forest. Based on the number of hunting/fishing permits issued, approximately 400,000 people visited Felsenthal NWR and 15,000 people visited Overflow NWR last year.

Felsenthal NWR has the largest green-tree reservoir in the world, due in part to the Ouachita and Saline Rivers that flow through it. A green-tree reservoir is a bottomland hardwood forest that is carefully flooded during the dormant season of the hardwood forest communities to provide a habitat for wintering waterfowl. As a result, Felsenthal NWR is a prime location for recreational hunting, fishing, and wildlife observation. The Refuge is also known to contain the nests of red cockaded woodpeckers, a vulnerable species.

Overflow NWR also has a green-tree reservoir that serves the mallard, wood duck, and other waterfowl in the Mississippi flyway. Additionally, Overflow NWR contains a number of accessible sloughs and creeks, as well as cropland acreage that is currently farmed.

The third refuge that is part of the South Arkansas NWR complex, but is not included in this study, is the Pond Creek NWR, which is located in western Arkansas.

1.1 Locations

The Refuges included in this study are located just north of the Arkansas/Louisiana border in Ashley, Bradley, and Union Counties, Arkansas. Felsenthal NWR is located west of Crossett, Arkansas. Overflow NWR is located to the east of Felsenthal NWR between Hamburg and Parkdale, Arkansas. **Figure 1.1** shows an overview location map of the two Refuges and surrounding areas. The *Existing Conditions Report* (January 2012) describes additional natural and community characteristics of the Refuges and adjacent areas.

1.2 Project History

1.2.1 Previous Studies

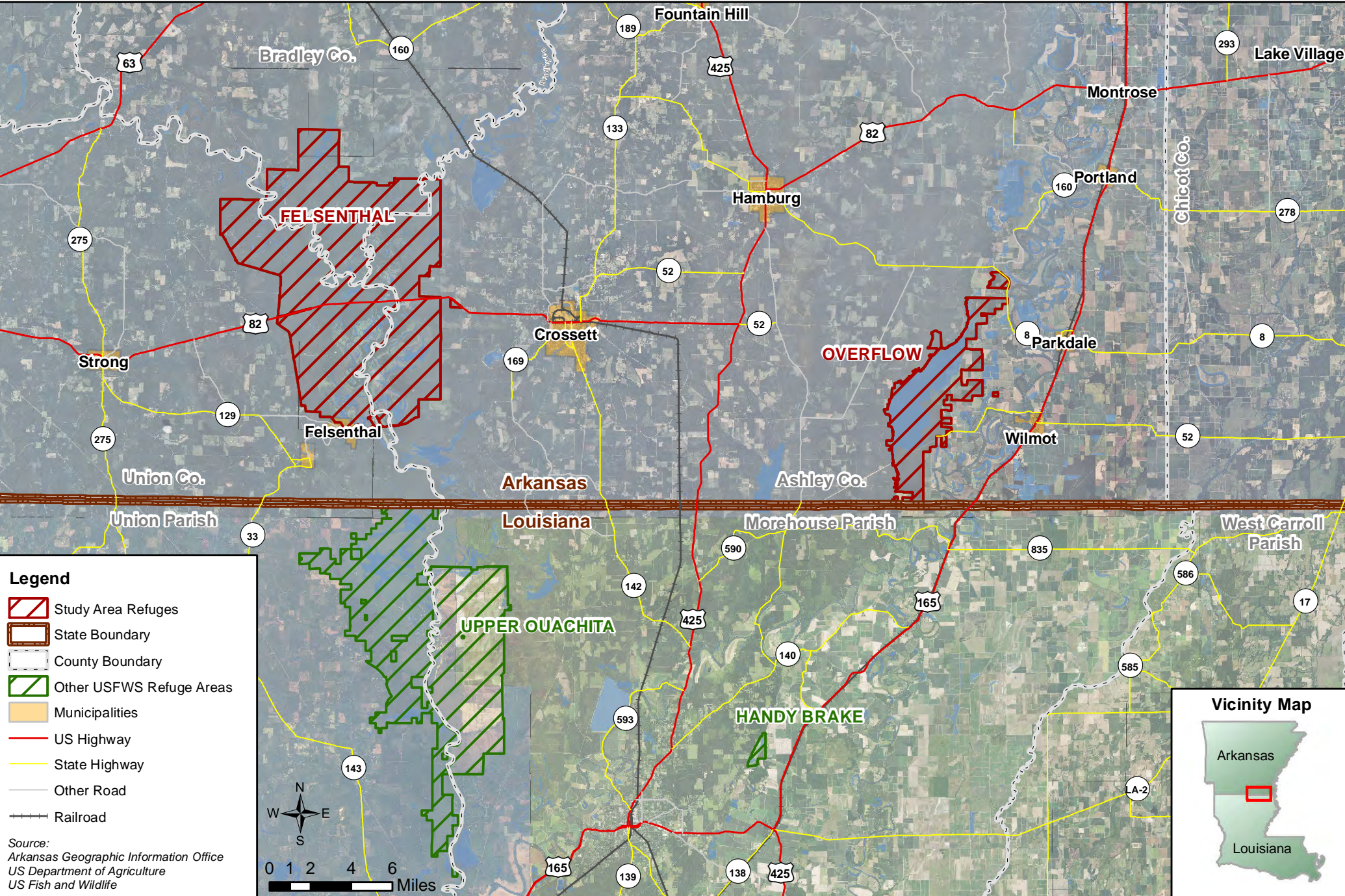
The following reports have been completed for this project:

- Existing Conditions Report – January 2012
- Preliminary Candidate Alternatives Report – February 2012

The information from this report and all of the previous reports will be summarized in the Transportation Study Report.

1.2.2 Responsible Partners

The matrix shown in **Table 1.1** was developed to identify potential alternatives and their responsible partners. The partner agencies on this project include: USFWS, the Arkansas State Highway and Transportation Department (AHTD), Bradley County, Ashley County, Union County, City of Hamburg, City of Crossett, City of Parkdale, City of Wilmot, Crossett Chamber of Commerce, US Army Corps of Engineers, Friends of Felsenthal, and Private Land Owners. At stakeholder meetings, the stakeholders have agreed to work together to implement the alternatives.



- Short-Range Alternatives
- Medium-Range Alternatives
- Long-Range Alternatives

| Alternatives | | USFWS | AHTD | Bradley County | Ashley County | Union County | City of Hamburg | City of Crossett | City of Parkdale | City of Wilmot | Crossett Chamber of Commerce | Army Corps of Commerce | Friends of Felsenthal | Private Land Owners | |
|-------------------------------------|--|---|------|----------------|---------------|--------------|-----------------|------------------|------------------|----------------|------------------------------|------------------------|-----------------------|---------------------|--|
| Felsenthal National Wildlife Refuge | F1 Internal Roadway Condition Improvement | x | | | | | | | | | | | | | |
| | F2 Westbound Left-Turn Lane at Visitors Center Driveway (US 82) | x | x | | | | | | | | | | | | |
| | F3 Eastbound Right-Turn Lane at Visitors Center Driveway (US 82) | x | x | | | | | | | | | | | | |
| | F4 Channel Maintenance at Boat Ramps | x | | | | | | | | x | | | | | |
| | F5 Establish Agreements for Refuge Access Points | x | | | | | | | | | | | x | | |
| | F6 Boat Mooring Locations Feasibility | x | | | | | x | | | x | x | | | | |
| | F7 Auto Tour Route | x | | | | | | | | | | | | | |
| | F8 Bridge Replacement on Bradley County Road 65 S | x | | x | | | | | | | | | | | |
| | F9 Roadway Improvements on New Lock 6 Road | x | | | | | | | | x | | | | | |
| | F10 Installation of Boat Mooring Locations | x | | | | | x | | | x | x | | | | |
| Additional Recommendations | | | | | | | | | | | | | | | |
| | Conduct Speed Study on US 82 in the vicinity of Refuge | | x | | | | | | | | | | | | |
| | Install Wayfinding Signs for the Refuge in the Surrounding Area | x | x | x | x | x | x | | x | | | | | | |
| | Coordinate with AHTD for Installation of Highway Advisory Radio Signs along US 82 | x | x | | | | | | | | | | | | |
| | Develop Walking/Biking Trails | x | | | | | | | | | | | x | | |
| | Develop a Formal Trail Map for the Refuge | x | | | | | | | | | | | x | | |
| | Build upon Existing Kiosk Materials | x | | | | | | | | | | | x | | |
| | Continue to Pursue Grant Opportunities for Additional Funding Sources | x | x | | | | | | | | x | | | | |
| | Coordinate with Local Agencies and Municipalities to Encourage Usage of the Refuge | x | | x | x | x | x | | x | | x | | x | | |
| Overflow National Wildlife Refuge | O1 Internal Roadway Condition Improvement | x | | | | | | | | | | | | | |
| | O2 Establish Agreements for Refuge Access Points | x | | | | | | | | | | | | x | |
| | O3 Auto Tour Route | x | | | | | | | | | | | | | |
| | Additional Recommendations | | | | | | | | | | | | | | |
| | | Install Wayfinding Signs for the Refuge in the Surrounding Area | x | | | x | | x | | x | x | | | | |
| | | Develop Walking/Biking Trails | x | | | | | | | | | | | | |
| | Develop a Formal Trail Map for the Refuge | x | | | | | | | | | | | | | |
| | Build upon Existing Kiosk Materials | x | | | | | | | | | | | | | |
| | Coordinate with Local Agencies and Municipalities to Encourage Usage of the Refuge | x | | | x | | x | | x | x | | | | | |

2. Preliminary Candidate Alternatives

This section describes the preliminary candidate alternatives and additional recommendations presented in the *Preliminary Candidate Alternatives Report*. For planning purposes, each alternative has been identified as either short-range (2017), medium-range (2022), or long-range (2027). Preliminary designs and construction cost estimates, if applicable, have been developed for each of the alternatives and are described in the following sections. Detailed impacts are identified for the alternatives in Felsenthal and Overflow NWRs in **Sections 3.3** and **3.4**, respectively. A summary table including impact information for each alternative is included as **Table 4.1** and opinions of probable costs are included in **Appendix A**.

It should be noted that all construction costs are conceptual. The engineer has no control over the cost of labor, materials, equipment, the contractor's price determination methods, competitive bidding, or market conditions. Opinions of probable costs provided herein are based on the information known to the engineer at this time and represent only the engineer's judgment as a design professional familiar with the construction industry. The engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from opinions of probable costs.

2.1 Felsenthal NWR

The following preliminary candidate alternatives for the Felsenthal NWR are summarized graphically in **Figure 2.1**.

2.1.1 No-Build

The "No-Build" alternative provides no improvements to the existing transportation facilities in the study area. This would result in no improvement costs or additional impacts to the natural environment within the study area. In the No-Build alternative, the existing habitat for the Refuge would not be impacted; however, the potential for issues to occur on the transportation facilities will either remain the same or increase if no improvements are made.

2.1.2 Short-Range Alternatives (2017)

2.1.2.1 Alternative F1 – Internal Roadway Condition Maintenance

Continual maintenance of the existing internal roads and trails within the Refuge by adding gravel to unpaved surfaces, where necessary, will improve the quality of the roads and potentially increase safety for drivers. Additionally, managing drainage along unpaved roadways will lengthen the life and durability of the road surface. Potential costs associated with this alternative would vary depending on the road type and the extent of the maintenance required. The responsible partner for this alternative is USFWS.

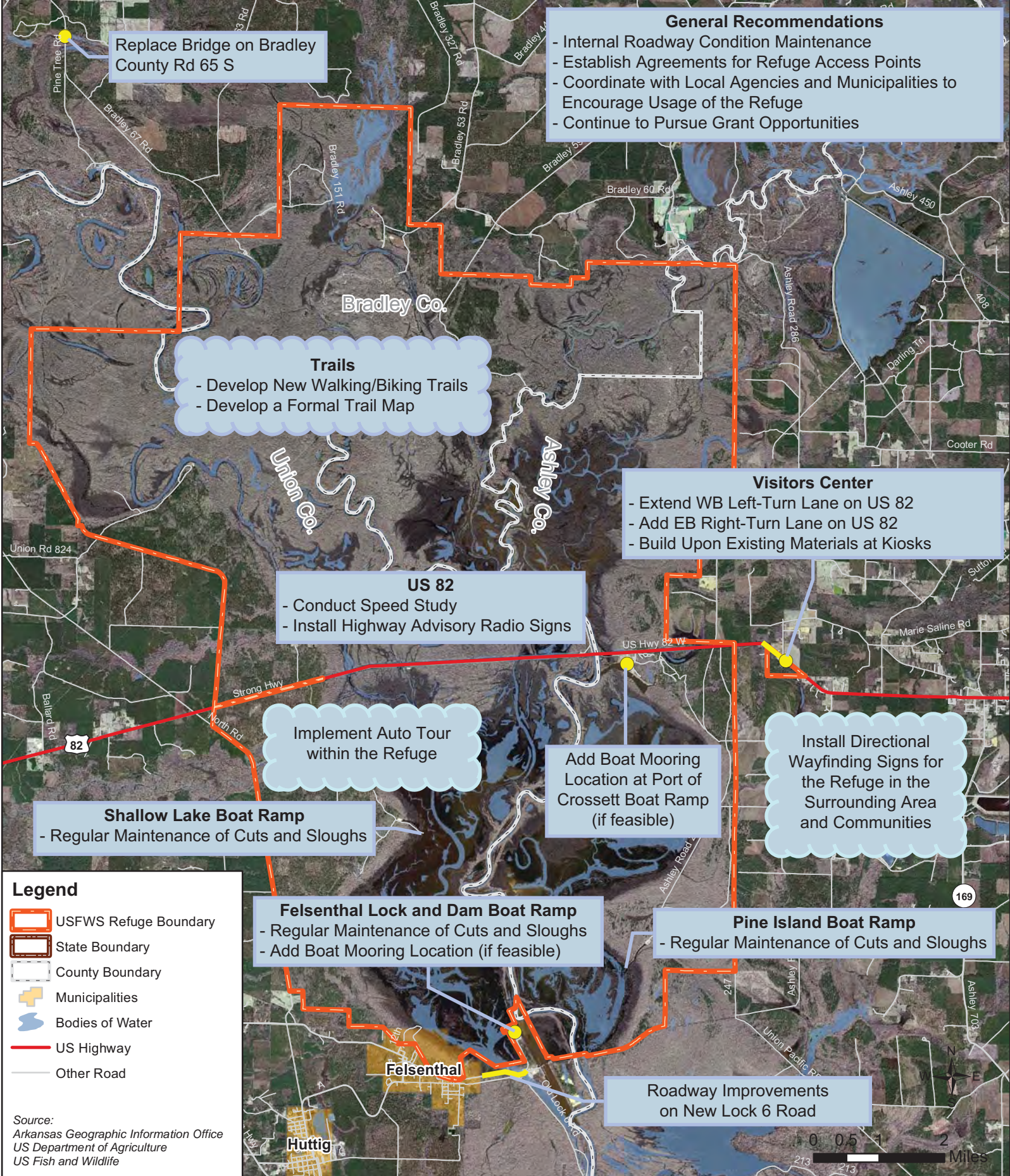


Figure 2.1: Felsenthal NWR Preliminary Candidate Alternatives

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2.1.2.2 Alternative F2 – Westbound Left Turn Lane at Visitors Center Driveway (US 82)

The existing westbound left-turn lane on US 82 has a storage length of approximately 100 feet and a taper length of approximately 200 feet. The Arkansas State Highway Transportation Department (AHTD) standards provide recommendations for turn lane transition lengths consistent with the Manual on Uniform Traffic Control Devices (MUTCD). These recommended lengths are determined based on the approach speed on the roadway and the distance that a driver must transition or shift to continue a through movement, which in this case is 12 feet.

The existing westbound left-turn lane taper at the Visitors Center/Refuge Complex driveway was found to not meet the recommended length specified by AHTD standard guidelines. The speed limit along this portion of US 82 is 55 mph, requiring a left-turn lane taper long enough to allow vehicles to safely decelerate as they transition to the left-turn lane. Lengthening the westbound left-turn lane taper at the Visitors Center/Refuge Complex driveway will allow left turning vehicles more time and space to decelerate without impeding the flow of traffic traveling west along US 82. The lengthening of this taper will likely help vehicles to enter the Visitors Center/Refuge Complex driveway more safely and reduce the potential for rear-end collisions, as well as improve the traffic flow along this portion of US 82 within the Refuge.

For the purposes of this study it was assumed the pavement would be widened on both sides of the road to laterally transition the through lanes away from each other a total of 12 feet. Therefore, the road must be widened by 6 feet on both sides and require a total transition length of 330 feet; two-thirds of the length as a transition area and one-third of the length as a taper area. The storage length should be based on the expected number of left turning vehicle arrivals during the peak traffic periods. AHTD recommends a minimum storage length of 100 feet. Based on observations during the field visits, it appears that the existing storage length is approximately 100 feet. Additionally, another transition area is required after the turn lane to transition the roadway back to a typical two-lane section. Transportation impacts associated with this improvement would include temporary traffic control in the vicinity of the Visitors Center/Refuge Complex driveway during construction. A location map and conceptual layout for the proposed turn lane taper are shown in **Figure 2.2**.

As this alternative moves forward, the turn lane would need to be designed and constructed with the proper coordination with AHTD. Assuming standard dimensions are used, the estimated construction cost to lengthen the left-turn lane, as well as the transition areas into and out of the turn lane area, is \$560,000, when constructed simultaneously with Alternative F3, the eastbound right-turn lane. The responsible partners for this alternative are AHTD and USFWS.

2.1.2.3 Alternative F3 – Eastbound Right-Turn Lane at Visitors Center Driveway (US 82)

Similarly to the westbound left-turn lane, the addition of an eastbound right-turn lane at the Visitors Center/Refuge Complex driveway would allow right turning vehicles more time and space to decelerate without impeding the flow of vehicles traveling east along US 82. Currently, right turning vehicles must decelerate for the turn while still in the travel lane. For the purposes of this study, it was assumed this

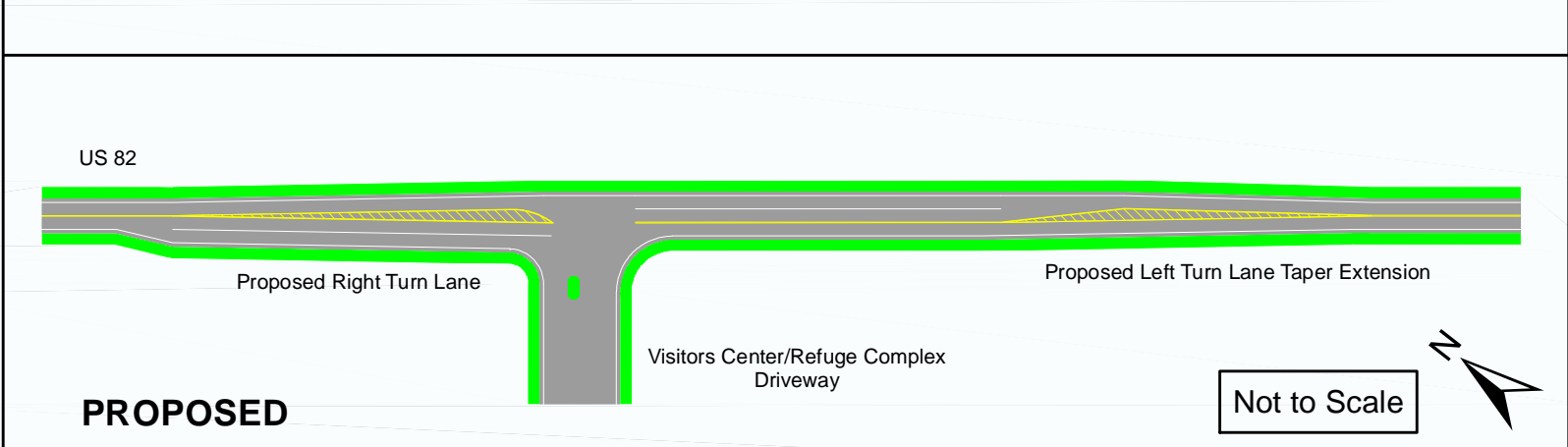
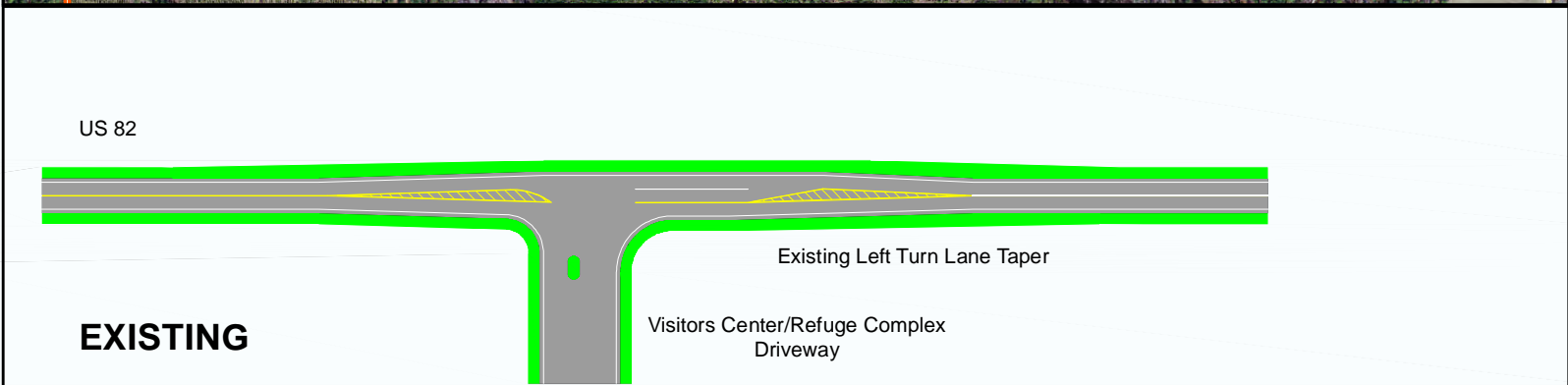
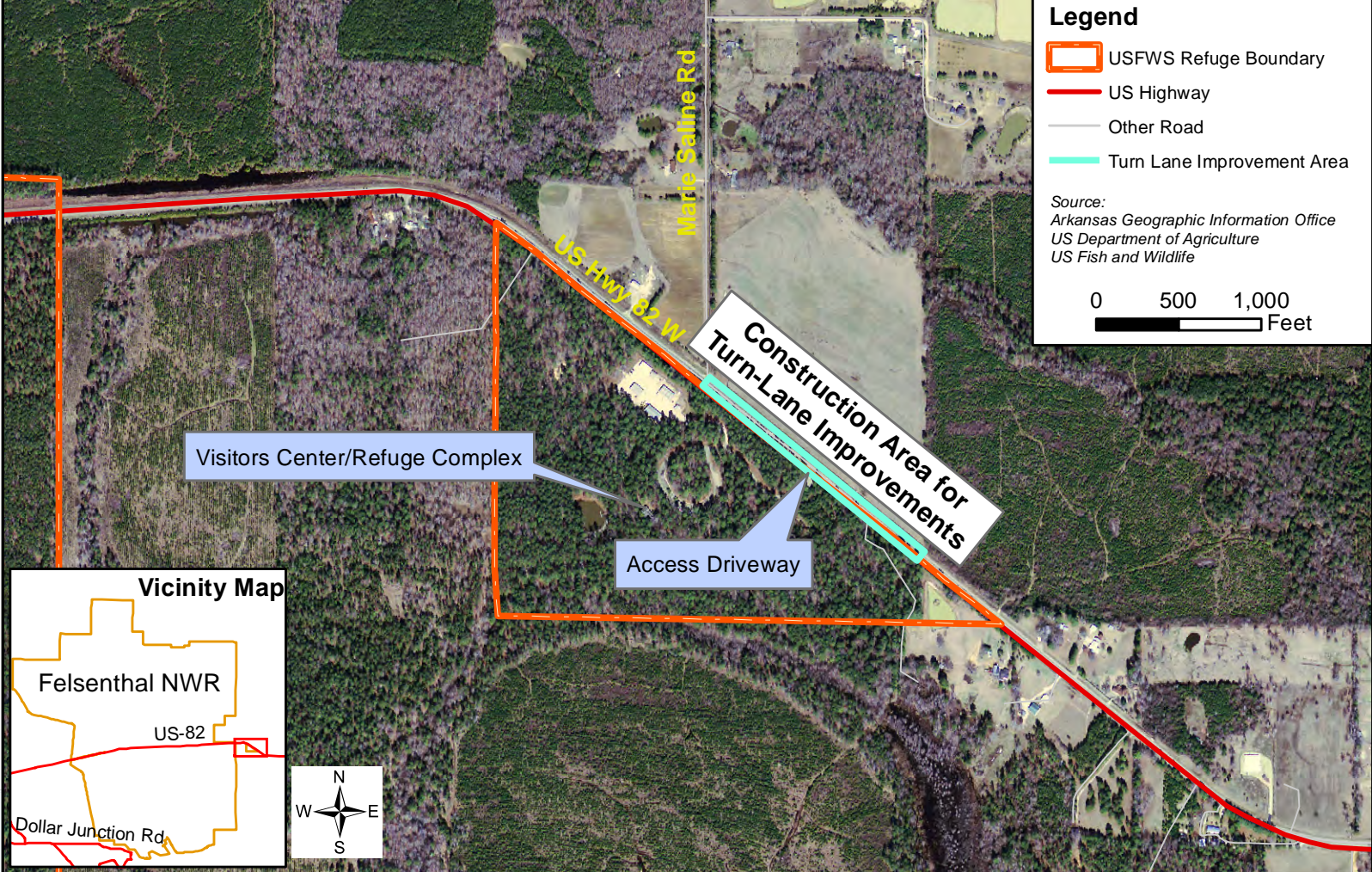


Figure 2.2: Potential Turn-Lane Improvements at Refuge Visitors Center

alternative would require a 12-foot widening for the length of the right-turn lane and transition area. Transportation impacts would include temporary traffic control in the vicinity of the Visitors Center/Refuge Complex during construction. A location map and conceptual layout for the proposed right-turn lane are shown in **Figure 2.2**. As this alternative moves forward, the turn lane would need to be designed and constructed with the proper coordination with AHTD. Assuming standard dimensions are used, the construction cost for the addition of the right-turn lane and taper area is estimated to be \$190,000, assuming it would be constructed simultaneously with Alternative F2, the westbound left-turn lane. The responsible partners for this alternative are AHTD and USFWS.

2.1.2.4 Alternative F4 – Maintenance of Cuts and Sloughs at Felsenthal Lock and Dam, Shallow Lake, and Pine Island Boat Ramps

Due to siltation occurring at cuts and sloughs near the Felsenthal Lock and Dam, Shallow Lake, and Pine Island boat ramp areas, it is sometimes difficult for boaters to access the channels from the ramps. Removal of the silt at these locations would be beneficial to visitors of the Refuge by allowing boaters easier access to the main channels. As a result, the improvement will save boaters time, reduce wear and tear on boat equipment, and likely increase boating attractiveness for users. Transportation impacts include improving the connectivity between the cuts/sloughs and the main channels, as well as potentially increasing the capacity of the boat ramps. Before dredging can occur, an appropriate environmental study, survey, and related permitting would be required. The survey would determine which areas require dredging, as well as determine how much sediment must be removed.

It is estimated that the cost of this survey would be approximately \$5,000 per location. If it is determined that dredging is required, the cost to dredge the areas would be \$15 to \$20 per cubic yard of material removed, depending on the dredging process and equipment that is used. A map of the locations where maintenance of cuts and sloughs may be required is shown in **Figure 2.3**. The responsible partners involved with this alternative are the US Army Corps of Engineers and USFWS.

2.1.2.5 Alternative F6 – Mooring Location Feasibility Study

Currently, there are no established mooring locations near the boat ramps in Felsenthal NWR. Boat mooring locations constructed at the Port of Crossett and/or the Felsenthal Lock and Dam boat ramps would provide boaters the opportunity to moor after launching from the ramps. Costs and potential impacts to the natural environment associated with mooring locations need to be studied further. Additionally, due to the fluctuation of water levels and currents near the boat ramps, a feasibility study should be conducted to determine if the implementation of boat slips is justified, given the potential impacts and costs.

Short-term costs would include the feasibility study, which is estimated to cost between \$10,000 and \$15,000. Long-term costs would be dependent on the feasibility study's recommendations. A map showing the locations where boat mooring location feasibility studies could be conducted is shown in **Figure 2.4**. The responsible partners related to this alternative include the City of Crossett, US Army Corps of Engineers, and USFWS. An additional opportunity for partnership could include the Friends of Felsenthal group.



Figure 2.3: Potential Maintenance Areas of Cuts and Sloughs

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Legend

- USFWS Refuge Boundary
- County Boundary
- Municipalities
- US Highway
- Other Road
- Potential Mooring Location

Source:
 Arkansas Geographic Information Office
 US Department of Agriculture
 US Fish and Wildlife

0 2,500 5,000
 Feet

Figure 2.4: Potential Mooring Location Feasibility Study Areas

Felsenthal and Overflow National Wildlife Refuges
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2.1.2.6 Alternative F7 – Auto Tour Route

The implementation of an Auto Tour route on existing Refuge facilities would enhance the visitor experience. The Auto Tour Route within the Refuge would include educational/scenic pull-offs along the route. The pull-off areas, signs, etc. should be planned in locations where they can provide an educational opportunity for the visitors, but have limited environmental impacts. Costs are expected to be limited and are related to planning/design, construction, and maintenance as the route is expected to be planned on existing facilities. The estimated cost of the one-way 16-foot wide section is \$900 per 100-foot length, \$1,100 per 100-foot length for the two-way, 20-foot wide section, and \$700 for each pull off with transition areas (200 total feet). The responsible partner for this alternative is USFWS, however, additional local partners would provide added benefits such as partnering with the Refuge to enhance the educational opportunities and helping with the upkeep of the Auto Tour route monetarily and/or through the development of a volunteer network.

2.1.3 Medium-Range Alternatives (2022)

2.1.3.1 Alternative F8 – Bridge Replacement on Bradley County Road 65 S

Bradley County Road 65 S is a packed dirt and gravel roadway northwest of the Refuge boundary. On this road there is an existing timber bridge which currently has a weight restriction of 4 tons for short wheelbase trucks and 7 tons for trucks with a longer wheelbase. The replacement of the timber bridge on Bradley County Road 65 S would reduce the weight restrictions associated with the existing bridge, thus allowing heavier vehicles to cross. By replacing this bridge, the connectivity of the roadway system to the Refuge would be restored allowing heavier vehicles access to the area. The bridge replacement would likely improve safety, connectivity, and capacity of the road.

Construction costs are estimated to be approximately \$125 per square foot of bridge deck. Costs include design, construction, and maintenance of the facility. Limited environmental impacts are expected as the replacement would be constructed in place. During the bridge replacement, vehicle traffic would be affected and alternate routes would be required. The responsible partners for this alternative are Bradley County and USFWS. A location map of the Bradley County Road 65 S bridge and surrounding area is shown in **Figure 2.5**.

2.1.3.2 Alternative F9 – Roadway Improvements on New Lock 6 Road

The US Army Corps of Engineers is currently seeking grant funding to improve a portion of New Lock 6 Road. A copy of the latest grant application is provided in **Appendix B**. Currently, a segment of New Lock 6 Road in the elevated section has insufficient compaction of fill. The roadway segment is located in the southern portion of Felsenthal NWR and serves as the only access onto the highly developed Corps of Engineers recreation lands. The road was constructed nearly 30 years ago and improvements are needed for the subbase and roadbed support for a portion of the segment between the Town of Felsenthal and the Felsenthal Lock and Dam boat ramp. The segment in need of improvement is elevated by approximately 20 feet to allow for flooding of the adjacent river. The road also provides access for over 100,000 recreational visitors annually, as well as ensuring the uninterrupted operations of the Felsenthal Lock & Dam. Per the most recent grant application, over the years, erosion has



Existing Bridge on
Bradley County Road 65 S



Example of Potential
Replacement Option

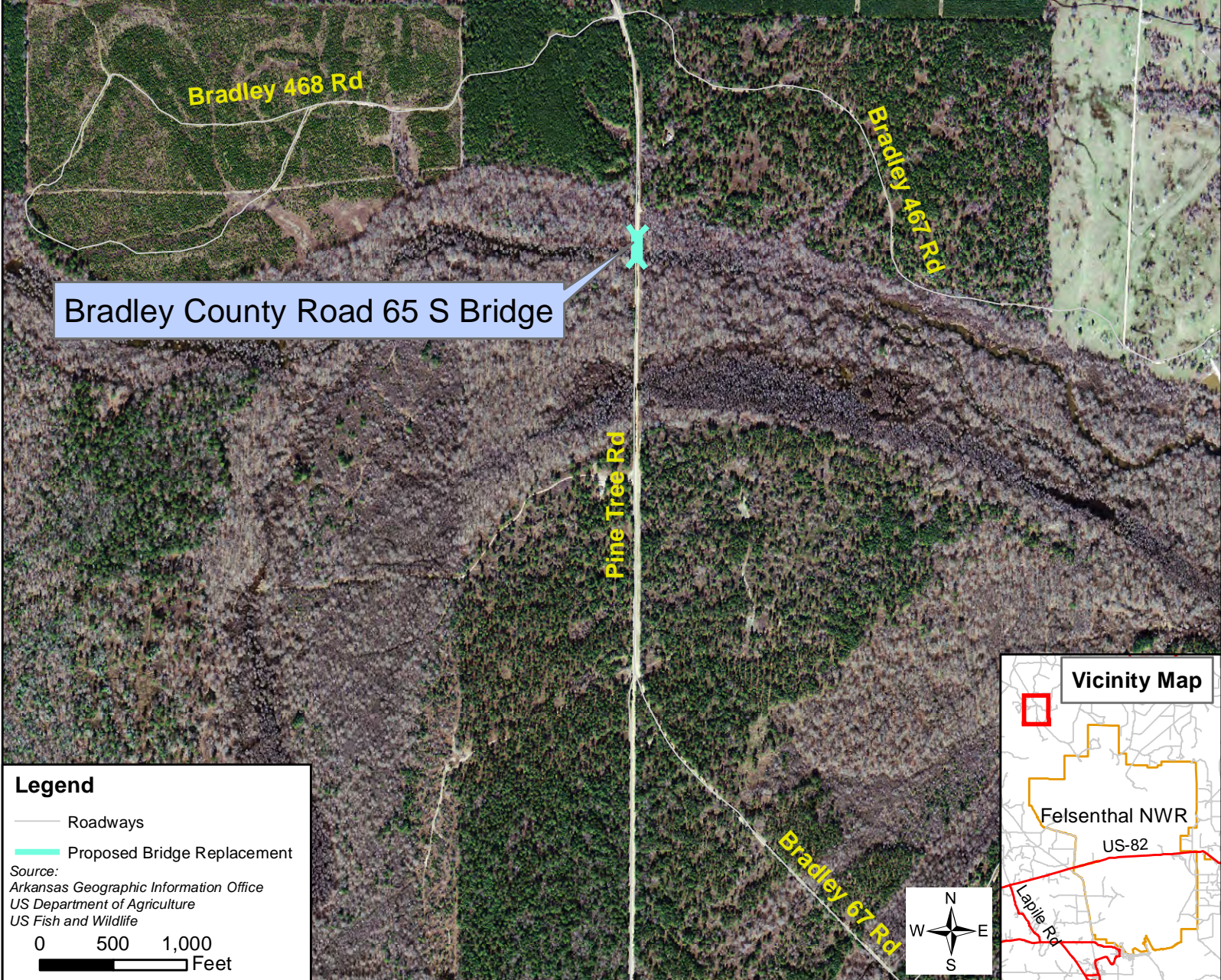


Figure 2.5: Potential Replacement of Bradley County Road 65 S Bridge

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shoulders, and adjacent slopes, in most cases with an entry point near the top of the elevated embankment and an exit point near the toe (See **Figure 2.6**). The critical problem areas are located along both sides of the roadway and measure approximately 3,000 feet and 3,800 feet on the north and south slopes, respectively, as shown in **Figure 2.7**. Recently, the Army Corps of Engineers has performed temporary stabilization repairs. The US Army Corps of Engineers developed an estimated project cost to be \$217,900.



Photo Source: US Army Corps of Engineers
Figure 2.6: Voids along Embankment (Typical)

2.1.4 Long-Range Alternatives (2027)

2.1.4.1 *Alternative F10 – Installation of Boat Mooring Locations*

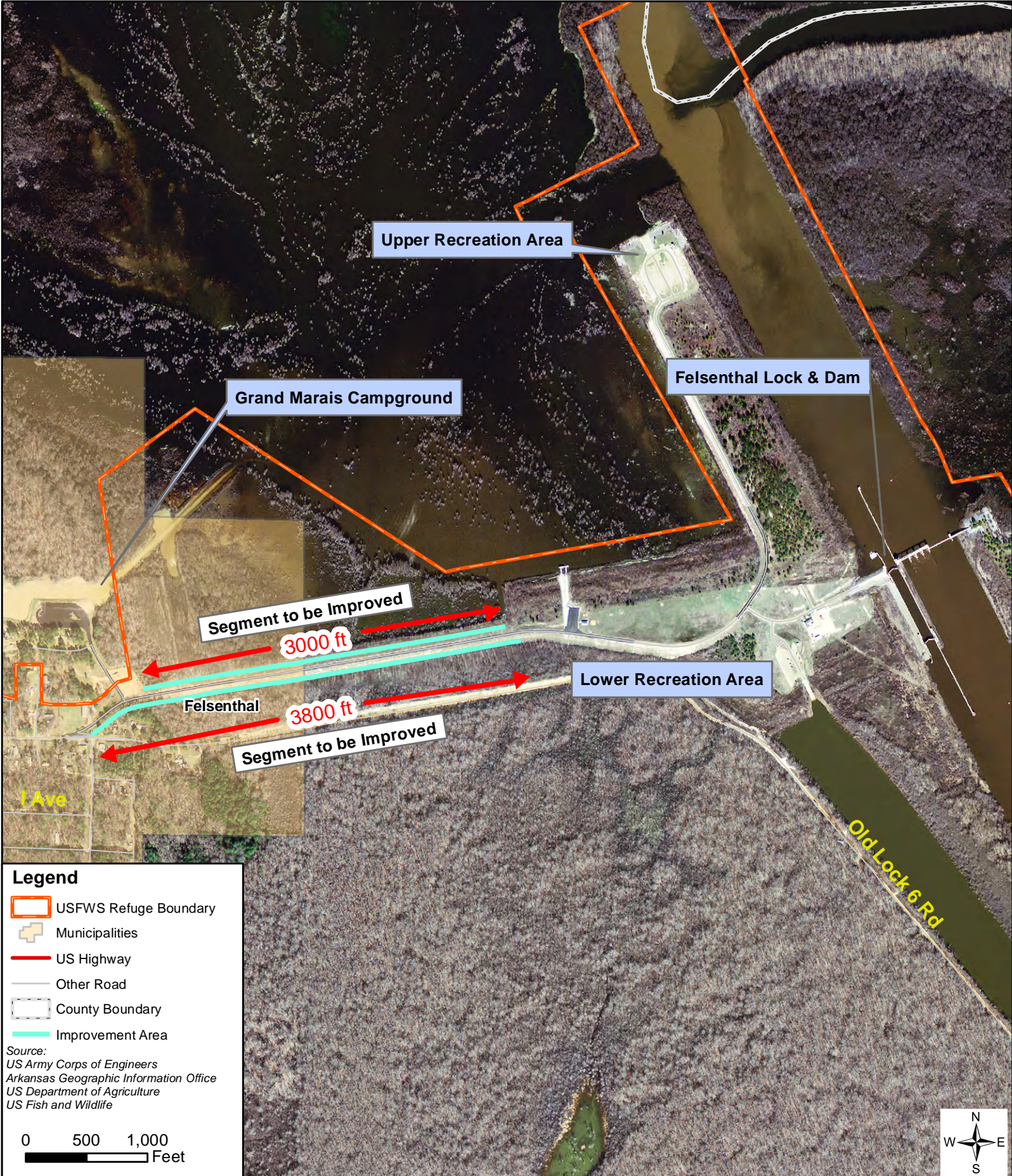
If warranted by the boat mooring location feasibility study (Alternative F6), mooring locations could be installed at the Felsenthal Lock and Dam and Port of Crossett boat ramps. The estimated cost to install a boat mooring location would be approximately \$100,000-\$200,000 for each location. The responsible partners for this alternative are USFWS, City of Crossett, US Army Corps of Engineers. An additional opportunity for partnership could include the Friends of Felsenthal group.

2.1.5 Additional Recommendations

Nine additional alternatives have been developed that are not anticipated to have direct impacts to the environment.

2.1.5.1 *Alternative F5 – Establish Agreements for Refuge Access Points*

Establishing agreements with private land owners for use of their land/roads will increase access to the Refuge. The Refuge access points through roads on private lands could be memorialized through formal agreements with the private land owners. These formal agreements would establish the access points and provide the opportunity to keep specific access and roadways functional. Additionally, these agreements would likely lead to improvement/maintenance of the roads, benefitting both land owners and Refuge visitors. These access points would also improve connectivity and capacity of the roadways within the Refuge.



Legend

- USFWS Refuge Boundary
- Municipalities
- US Highway
- Other Road
- County Boundary
- Improvement Area

Source:
 US Army Corps of Engineers
 Arkansas Geographic Information Office
 US Department of Agriculture
 US Fish and Wildlife

0 500 1,000
 Feet



Figure 2.7: Potential New Lock 6 Road Improvement Area

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Alternative F9

The specific terms regarding the access points would be determined during the negotiation of the agreements between USFWS and the private land owners. Responsible partners for this alternative include USFWS and private land owners.

2.1.5.2 Conduct a Speed Study on US 82 in the Vicinity of the Refuge

The posted speed limit for US 82 adjacent to the Refuge entrance is 55 mph. However, there is a concern that traffic on US 82 is traveling at a higher rate than the posted speed limit. To review the existing speeds on US 82 in the vicinity of the Refuge, a speed study could be conducted. Based on the results of a speed study, AHTD may consider requesting that the Arkansas State Police, Highway Patrol Division, increase enforcement on the section of US 82 that passes through the Refuge.

2.1.5.3 Install Wayfinding Signs for the Refuge in the Surrounding Area

There is very limited directional signage for the Refuge on the surrounding roadways. On US 82, there are signs at the Refuge boundary and one directional sign which reference the Visitors Center. There are currently a limited number of signs in the City of Crossett or other surrounding areas providing distance or directional information regarding the Refuge. Additional signage could be beneficial in providing information that directs visitors to the Refuge. By adding new signs and updating existing signs, drivers would become better informed of directional and locational information related to the Refuge. A proposed sign plan is shown in **Figures 2.8** and **2.9**.

Additional wayfinding signs at major decision making locations north of the Refuge directing visitors to the northern access points of the Refuge would also be beneficial.

2.1.5.4 Install Signs Regarding the Refuge's Highway Advisory Radio

The Refuge has implemented a highway advisory radio broadcast to notify the public of such things as prescribed burns, directional information, and other general information about Refuge events. Signs with information about the highway advisory radio are located within the Refuge; however, additional signs on adjacent public roadways regarding the highway advisory information would be beneficial to visitors and other users of the Refuge. The proposed locations of two highway advisory radio signs on US 82 is shown in the proposed sign plan (**Figure 2.8**).

2.1.5.5 Coordinate with Local Agencies and Municipalities to Encourage Usage of the Refuge

Coordination with local agencies and nearby municipalities would be beneficial and potentially increase visitation and Refuge usage. This coordination could include things such as flyers, mailers, media advertisements, etc. By working with local agencies and municipalities, information about the Refuge and special events can reach a greater number of people, likely increasing Refuge visitation.

2.1.5.6 Develop New Trails to Enhance the Visitor Experience

There are few formal trails within the Refuge. Developing new trails would provide visitors access to areas of the Refuge that cannot be easily accessed currently. Using these trails, visitors would be able to access and explore more areas of the Refuge for uses such as hunting, fishing, and wildlife observation.

↑ HUTTIG
 ← CROSSETT
 EL DORADO →
 EXISTING

← FELSENTHAL NWR
 ADD

REFUGE INFORMATION
TUNE RADIO TO 1620 AM



PROPOSED - WB DIRECTION ON EXISTING SIGN POSTS

STRONG 22
 EL DORADO 42
 EXISTING

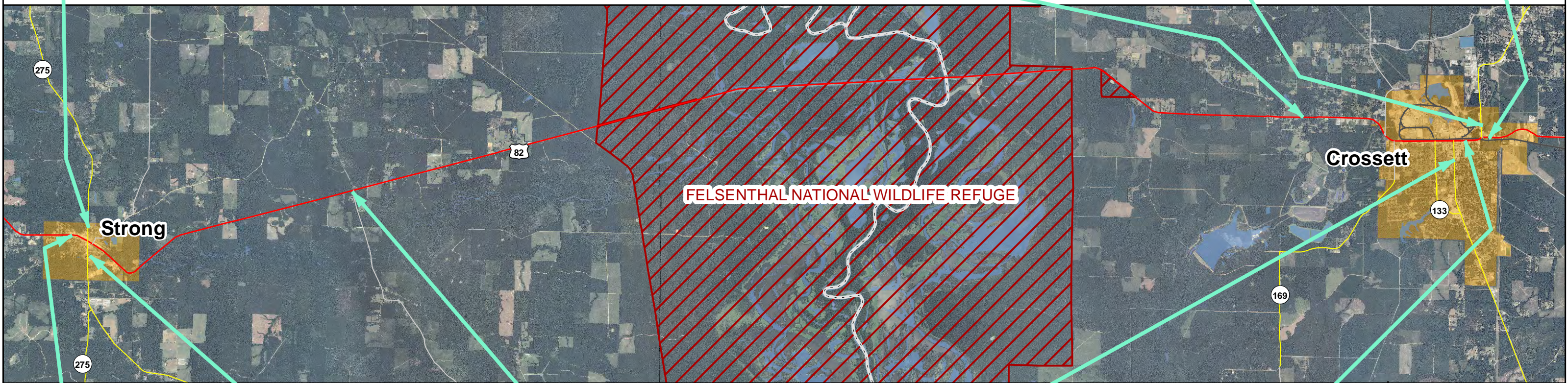
← FELSENTHAL NWR →
 ADD

← JCT US 425
 EL DORADO →
 EXISTING

← FELSENTHAL NWR →
 ADD

← EL DORADO
 NORTH CROSSETT →
 EXISTING

← FELSENTHAL NWR →
 ADD



CROSSETT 24
 JCT US 425 32
 EXISTING

← FELSENTHAL NWR →
 ADD

← EL DORADO
 CROSSETT →
 EXISTING

← FELSENTHAL NWR →
 ADD

REFUGE INFORMATION
TUNE RADIO TO 1620 AM



PROPOSED - EB DIRECTION ON EXISTING SIGN POSTS








UAM COLLEGE OF
 TECHNOLOGY - CROSSETT →
 EXISTING

← FELSENTHAL NWR →
 ADD

WEST CROSSETT 1
 STRONG 23
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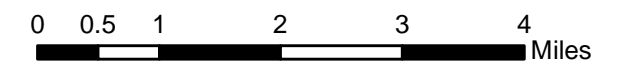
← FELSENTHAL NWR →
 ADD

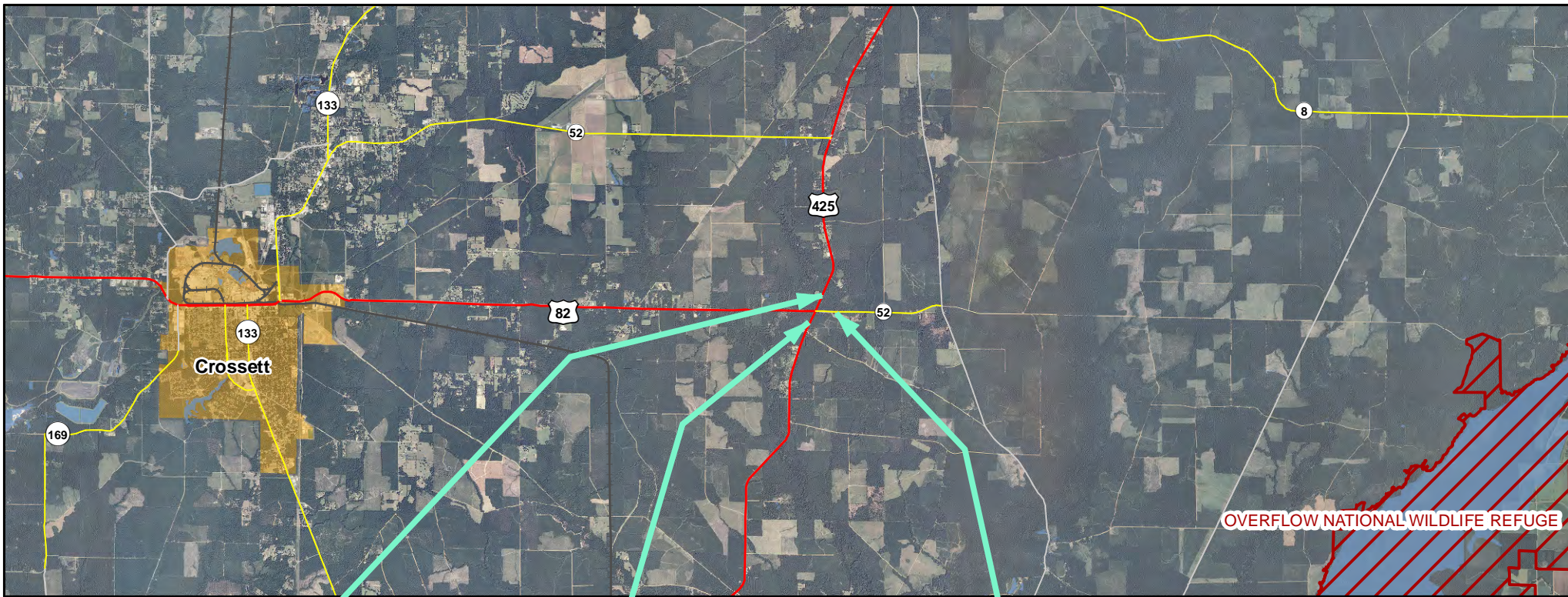
Legend

-  Felseenthal NWR
-  County Boundary
-  Municipalities
-  US Highway
-  State Highway
-  Other Road
-  Railroad

Note: The signs shown are for conceptual purposes only and are not to scale. Final sign layouts and dimensions are to be determined by AHTD.

Source:
 Arkansas Geographic Information Office
 US Department of Agriculture
 US Fish and Wildlife





↑ BASTROP, LA
 CROSSETT →
 EL DORADO →

EXISTING

↑ FELSENTHAL NWR →

ADD

↑ HAMBURG
 ← CROSSETT
 ← EL DORADO

EXISTING

← FELSENTHAL NWR

ADD

↑ CROSSETT
 HAMBURG →

EXISTING

↑ FELSENTHAL NWR

ADD

Legend

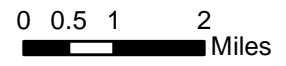
- Overflow NWR
- County Boundary
- Municipalities
- US Highway
- State Highway
- Other Road
- Railroad

Source:
 Arkansas Geographic Information Office
 US Department of Agriculture
 US Fish and Wildlife

Note: The signs shown are for conceptual purposes only and are not to scale. Final sign layouts and dimensions are to be determined by AHTD.



Figure 2.9: Proposed US 82 Signage Plan - East
 Felsenthal and Overflow National Wildlife Refuges
 Transportation Study
 Contract No.: DTFH71-09-D-00001



2.1.5.7 Develop a formal trail map for the Refuge

There is currently no formal trail map for the Refuge. In addition to the development of new trails, a trail map would be beneficial for visitors by providing them information on which landmarks and areas of the Refuge can be easily accessed via trail.

2.1.5.8 Provide Refuge Information at Visitors Center/Refuge Complex Kiosks

To increase visitor awareness and education at the Refuge, it would be beneficial to provide information regarding such things as permits, trail maps, notes about special events, etc. at the kiosks located at the Visitors Center/Refuge Complex entrances.

2.1.5.9 Continue to Pursue Grant Opportunities for Additional Funding Sources

Grants are important opportunities for the Refuge, so it is necessary to continually identify and pursue funding sources.

2.2 Overflow NWR

The following preliminary candidate alternatives for the Overflow NWR are summarized in **Figure 2.10**.

2.2.1 No-Build

The “No-Build” alternative provides no improvements to the existing transportation facilities in the study area. This would result in no improvement costs or impacts to the natural environment in the study area. In the No-Build alternative, the existing habitat for the Refuge would not be impacted; however, the potential for issues to occur on the transportation facilities will likely remain the same or increase if no improvements are made.

2.2.2 Short-Range Alternatives (2017)

2.2.2.1 Alternative 01 – Internal Roadway Condition Maintenance

Continual maintenance of the existing internal roads and trails within the Refuge by adding gravel to unpaved surfaces, where necessary, will improve the quality of the roads and potentially increase safety for drivers. Additionally, managing drainage along unpaved roadways will lengthen the life and durability of the road surface. Potential costs associated with this alternative would vary depending on the type of road and the extent of maintenance required. The responsible partner for this alternative is USFWS.

2.2.3 Medium-Range Alternatives (2022)

2.2.3.1 Alternative 03 – Auto Tour Route

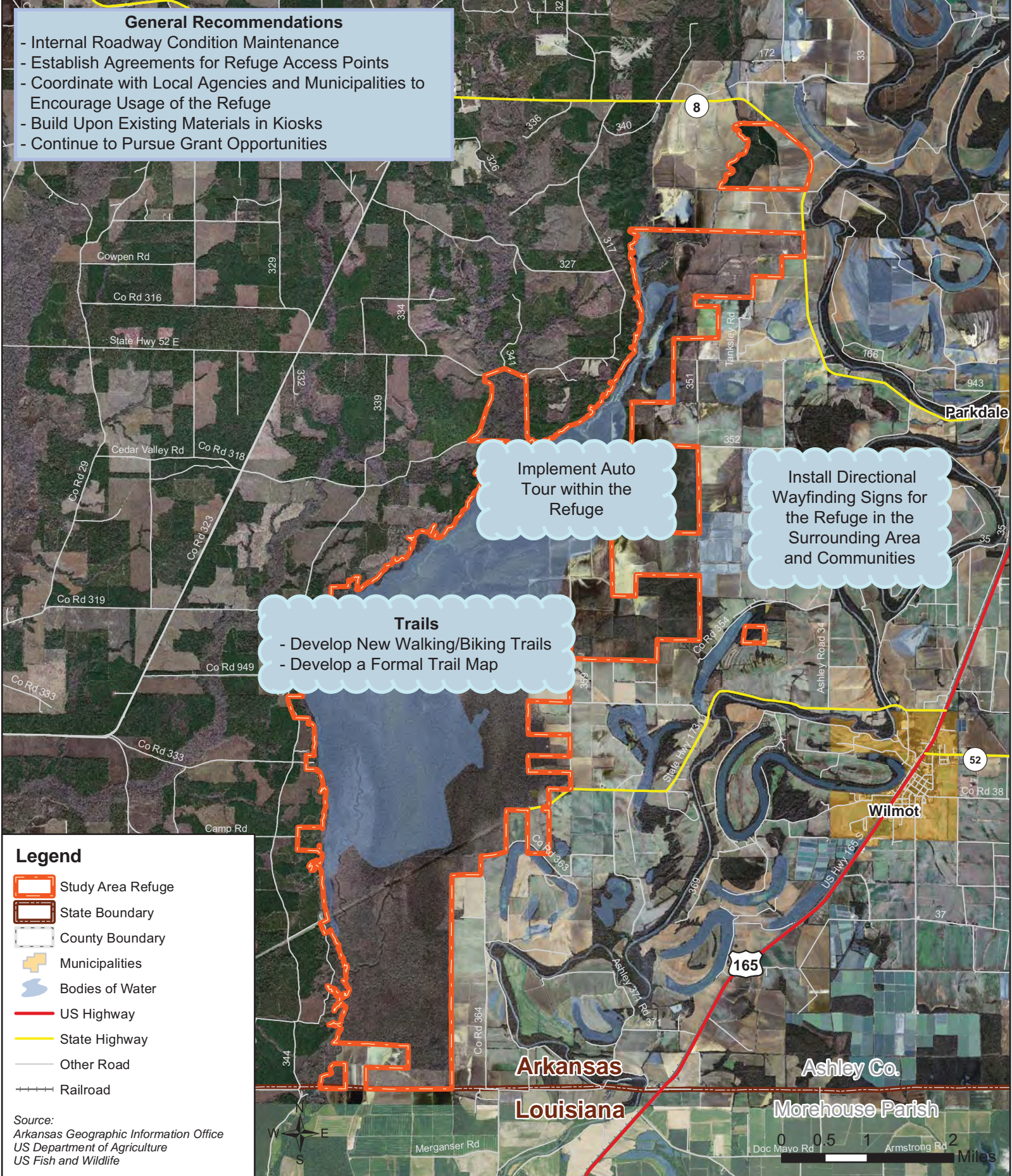
The implementation of an Auto Tour route on existing Refuge facilities would enhance the visitor experience. The Auto Tour Route within the Refuge would include educational/scenic pull-offs along the route. The pull-off areas, signs, etc. should be planned in locations where they can provide an educational opportunity for the visitors, but have limited environmental impacts.

Costs are expected to be limited and are related to planning/design, construction, and maintenance as the route is expected to be planned on existing facilities. The estimated cost of the one-way 16-foot wide section is \$900 per 100-foot length, \$1,100 per 100-foot length for the two-way, 20-foot wide section, and \$700 for each pull off with transition areas (200 total feet). The responsible partner for this alternative is USFWS, however, additional local partners would provide added benefits such as partnering with the Refuge to enhance the educational opportunities and helping with the upkeep of the Auto Tour route monetarily and/or through the development of a volunteer network.

The proposed Auto Tour route is shown in **Figure 2.11** and will consist of a 16-foot wide gravel lane in the one-way sections and a 20-foot wide gravel lane in the two-way sections, there are three scenic pull-offs planned.

General Recommendations

- Internal Roadway Condition Maintenance
- Establish Agreements for Refuge Access Points
- Coordinate with Local Agencies and Municipalities to Encourage Usage of the Refuge
- Build Upon Existing Materials in Kiosks
- Continue to Pursue Grant Opportunities



Legend

- Study Area Refuge
- State Boundary
- County Boundary
- Municipalities
- Bodies of Water
- US Highway
- State Highway
- Other Road
- Railroad

Source:
Arkansas Geographic Information Office
US Department of Agriculture
US Fish and Wildlife

Figure 2.10: Overflow NWR Preliminary Candidate Alternatives

Felsenthal and Overflow National Wildlife Refuges
Transportation Study
Contract No.: DTFH71-09-D-00001

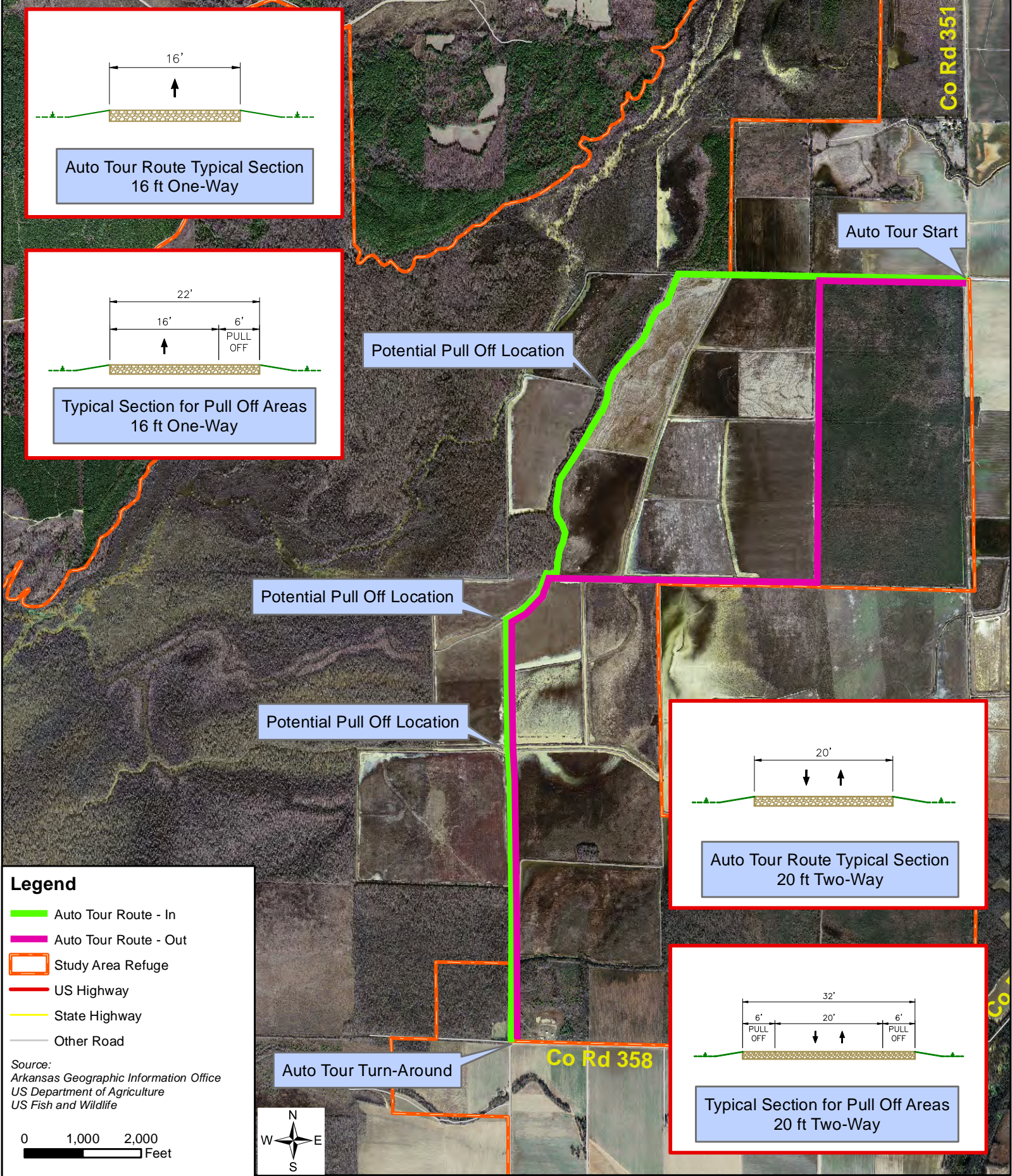


Figure 2.11: Potential Overflow NWR Auto Tour Route

Felsenthal and Overflow National Wildlife Refuges
Transportation Study
Contract No.: DTFH71-09-D-00001

Alternative O3

2.2.4 Additional Recommendations

Seven additional alternatives have been developed that are not anticipated to have direct impacts to the environment.

2.2.4.1 Alternative 02 – Establish Agreements for Refuge Access Points

Establishing agreements with private land owners for use of their land/roads will increase access to the Refuge. The Refuge access points through roads on private lands could be memorialized through formal agreements with the private land owners. These formal agreements would establish the access points and provide the opportunity to keep specific access and roadways functional. Additionally, these agreements would likely lead to improvement/maintenance of the roads, benefitting both land owners and Refuge visitors. These access points would also improve connectivity and capacity of the roadways within the Refuge.

The specific terms regarding the access points would be determined during the negotiation of the agreements between USFWS and the private land owners. Responsible partners for this alternative include USFWS and private land owners.

2.2.4.2 Install Wayfinding Signs for the Refuge in the Surrounding Area

There are some signs in the surrounding areas providing directional information regarding the Refuge, however they do not include distance information. Adding distance information to the Overflow NWR sign on AR 8 would be beneficial directing visitors to the Refuge.

2.2.4.3 Coordinate with Local Agencies and Municipalities to Encourage Usage of the Refuge

Coordination with local agencies and nearby municipalities would be beneficial and potentially increase visitation and Refuge usage. This coordination could include things such as flyers, mailers, media advertisements, etc. By working with local agencies and municipalities, information about the Refuge and special events can reach a greater number of people, likely increasing Refuge visitation.

2.2.4.4 Develop New Trails to Enhance the Visitor Experience

There are few formal trails within the Refuge. Developing new trails would provide visitors access to areas of the Refuge that cannot be easily accessed currently. Using these trails, visitors would be able to access and explore more areas of the Refuge for uses such as hunting, fishing, and wildlife observation.

2.2.4.5 Develop a formal trail map for the Refuge

There is currently no formal trail map for the Refuge. In addition to the development of new trails, a trail map would be beneficial for visitors by providing them information on landmarks and areas of the Refuge that can be easily accessed via trails.

2.2.4.6 Provide Refuge Information at Visitors Center/Refuge Complex Kiosks

To increase visitor awareness and education at the Refuge, it would be beneficial to provide information regarding such things as permits, trail maps, notes about special events, etc. at the kiosks located at the Visitors Center/Refuge Complex entrances.

2.2.4.7 Continue to Pursue Grant Opportunities for Additional Funding Sources

Grants are important opportunities for the Refuge, so it is necessary to continually identify and pursue funding sources.

3. Planning and Environmental Screening

This section describes the preliminary impact screening for the alternatives proposed at the Felsenthal and Overflow NWRs. Impacts are based on the preliminary footprints of the conceptual alternatives previously discussed.

3.1 Summary of Screening

The following categories were considered during the preliminary impact screening process.

Socioeconomic and Community Features – Socioeconomic composition of affected communities and impacts to community features.

Environmental Justice – Impacts on minority or low-income populations.

Cultural Resources – Impacts to historic or archaeological resources.

Transportation and Safety – Changes in traffic patterns and safety for drivers.

Visitor Use and Experience – Changes to visitor facilities and experience.

General Environmental Impacts – Estimated impacts to the natural environment including wetlands, floodplains, and wildlife habitats.

3.2 Potential Impacts to Existing Conditions

Socioeconomic and Community Features – The Felsenthal and Overflow National Wildlife Refuges are located in Ashley, Bradley, and Union Counties, Arkansas. The majority of alternatives proposed are within the boundaries of the Refuges. It is not expected that any community features will be adversely impacted by these improvements. Two public information meetings have occurred for this project and citizen input on the alternatives has been requested. Advertisement and notification of these meetings has been through press releases and through the project specific web page.

Environmental Justice – Although the Refuges are open to all visitors, residents of Ashley, Bradley, and Union counties are more likely to pass through the Refuges. US 82, the main arterial to Felsenthal NWR, functions as both a local and regional facility providing access throughout the area. According to 2010 Census data, 35% of residents in Ashley, Bradley, and Union counties are minorities. The 2010 US Census also indicated that greater than 20% of families and individuals in Ashley, Bradley, and Union Counties are below the poverty level. All three counties exceed the national (13.5%) and state (17.7%) poverty levels. Each of the alternatives proposed occur along existing facilities and do not result in disproportionate impacts to low income or minority populations.

Cultural Resources – There are several archaeological sites and structures of historic importance such as the remains of seasonal fishing camps, temple mounds with ceremonial plazas, and Indian villages. There are no expected impacts to cultural resources for the alternatives considered in this study.

Transportation and Safety – The transportation study area for the project includes US, state and local roads in and around Felsenthal NWR and Overflow NWR. Improvements include turn-lane upgrades, regular roadway maintenance, subbase issues on New Lock 6 Road, and signs related to the Refuges' highway advisory radio.

Visitor Use and Experience – Visitor experience will be enhanced with improvements to area roadways as identified in the alternatives and providing additional visitor information.

General Environmental Impacts – Based on aerial photographs and GIS land cover mapping, wetlands are located throughout the Felsenthal and Overflow NWRs. Impacts to wetlands are expected to be minimal for all alternatives. Minimal impacts are also expected for wildlife habitats, water bodies, and floodplains for several of the proposed alternatives.

3.3 Potential Impacts of Alternatives – Felsenthal NWR

3.3.1 Alternative F1 – Internal Roadway Condition Improvements

Socioeconomic and Community Features – This alternative will not directly impact any residents, communities, or community features.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F1.

Transportation and Safety – Continual maintenance of the existing internal roads and trails within the Refuges by adding gravel to unpaved surfaces, where necessary, will improve the quality of the roads. Additionally, managing drainage along unpaved roadways will lengthen the life and durability of the road surface.

Visitor Use and Experience – Improving the condition of roadways in and around the Refuges will enhance the visitor experience by providing better quality roadways for visitors.

General Environmental Impacts – These improvements are expected to have minimal environmental impacts on floodplains and wildlife habitats.

3.3.2 Alternative F2 – Westbound Left-Turn Lane at Visitors Center Driveway (US 82)

Socioeconomic and Community Features – By providing a longer deceleration area for left turning vehicles the traveling public on US 82 will be positively impacted.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F2.

Transportation and Safety – Lengthening the westbound left-turn lane storage and taper at the Visitors Center/Refuge Complex driveway will allow left turning vehicles more time and distance to decelerate without impeding the flow of vehicles traveling west along US 82. This alternative is anticipated to improve access to the Refuge and help reduce the potential for rear-end collisions on US 82 at this location.

Visitor Use and Experience – By providing a longer distance for vehicles to decelerate as they turn into the Visitors Center/Refuge Complex, access to the Refuge is improved enhancing the visitor experience.

General Environmental Impacts – This improvement is expected to have minimal environmental impacts on floodplains and wildlife habitats.

3.3.3 Alternative F3 – Eastbound Right-Turn Lane Visitors Center Driveway (US 82)

Socioeconomic and Community Features – By providing a deceleration lane for right turning vehicles the traveling public on US 82 will be positively impacted.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F3.

Transportation and Safety – Adding an eastbound right-turn lane at the Visitors Center entrance will allow right turning vehicles more time and distance to decelerate without impeding the flow of vehicles traveling east along US 82. This alternative is anticipated to improve access to the Refuge and help reduce the potential for rear-end collisions on US 82.

Visitor Use and Experience – Providing an exclusive lane to decelerate as they turn into the Visitors Center/Refuge Complex, access to the Refuge is improved enhancing the visitor experience.

General Environmental Impacts – This improvement is expected to have minimal environmental impacts on floodplains and wildlife habitats.

3.3.4 Alternative F4 – Channel Maintenance at Boat Ramps

Socioeconomic and Community Features – This alternative will enhance recreational facilities for residents and local communities.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F4.

Transportation and Safety – Removing silt by dredging the cuts and sloughs at the Felsenthal Lock and Dam, Shallow Lake, and Pine Island boat ramps will allow boaters to more easily access the channels from the boat ramps.

Visitor Use and Experience – This improvement will enhance the visitor experience by reducing wear and tear on boat equipment and likely increasing boat ramp attractiveness for users.

General Environmental Impacts – The maintenance is expected to have minimal environmental impacts on wetlands, water bodies, and wildlife habitats.

3.3.5 Alternatives F6 and F10 – Boat Mooring Locations Feasibility and Installation

Socioeconomic and Community Features – The mooring locations will enhance recreational facilities for residents and local communities.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternatives F6 and F10.

Transportation and Safety – A feasibility study should be conducted to determine existing ramp usage, potential benefits, and the attractiveness to users associated with the addition of boat mooring locations at the ramps. If the feasibility study determines that boat mooring locations are feasible, their installation would provide boaters the opportunity to moor after launching from the boat ramp.

Visitor Use and Experience – Boat mooring locations at the boat ramps would be a convenience for the ramp users and would likely increase ramp usage and boater visitation of the Refuge.

General Environmental Impacts – The feasibility study will not have any environmental impacts. Should the mooring locations be installed, minimal environmental impacts to water bodies and wildlife habitats are anticipated.

3.3.6 Alternative F7 – Auto Tour Route

Socioeconomic and Community Features – This alternative will enhance recreational facilities for residents and local communities.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F7.

Transportation and Safety – The addition of the Auto Tour route is for educational and visitor experience purposes on existing Refuge facilities.

Visitor Use and Experience – The Auto Tour route will include educational/scenic pull-offs in the Refuge, educating users about the Refuge and improving the visitor experience and user satisfaction.

General Environmental Impacts – The addition of the Auto Tour route is expected to have minimal environmental impacts on wetlands, floodplains, and wildlife habitats.

3.3.7 Alternative F8 – Bridge Replacement on Bradley County Road 65 S

Socioeconomic and Community Features – This alternative is anticipated to have a positive impact to the community and its residents.

Environmental Justice – This alternative will provide connectivity for vehicles in the area.

Cultural Resources – No impacts are anticipated as a result of Alternative F8.

Transportation and Safety – The replacement of the timber bridge on Bradley County Road 65 S would allow heavier vehicles to cross the bridge providing additional connectivity to the area.

Visitor Use and Experience – The bridge replacement would allow heavier axle loads to access the Refuge via this route.

General Environmental Impacts – It is expected for this bridge to be constructed in place and have minimal impacts on wetlands, floodplains, and wildlife habitats.

3.3.8 Alternative F9 – Roadway Improvements on New Lock 6 Road

Socioeconomic and Community Features – This alternative will improve the road accessing local recreational facilities.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative F9.

Transportation and Safety – Improving the subbase and roadbed support for New Lock 6 Road would increase the quality of the road.

Visitor Use and Experience – The improvement of New Lock 6 Road will improve the quality of the road for vehicles accessing the Felsenthal Lock and Dam boat ramp.

General Environmental Impacts – The construction associated with the roadway improvement is anticipated to have minimal impacts on wetlands, floodplains, and wildlife habitats.

3.4 Potential Impacts of Alternatives – Overflow NWR

3.4.1 Alternative O1 – Internal Roadway Condition Improvements

Socioeconomic and Community Features – This alternative will not directly impact any residents, communities, or community features.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative O1.

Transportation and Safety – Continual maintenance of the existing internal roads and trails within the Refuges by adding gravel to unpaved surfaces, where necessary, will improve the quality of the roads. Additionally, managing drainage along unpaved roadways will lengthen the life and durability of the road surface.

Visitor Use and Experience – Improving the condition of roadways in and around the Refuges will enhance the visitor experience by providing better quality roadways for visitors.

General Environmental Impacts – These improvements are expected to have minimal environmental impacts on wetlands, floodplains and wildlife habitats.

3.4.2 Alternative O3 – Auto Tour Route

Socioeconomic and Community Features – This alternative will enhance recreational facilities for residents and local communities.

Environmental Justice – There are no disproportionate impacts to low income or minority populations as a result of this alternative.

Cultural Resources – No impacts are anticipated as a result of Alternative O3.

Transportation and Safety – The addition of the Auto Tour route is for educational and visitor experience purposes on existing Refuge facilities.

Visitor Use and Experience – The Auto Tour route will include educational/scenic pull-offs in the Refuge, educating users about the Refuge and improving the visitor experience and user satisfaction.

General Environmental Impacts – The addition of the Auto Tour route is expected to have minimal environmental impacts on wetlands, floodplains, and wildlife habitats.

4. Conclusion

4.1 Summary Matrix

Table 4.1 summarizes potential impacts for key alternatives described in this report.

4.2 Implementation Priorities

This report provides refinement and initial screening of the transportation alternatives presented in this study. With the cooperation of project stakeholders these alternatives should be placed on transportation plans and/or scheduled for further study as appropriate. Based on the preliminary impacts presented in this report, the following roadway improvement alternatives are recommended during the following timeframes:

Short-Range (2017) –

Felsenthal NWR

- **Alternative F1** – Internal Roadway Condition Improvements
- **Alternative F2** – Westbound Left-Turn Lane at Visitors Center Driveway (US 82)
- **Alternative F3** – Eastbound Right-Turn Lane at Visitors Center Driveway (US 82)
- **Alternative F4** – Channel Maintenance at Boat Ramps
- **Alternative F6** – Boat Mooring Locations Feasibility Study
- **Alternative F7** – Auto Tour Route

Overflow NWR

- **Alternative O1** – Internal Roadway Condition Improvement
- **Alternative O3** – Auto Tour Route

Medium Range (2022) –

Felsenthal NWR

- **Alternative F8** – Bridge Replacement on Bradley County Road 65 S
- **Alternative F9** – Roadway Improvements on New Lock 6 Road

Table 4.1: Impact Summary

| | Alternative F2 | Alternative F3 | Alternative F4 | Alternatives F6 and F10 | Alternative F7 | Alternative F8 | Alternative F9 | Alternative O3 |
|---|--|---|---|--|-----------------------------|---|-------------------------------------|-----------------------------|
| Impact or Resource Category | WB Left-Turn Lane Improvement | EB Right-Turn Lane Addition | Channel Maintenance at Cuts and Sloughs | Boat Mooring Locations Feasibility Study and Installation | Auto Tour Route | Bradley County Road 65 S Bridge Replacement | New Lock 6 Road Improvements | Auto Tour Route |
| Socioeconomic and Community Features | Positive impact | Positive impact | Positive impact | Positive impact | Positive impact | Positive impact | Positive impact | Positive impact |
| Environmental Justice | No impact | No impact | No impact | No impact | No impact | Positive impact | No impact | No impact |
| Cultural Resources | No impact anticipated | No impact anticipated | No impact anticipated | No impact anticipated | No impact anticipated | No impact anticipated | No impact anticipated | No impact anticipated |
| Transportation and Safety | Allows left turning vehicles more time and space to decelerate | Allows right turning vehicles more time and space to decelerate | Allows boaters to more quickly and easily access the channels from the boat ramps | Study – N/A Installation - opportunity to moor after launching | N/A | Increases connectivity for users | Improves the road quality for users | N/A |
| Visitor Use and Experience | Enhances | Enhances | Enhances | Enhances | Enhances | Enhances | Enhances | Enhances |
| General Environmental Impacts | Minimal impacts anticipated | Minimal impacts anticipated | Minimal impacts anticipated | Study – N/A Installation – Minimal impacts anticipated | Minimal impacts anticipated | Minimal impacts anticipated | Minimal impacts anticipated | Minimal impacts anticipated |

Long Range (2027) –

Felsenthal NWR

- **Alternative F10** – Installation of Boat Mooring Locations

For the additional alternatives identified in this study, continued cooperation between stakeholders should occur.

4.3 Next Steps

The alternatives have been presented to the stakeholders and public. This report will be shared with the stakeholders and community for comment and then be incorporated into the final Transportation Study Report along with the other previously prepared reports.

Appendix A: Opinions of Probable Cost

CONCEPT ESTIMATE OF PROBABLE PROJECT COST
Alternative F2 - Westbound Left-Turn Lane at Visitors Center Driveway (US 82)

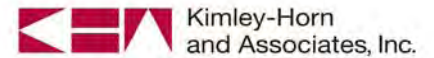
| Description | Unit | Quantity | Unit Cost | Amount |
|--|------|----------|--------------|----------------------|
| CLEARING AND GRUBBING | AC | 1.90 | \$ 25,000.00 | \$ 47,500.00 |
| BORROW ⁽²⁾ | CY | 2,000 | \$ 13.86 | \$ 27,720.00 |
| ROADWAY PAVEMENT ⁽¹⁾ | SY | 1,100 | \$ 54.00 | \$ 59,400.00 |
| SUBTOTAL ROADWAY | | | | \$ 134,620.00 |
| MISCELLANEOUS ROADWAY (60%) | LS | | | \$ 80,772.00 |
| DRAINAGE (50%) | LS | | | \$ 67,310.00 |
| SIGNING AND PAVEMENT MARKINGS (10%) | LS | | | \$ 13,462.00 |
| SUBTOTAL CONSTRUCTION | | | | \$ 296,164.00 |
| MAINTENANCE OF TRAFFIC (10%) | LS | | | \$ 29,616.40 |
| MOBILIZATION (10%) | LS | | | \$ 29,616.40 |
| TOTAL CONSTRUCTION | | | | \$ 355,396.80 |
| "SAY" | | | Subtotal | \$ 360,000.00 |
| Engineering, Survey and CEI (30%) | | | | \$ 106,619.04 |
| Contingency (25%) | | | | \$ 88,849.20 |
| "SAY" | | | Total | \$ 560,000.00 |

(1) ASSUMES 12" OF STABILIZED SUB BASE, 10" OF LIME ROCK BASE, 3.5" OF SUPERPAVE ASPHALT, & 1.5" OF FRICTION COURSE.

(2) ASSUMES 4 FEET OF BORROW FOR THE AREA OF PAVEMENT.

Kimley-Horn and Associates, Inc. has no control over the cost of labor, materials, equipment, or services furnished by others, or over methods of determining price, or over competitive bidding or market conditions. Any and all professional opinions as to costs reflected herein, including but not limited to professional opinions as to the costs of construction materials, are made on the basis of professional experience and available data. Kimley-Horn and Associates, Inc. cannot and does not guarantee or warrant that proposals, bids, or actual costs will not vary from the professional opinions of costs shown herein.

Kimley-Horn and Associates, Inc.
710 Boundary Street
Suite 1-D
Beaufort, SC 29902



CONCEPT ESTIMATE OF PROBABLE PROJECT COST
Alternative F3 - Eastbound Right-Turn Lane at Visitors Center Driveway (US 82)

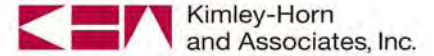
| Description | Unit | Quantity | Unit Cost | Amount |
|--|------|----------|-----------------|----------------------|
| CLEARING AND GRUBBING | AC | 0.40 | \$ 25,000.00 | \$ 10,000.00 |
| BORROW ⁽²⁾ | CY | 600 | \$ 13.86 | \$ 8,316.00 |
| ROADWAY PAVEMENT ⁽¹⁾ | SY | 450 | \$ 54.00 | \$ 24,300.00 |
| SUBTOTAL ROADWAY | | | | \$ 42,616.00 |
| MISCELLANEOUS ROADWAY (60%) | LS | | | \$ 25,569.60 |
| DRAINAGE (50%) | LS | | | \$ 21,308.00 |
| SIGNING AND PAVEMENT MARKINGS (10%) | LS | | | \$ 4,261.60 |
| SUBTOTAL CONSTRUCTION | | | | \$ 93,755.20 |
| MAINTENANCE OF TRAFFIC (10%) | LS | | | \$ 9,375.52 |
| MOBILIZATION (10%) | LS | | | \$ 9,375.52 |
| TOTAL CONSTRUCTION | | | | \$ 112,506.24 |
| "SAY" | | | Subtotal | \$ 120,000.00 |
| Engineering, Survey and CEI (30%) | | | | \$ 33,751.87 |
| Contingency (25%) | | | | \$ 28,126.56 |
| "SAY" | | | Total | \$ 190,000.00 |

(1) ASSUMES 12" OF STABILIZED SUB BASE, 10" OF LIME ROCK BASE, 3.5" OF SUPERPAVE ASPHALT, & 1.5" OF FRICTION COURSE.

(2) ASSUMES 4 FEET OF BORROW FOR THE AREA OF PAVEMENT.

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710 Boundary Street
Suite 1-D
Beaufort, SC 29902



Appendix B: New Lock 6 Road Grant Application

PUBLIC LANDS HIGHWAYS DISCRETIONARY PROGRAM (PLHD)**FY 2011 GRANT APPLICATION****PART A. PROJECT INFORMATION**

| | |
|---|---|
| Project Title: | Felsenthal Public Access Road |
| Project Location (Include City/County, State): | Huttig/Union/Arkansas |
| State Priority (to be completed by State DOT): | |
| GRANTEE CONTACT INFORMATION | |
| Grantee Contact Name: | Richard Magby |
| Federal Agency/Project Sponsor: | U.S. Army Corps of Engineers |
| Mailing Address (Street/P.O. Box): | 667 New Lock 6 Road |
| City, State, Zip code: | Huttig, AR 71747 |
| Phone: | 870-943-2307 ext. 103 |
| Fax: | 870-943-2546 |
| E-Mail: | Richard.E.Magby@usace.army.mil |
| STATE DOT CONTACT INFORMATION | |
| State Contact Person: | Lorie Tudor |
| Phone: | 501-569-2542 |
| Fax: | 501-569-2623 |
| E-Mail: | Lorie.Tudor@arkansashighways.com |
| FHWA DIVISION OFFICE CONTACT INFORMATION | |
| Division Contact Person: | Susan Wimberly |
| Phone: | 501-324-6434 |
| Fax: | 501-324-6423 |
| E-Mail: | Susan.Wimberly@dot.gov |
| CONGRESSIONAL INFORMATION | |
| Congress Member: | Ross, Mike |
| Congressional District No.: | Arkansas 4 th Congressional District |
| PLHD Program Funds Requested: | \$217,900 |
| Leveraged Funds (if applicable): | \$0.00 |
| Total Project Cost (includes funding request plus leveraged funds if applicable): | \$217,900 |
| TO BE COMPLETED BY THE FHWA DIVISION OFFICE | |

| | | | | |
|---|--|-----|--|----|
| State Administered? | | Yes | | No |
| Federal Lands Division Administered? | | Yes | | No |
| If yes, which Division? | | | | |
| Direct Allotment of PLHD funding to Federal Agency? | | Yes | | No |
| If yes, which Federal Agency? | | | | |
| Can the project be obligated by September 30, 2011? | | Yes | | No |
| Date grant application approved by FHWA Division Office | | | | |

Part B. Project Abstract

PLHD funds will be utilized to make major repairs to the road, shoulder and elevated road embankment which provides public access to three different Corps of Engineers recreation areas as well as to Felsenthal Lock & Dam. PLHD funds will allow for critical repairs to prevent further road damage which is increasing due to the continuous displacement of support material from the roadbed and road shoulder. Funds will be used to dig out voids and fill with a more suitable and stable clay material so as to prevent the pending and complete loss of this public road. If funded this would be a complete project and not a portion of a larger project and has not received previous PLHD funds.

Part C. Project Narrative

The project road is located near Huttig, AR (667 New Lock 6 Road) in Union County Arkansas and serves as the only access onto the highly developed Corps of Engineers recreation lands and is now nearing 30 years since it was first constructed. Over those years voids have appeared and grown and it has deteriorated to the point that major repairs are mandatory for it to remain serviceable to the visiting public. These voids have formed in the roadbed, shoulders and adjacent slopes in most cases with an entry point near the top of the elevated embankment and an exit point near the toe (See figure 1) which permits piping of soil and sediments causing instability and damage to the subsurface and the road surface itself. Numerous attempts have been made in the past to fill the entry points with materials to prevent piping and loss of support for the road. All materials that have been placed in the entry point of the voids have quickly moved through the void and been lost with only a very minor and temporary benefit. The roadway is elevated approximately 20 feet to allow for adjacent flooding of the river. The critical problem areas are along both sides of the roadway and measure approximately 3000' on the north side and 3800 feet along the south slope. (See figure 2) To properly complete the job it will be absolutely necessary to prevent the movement of rainwater and the movement

of soil through the embankment and to do so it will require that the damaged areas be dug up and repaired. This public access road provides access to over 100,000 recreational visitors yearly as well as ensuring the uninterrupted operations of the Felsenthal Lock & Dam. The lock and dam provides additional recreational access to boaters utilizing the waterway by passing over 1000 pleasure boats through the lock chamber annually. Recreation facilities in which this road services include: 50 campsites, 3 boat ramps, 1 handicapped accessible fishing pier, 1 picnic shelter, 2 picnic areas, 3 public restrooms, 2 shower houses, 1 playground and 8 parking areas with spaces for 290 vehicles. If approved, this project would allow for the restoration of the access road to facilitate its continued safe operations for all users of the areas. Plans are to dig out the unstable sections and areas with voids and replace with a suitable and more stable clay material, compact the clay fill to prevent future erosion and to also repair the damaged areas of the existing roadway which have become a safety hazard to the public who utilize the road. (See figure 3). In order to more efficiently and effectively complete the repairs it will require the removal of approximately 6800 feet of guard railing and 3800 feet of PVC water lines. Both features are within and surrounded by failed roadbed. After repairs have been made, plans include the re-installation of the protective guard rail and water line. Lastly plans are to seed the entire area to establish a uniform turf to protect the slopes from future erosion. In order to facilitate critical repairs along the of roadway a budget and scope of work was designed as follows:

Equipment usage for repairs: Track hoe, 2 Dozers, Dump truck, Crew truck, Truck/low boy @ 30 working days= \$36,900, Fuel: 3000 gal @ \$4.00=\$12,000, Labor for dirt work -960 labor hours -\$38,000, Labor for traffic control- 480 labor hours -\$7200, Clay fill materials: 20,000 yd @ \$2.50/yd-\$50,000, Equipment/Labor for 6800' of Guard rail removal/re-installation: Equipment-\$10,000, 640 labor hours-\$25,600, Repair of damage to existing road surface= \$32,000 and Removal and replacement of 3800' of 1" PVC water line= Materials-\$1000, Equipment- \$400, Labor- \$800, Seed and turf re-establishment- \$4000 for a total estimated project cost of \$217,900.

In its present condition, the road shoulder and slopes can't be fully or safely mowed and maintained which will allow vegetation to soon hamper repairs but by acting now and with the completion of this project recreation access can be enhanced and preserved well into the future for visitors to these areas.

Figure 1



Figure 2



Figure 3



Part D. Project Eligibility

This road project provides the only public vehicular access to the three U.S. Army Corps of Engineers, Vicksburg District owned Recreation areas: Grand Marais Recreation Area & Campground, Felsenthal Upper Pool, Felsenthal Lower pool Recreation areas as well as the Felsenthal Lock & Dam on the Ouachita River.

