

October 2003

CORRIDOR SELECTION



Section of Independent Utility No. 14
Louisiana State Project No. 736-99-1032
Arkansas State Project No. 070212
Federal Aid Project No. CBI-9901(516)
Junction I-20 near Haughton, LA to US 82 near El Dorado, AR
Route I-69
Bossier, Claiborne and Webster Parishes, Louisiana
Columbia and Union Counties, Arkansas



Federal Highway Administration



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URS Corporation
In association with:
Coyle Engineering Company, Inc.,
Garver Engineers, LLC,
Historic Preservation Associates,
HNTB Corporation,
R. Christopher Goodwin & Associates, Inc.

**CORRIDOR SELECTION
TECHNICAL MEMORANDUM**

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- Appendix B Bayou Dorcheat Field Data Sheets, September 2003
- Appendix C Bayou Dorcheat Sample Station Photographs, September 2003
- Appendix D Photographs of Selected Stream Systems East of Bayou Dorcheat,
September 2003

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1.0 INTRODUCTION

The Louisiana Department of Transportation and Development (DOTD), the Arkansas Highway and Transportation Department (AHTD) and the Federal Highway Administration (FHWA) propose the construction of a four-lane divided interstate highway between Shreveport, Louisiana and El Dorado, Arkansas. The project will be part of the national I-69 Corridor and is also identified as Section of Independent Utility (SIU) No. 14. The Study Area for SIU No. 14 is displayed in **Figure 1.1**.

The scoping period for this project spanned between March 6, 2003, and April 28, 2003. Results are detailed in the *Scoping Report* (URS, May 2003). Documentation of the project's Purpose and Need followed scoping and is likewise detailed in a report, *Purpose and Need* (URS, June 2003), which provides details of both the local and national purpose and needs for the project. In June, the project team began developing corridor alternatives for consideration as the preferred 2-mile-wide corridor for detailed evaluation in the Environmental Impact Statement (EIS) under preparation for SIU No. 14. *Corridor Evaluation* (URS, July 2003) provides details of the preliminary corridor identification and evaluation, in which five 2-mile-wide corridors were retained for consideration by the public and agencies. These five corridors were presented to the public in a series of meetings and presented to the resource agencies in a single meeting in August 2003 (see **Figure 1.2**). *Corridor Selection Public and Agency Presentation and Comment Summary* (URS, September 2003) summarizes these public and agency involvement efforts. Agency concerns regarding the comparative quality of natural areas inside the five corridors led to field research conducted during September, 2003.

The purpose of this report is to summarize these field efforts; document the evaluation of the corridor alternatives prior to and following these field efforts; and propose for agency concurrence the single 2-mile-wide corridor with the best potential to yield the overall least environmentally damaging, practicable 300-foot-wide highway alignment. Evaluation and identification of the proposed single corridor for detailed study in the EIS is based on the following:

- Preliminary Evaluation in *Corridor Evaluation* (July 2003);
- Comments received by the Public and Agencies; and
- Information obtained through field reconnaissance.

As noted above, the following reports are incorporated by reference into this document:

- *Scoping Report* (May 2003);
- *Purpose and Need* (June 2003);
- *Corridor Evaluation* (July 2003); and

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- *Corridor Selection Public and Agency Presentation and Comment Summary* (September 2003).

Figure 1.1
Study Area
(Download Figure 1-1.pdf)

Figure 1.2
Corridors Under Consideration
(Download Figure 1-2.pdf)

2.0 PUBLIC, AGENCY, AND TRIBAL INVOLVEMENT

2.1 Public and Agency Coordination

Four Open Houses were held during the week of August 19, 2003 to present the five remaining 2-mile-wide corridors under consideration as the single 2-mile-wide corridor for detailed study in the EIS. Locations and dates of these events were:

- Minden, Louisiana August 19, 2003
- Haynesville, Louisiana August 20, 2003
- Three Creeks, Arkansas August 21, 2003
- Homer, Louisiana August 22, 2003

Open House format comprised a viewing of a video summarizing the corridor identification and preliminary evaluation; distribution of handouts and comment forms for the public's recommendations; and having the Consultant Team on-hand to answer questions.

One Agency meeting was held on August 21, 2003, to present the corridor evaluation process and to provide details on the five remaining corridors under consideration. The video shown at the Open Houses was also viewed in this meeting. A more thorough slide presentation followed the video, providing details on the Purpose and Need for the project, Corridor Alternatives Development and the five remaining 2-mile-wide corridors under consideration.

Verbal and written comments from the public and various local, state and federal agencies are provided in *Corridor Selection Public and Agency Presentation and Comment Summary* (URS, September 2003). Public comments are summarized as follows:

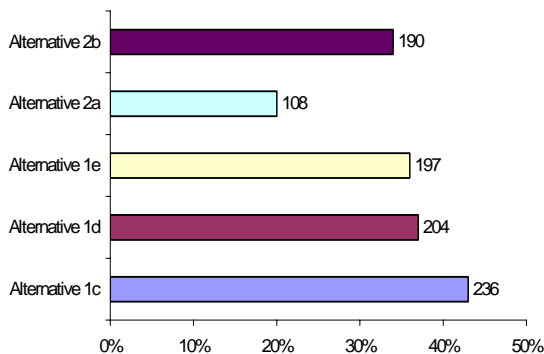
- Approximately 552 individual comments were received
- 463 of 552 (84%) were from Louisiana
- 89 of 552 (16%) were from Arkansas
- Comments or Respondents' references to preference were as follows:¹
 - 236 of 552 (43%) preferred Corridor Alternative 1c;
 - 204 of 552 (37%) preferred Corridor Alternative 1d;

¹ Some respondents noted equal preference for more than one corridor, or alternative; therefore, the total number of references to preferred corridors is greater than the number of individual comments or respondents.

- 197 of 552 (36%) preferred Corridor Alternative 1e;
- 190 of 552 (34%) preferred Corridor Alternative 2b;
- 108 of 552 (20%) preferred Corridor Alternative 2a;
- 204 of 463 (44%) Louisiana responses preferred Corridor Alternative 1c; and
- 55 of 89 (62%) Arkansas responses preferred Corridor Alternative 2a.

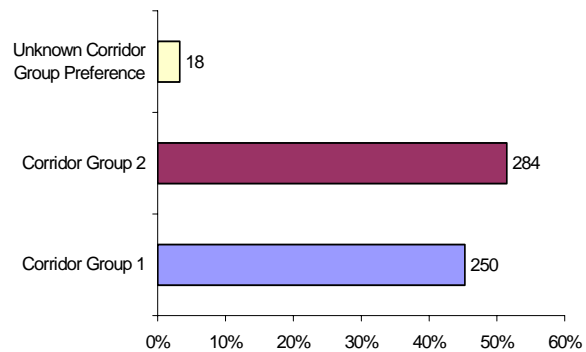
Figure 2.1 displays the distribution of all references to corridor alternative preferences. The number of references to corridor alternative preferences is greater than the number of individual comments, or respondents, reflecting that some respondents noted equal preference to more than one corridor alternative. **Figure 2.1** displays the distribution of the 935 references to preference made by the 552 respondents, and **Figure 2.2** displays the general Corridor Group preference distribution of all respondents.

Figure 2.1 Distribution of All Preference References, by Corridor Alternative (935 Total Respondent References)*



*Some respondents noted equal preference for more than one corridor, or alternative; therefore, the total number of references made to preferred corridors (i.e., 935) is greater than the number of individual comments or respondents (i.e., 552).

Figure 2.2 Respondent Preference, by Corridor Alternative Group¹ (552 Total Respondents)



Corridor Group 1 includes Alternatives 1c, 1d, and 1e. Corridor Group 2 includes Alternatives 2a and 2b. Individual respondents are represented by this chart, where each respondent provided either a single Corridor Group preference or no specific Corridor Group preference.

Because far more comments were received by Louisiana residents, overall ranking of corridor alternatives is naturally weighted in favor of Louisiana responses. Support and opposition for each corridor alternative, by domicile, is outlined in **Figures 2.3a** through **2.8b**, which display the distribution of all 935 references to preferred corridor alternatives made in the 552 individual responses.

Figure 2.3a Preference for Corridor Alternative 1c of Louisiana Respondents
(204 References Total)

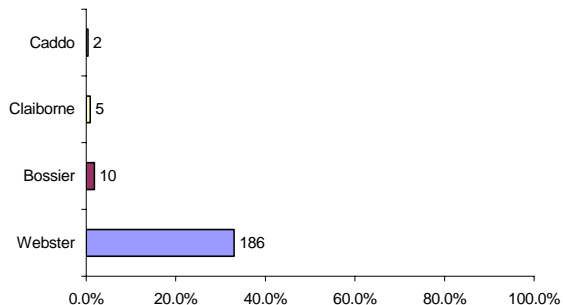


Figure 2.3b Preference for Corridor Alternative 1c of Arkansas Respondents
(32 References Total)

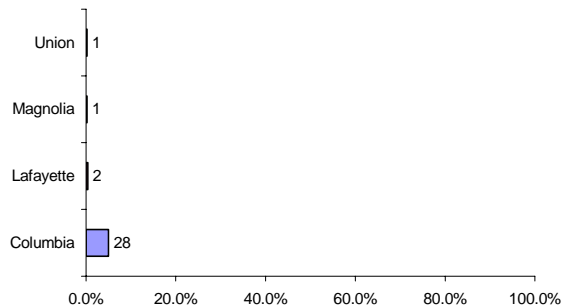


Figure 2.4a Preference for Corridor Alternative 1d of Louisiana Respondents
(178 References Total)

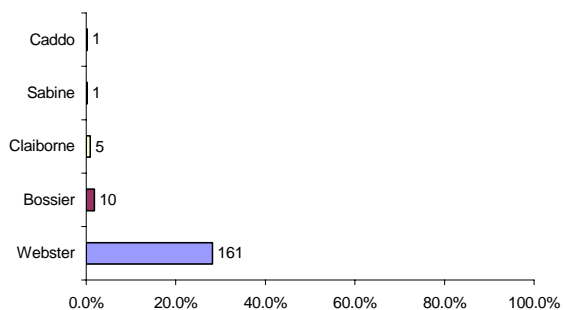


Figure 2.4b Preference for Corridor Alternative 1d of Arkansas Respondents
(26 References Total)

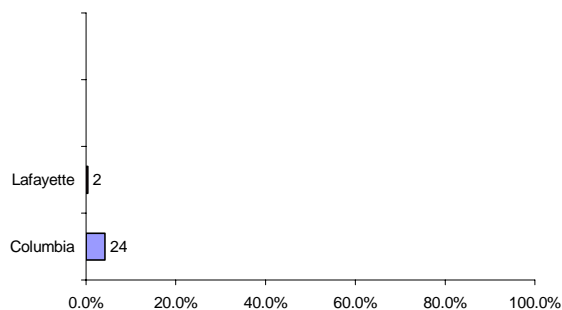


Figure 2.5a Preference for Corridor Alternative 1e of Louisiana Respondents
(182 References Total)

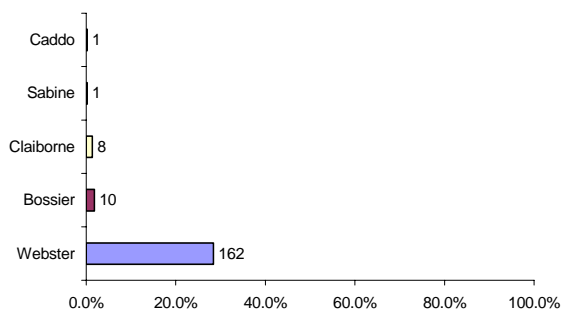


Figure 2.5b Preference for Corridor Alternative 1e of Arkansas Respondents
(15 References Total)

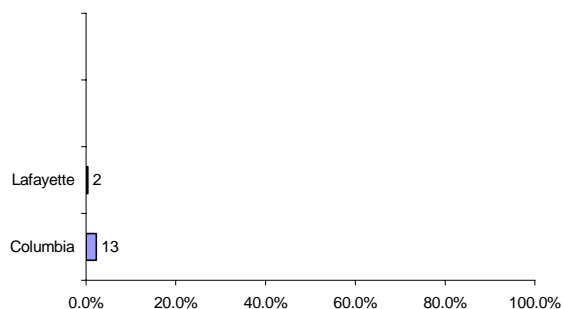


Figure 2.6a Preference for Corridor Alternative 2a of Louisiana Respondents
(53 References Total)

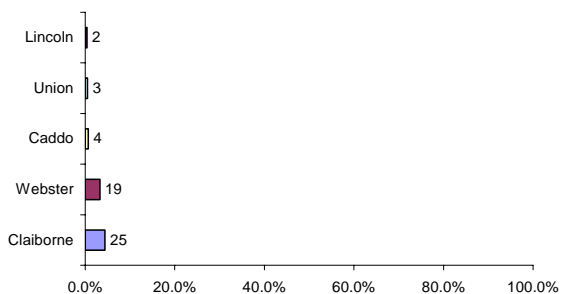


Figure 2.6b Preference for Corridor Alternative 2a of Arkansas Respondents
(55 References Total)

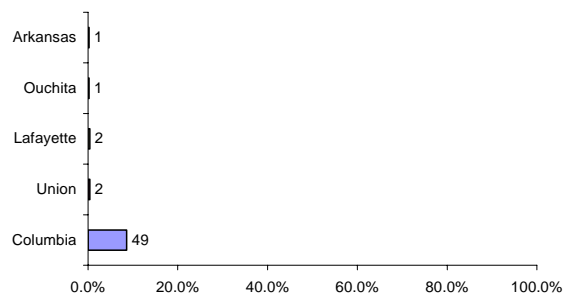


Figure 2.7a Preference for Corridor Alternative 2b of Louisiana Respondents
(185 References Total)

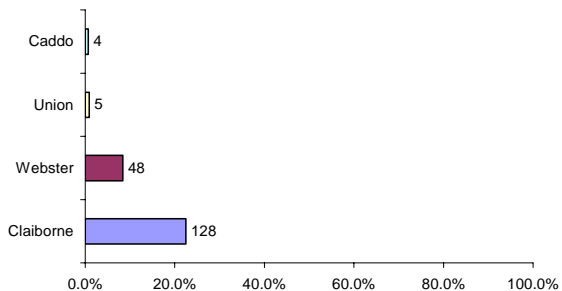


Figure 2.7b Preference for Corridor Alternative 2b of Arkansas Respondents
(5 References Total)

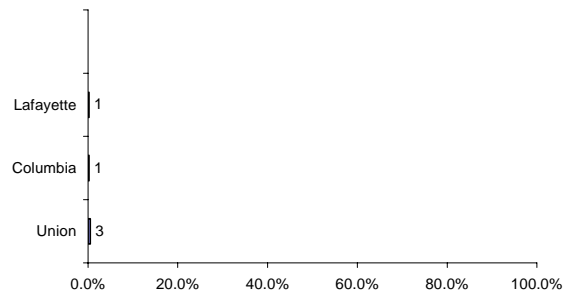


Figure 2.8a Opposition to Group 2 Corridor Alternatives of Louisiana Respondents
(143 References Total)

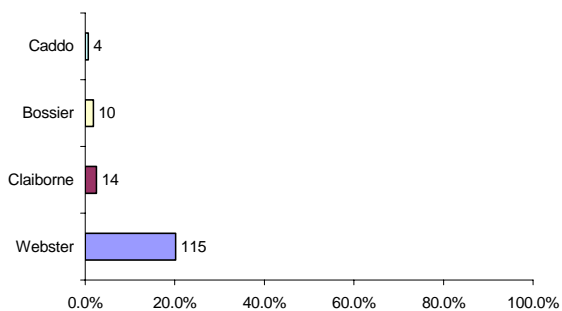
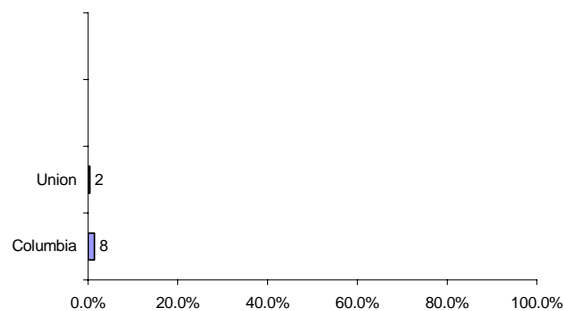


Figure 2.8b Opposition to Group 2 Corridor Alternatives of Arkansas Respondents
(10 References Total)



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In addition to stating preference and/or opposition to the corridor alternatives, respondents also provided details on reasons associated for their preference and/or opposition. Selected categories of the most frequently provided reasons are summarized, by state, in **Table 2.1**.

Table 2.1 Public Comment Summary, by Issue

Statistic	Louisiana		Arkansas	
	No. of Responses	% of Responses	No. of Responses	% of Responses
Total Responses	463	--	89	--
Alignment				
Shortest Distance	54	11.7%	7	7.9%
Community				
Proximity to/ Connectivity to Town or Community	37	8.0%	15	16.9%
Benefits the Town/ Community or Parish	118	25.5%	21	23.6%
Environment				
(Fewest) Impacts	32	6.9%	6	6.7%
Economic				
Proximity to and benefits the business and industry in the corridor	50	10.8%	9	10.1%
Economic Development	60	13.0%	25	28.1%
Construction Cost / Cost Effectiveness	42	9.1%	3	3.4%
Transportation				
Diversion of Truck Traffic	27	5.8%	10	11.2%

Source: URS Corp., September 2003.

Table 2.1 illustrates that the most important concern of Louisiana respondents is the benefit of the project to their town, community and/or parish. Economic development, the shortest route, proximity to and benefits for businesses and industries in the corridor, and the construction cost comprise the other four of the top five issues of Louisiana respondents.

Economic development was the most important issue for Arkansas respondents, followed by benefits to the town, community or parish; proximity to and/or connectivity with towns and communities; diversion of truck traffic; and benefits for businesses and industries in the corridor.

Figures 2.1a through **2.6b** and **Table 2.1** illustrate the differing regional views of respondents.

The majority of the Agency comments pertain to the affected environment, potential regulatory issues and procedures and requests for additional detailed information when it becomes available, further along in the study. No specific ranking of the corridor alternatives were provided to the project team for consideration. However, Derek Hamilton of the USFWS's Lafayette Field Office and Elizabeth Guynes of the USACE, Vicksburg District provided verbal comments, questioning the comparative quality of the natural areas inside each of the five remaining corridors under consideration. It was emphasized by both entities that the quality and not only quantity of wetlands and natural habitat must be considered in the selection of the single 2-mile-wide corridor for detailed study in the EIS. Additionally, concern was also expressed by Phillip Hollis of the Vicksburg District, USACE, that Corridors 2a and 2b may require an alignment through the Kisatchie National Forest parcel east of the Bayou Dorcheat crossing for these corridors.

2.2 Coordination with Federally Recognized Tribes

Pursuant to 36 CFR 800 et seq. and Section 106 of the National Historic Preservation Act, the Federal Highway Administration has embarked on a continuing program of meaningful consultation with Indian Tribes who may consider archeological resources or landscapes within the Study Area to be of cultural or religious significance. Identification of tribes with which to consult was accomplished with guidance of the Arkansas SHPO (Ms. Cathie Matthews, SHPO, c/o Mr. Ken Grunewald and Mr. George McCluskey, Arkansas Historic Preservation Program) and the Louisiana SHPO (Ms. Laurel Wyckoff, SHPO (c/o Philip G. (Duke) Rivet, Division of Archaeology, Department of Culture, Recreation, and Tourism)).

Together with SHPO review and compliance staffs recommended consultation with the following federally recognized tribes:

- Mississippi Band of Choctaw Indians, Philadelphia, Mississippi (Mr. Ken Carleton, THPO)
- Choctaw Nation of Oklahoma, Durant, Oklahoma (Mr. Terry Cole, THPO)
- Jena Band of Choctaw, Jena, Louisiana (Mr. Arthur Fisher, Transportation Department)
- Chickasaw Nation, Ada, Oklahoma (Ms. Stephanie Seeley, THPO)
- Quapaw Tribe of Oklahoma, Quapaw, Oklahoma (Mrs. Carrie V. Wilson, NAGPRA Coordinator)
- Tunica-Biloxi Indians of Louisiana, Inc., Marksville, Louisiana (Mr. Earl J. Barbry, Jr., THPO)
- Alabama Coushatta Tribe of Texas, Livingston, Texas (Ms. Debbie Thomas, NAGPRA Coordinator)

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- Coushatta Tribe of Louisiana, Elton, Louisiana (Lovelin Poncho, Chairman)
- Caddo Nation, Binger, Oklahoma (Mr. Robert Cast, THPO, Mr. Bobby Gonzales, NAGPRA Coordinator)

Initial contacts have been made with all of the identified tribes and consultation with each sovereign nation is continuing as the planning process proceeds.

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3.0 SUPPLEMENTAL EVALUATION

3.1 Purpose of Field Reconnaissance

To help provide information on the comparative quality of the natural areas within each corridor, a reconnaissance was performed during September 22-26, 2003. The objective of this field effort was to evaluate the relative ecological sensitivities among and within the five established corridors. Secondary objectives included:

- gaining an overall impression of ecological conditions and context throughout the project Study Area, in the established corridors;
- determining if adequate opportunity exists to avoid Kisatchie National Forest land impacts along Corridors 2a and 2b;
- generally noting suitable habitat for federally-protected species at observation locations;
- noting salient changes in land cover that have occurred since the 1998 aerial infrared seamless image database (SID) maps were prepared; and
- obtaining intelligence to support logistics for anticipated detailed ecological field work (e.g., wetland delineations).

3.2 Method

Crossing paths of Bayou Dorcheat were traversed by water (boat) or foot. Standard note entries were made and representative photographs taken. Paths are designated *northern* (Corridor 1c), *middle* (Corridors 1d and 1e), and *southern* (Corridors 2a and 2b). Details of the methodology and results of the reconnaissance are included in **Appendix A** of this report. Reconnaissance field notes are included in **Appendix B**. Photographs of Bayou Dorcheat sampling stations are included in **Appendix C**, and **Appendix D** contains photographs from selected waterways other than Bayou Dorcheat traversed by the corridors under consideration. **Figures 3.1a, b, and c** (located at end of **Section 3**) indicate the final stations at which observations were obtained at the upper, middle and lower Bayou Dorcheat crossing paths and sampling stations, respectively.

In addition to evaluating the relative ecological sensitivity of the corridor alternative Bayou Dorcheat crossings, many of the larger streams to the east and northeast – at points within or near proposed corridor alternative crossing paths were likewise visited. Eighteen crossings of 15 streams, within or near the five established corridors, were observed. Anecdotal notes were recorded at each location, 14 of which were photographed. **Figure 3.2** illustrates the locations of these observations (located at end of **Section 3**).

3.3 Findings

3.3.1 Ecological Sensitivity of Stream Crossings

In general, the formal and anecdotal observations suggested that instream habitats along the lotic portions of Bayou Dorcheat, both within and between the corridor alternative crossing paths, are currently in good (if not excellent) condition. There were no overt indications of impaired water quality, and many anecdotal observations suggested the presence of diverse and healthy biological communities.

In general, the southern crossing path appears to offer the most sensitive ecological conditions and the middle path is the least sensitive. However, this is largely because the southern path seems to have proportionally “better” lotic habitats, even though such habitat is ephemeral in more than 30 percent of the path. That said, the southern path also has some of the least sensitive (i.e., relatively narrow and proportionally most disturbed) riparian habitat, especially when the areas along the lower half of the path are considered. About 25 acres of young pine plantation encroaches on the wedge of land between the railroad ROW and the western edge of swamp forest, and an estimated 64 acres of mature bottomland forest (mainly hardwoods) were being essentially clear-cut east of stations BDOL-5 through BDOL-8 during the reconnaissance.

Based on evaluation of the relative sensitivity inside of each corridor alternative, as detailed in **Appendix A**, the least sensitive habitats in the respective crossing paths appear to be in the vicinities of stations BDOU-6/7 (northern), BDOM-1 or BDOM-10 (middle), and BDOL-5 or BDOL-7 (southern). (See **Figure 3.1.**)

Many of the larger streams to the east and northeast of Bayou Dorcheat were also visited at points within or near proposed corridor alternative crossing paths. Anecdotal notes were recorded at each location. Crossing paths along Corridor 1d/2a east of Bayou Dorcheat appear likely to encounter less sensitive aquatic and riparian habitats than the path that swings east of Haynesville (1e/2b).

3.3.2 Avoidance Potential of Kisatchie National Forest Land

Another secondary objective of the reconnaissance was to determine if adequate open space exists for a 300-foot highway alignment inside Corridor 2a/b that would avoid impacts to the Kisatchie National Forest Tract north of Minden. Any 300-foot highway alignment in this corridor that would avoid this National Forest parcel would necessarily require several stream crossings, including Fiddler Creek, Flat Lick Bayou, and Canon Creek. All three are tributaries of Bayou Dorcheat; however, at the observation points they do not have the extensive riparian zone of bottomland hardwood forest. Channels are relatively small (<10 meters wide) and moderately to deeply incised. Riparian zones

are generally confined to the first few meters landward of the channels. Once Canon Creek, the northernmost of the three, is crossed, the land north of the forest is upland terrain with only a few scattered headwaters that appear to be intermittent.

3.3.3 Potential Effects to Federally-Protected Species

Bald Eagle. Bald eagles nesting foraging areas are typically associated with large, relatively “open” bodies of water. Along Bayou Dorcheat, many areas were noted along the lower third of the northern crossing path (BDOU-1 through BDOU-5) and the lower half of the middle path (BDOM-2 through BDOM-8) that might support bald eagle foraging and/or nesting. None of the other parts of Bayou Dorcheat, nor any of the areas observed to the east and north, appeared likely to support regular (if any) use by bald eagles.

Red-Cockaded Woodpecker. Red-cockaded woodpeckers (RCW) are colonial, cavity-nesting birds with relatively narrow habitat requirements. At least three areas of potential RCW habitat were observed during the explorations of stream crossings other than Bayou Dorcheat:

- Along LA Highway 161, beginning about a mile east of Gordon (Junction of LA Highway Alt 2 and LA 161); in Corridor 1e. [Claiborne Parish]
- Along a western extension of Union County Road 51, about 0.6 mile west of New Hope; approximate middle of Corridor 1e. [Union County]
- Along Hopewell Road west of AR Highway 172, near merger of Corridor 2a and 2b (but in the former). [Union County]

No suitable, or even potentially suitable RCW habitat was observed in the three crossing paths of Bayou Dorcheat’s riparian zone. Additionally, in the limited uplands traversed in search of stream crossings between LA Highway 3038 and Haynesville, there were not any extensive areas encountered with mature pine stands.

Black Bear. Recognized populations of the Louisiana black bear are confined to areas at least 100 miles to the east or southeast of the SIU 14 Study Area (USFWS 1995). However, free-ranging individuals are occasionally reported in various other parts of Louisiana and eastern Texas. Much of the mature bottomland forest associated with Bayou Dorcheat, Bayou D’Arbonne, and Black Bayou is similar to habitats now occupied by resident bear populations (including the recently re-introduced animals in West Feliciana Parish). Of particular interest in the reconnaissance were old cypress that would qualify as “candidate den trees” as defined in the special rule for the Louisiana black bear at 50 CFR 17.40(i)(2).

Figure 3.1a
Bayou Dorcheat Upper Crossing Path: Sampling Area 1
(Please download Figure 3-1a.pdf)

Figure 3.1b
Bayou Dorcheat Middle Crossing Path: Sampling Area 2
(Please download Figure 3-1b.pdf)

Figure 3.1c
Bayou Dorcheat Lower Crossing Path: Sampling Area 3
(Please download Figure 3-1c.pdf)

Figure 3.2
Observation Locations of Streams East of Bayou Dorcheat
(Please download Figure 3-2.pdf)

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4.0 CORRIDOR SELECTION

4.1 Initial Corridor Evaluation

Using the methodology outlined in **Figure 4.1** and described in *Corridor Evaluation* (URS, July 2003), the project team independently identified 31 preliminary 2-mile-wide corridors (i.e., Step No. 3), which was further refined to 10 representative corridors on which evaluation of a number of criteria was conducted.

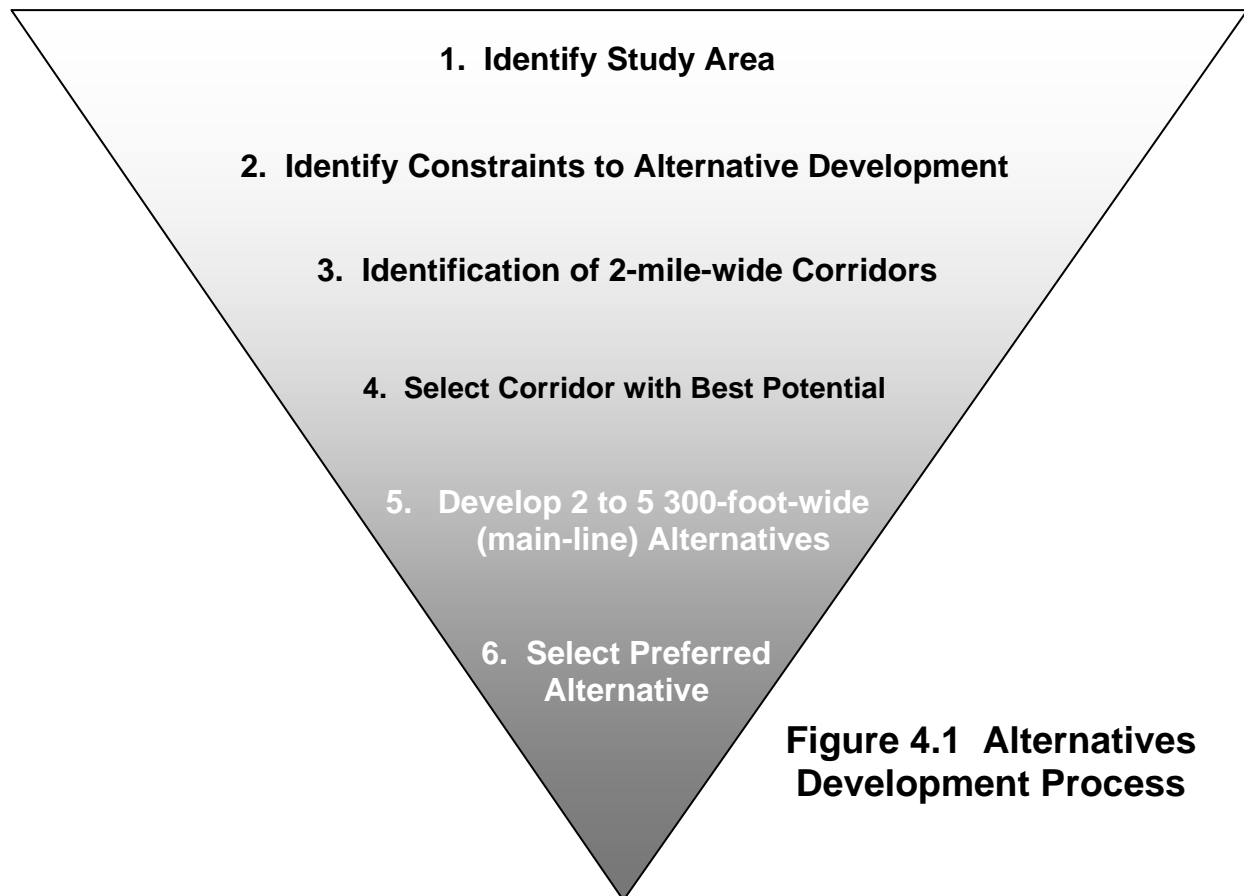


Table 4.1 displays the results of this evaluation for the five corridors retained for further consideration. Definitions of each criterion are available in *Corridor Evaluation* (URS, July 2003). The task at hand is Step No. 4 of **Figure 4.1**, i.e., selecting the corridor with the greatest potential to yield the overall least environmentally damaging, practicable alternative that meets the intended purpose and need for the project.

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**Table 4.1
Preliminary Evaluation Summary**

Criteria Category and Sub-Category	Criterion Measure ID	Evaluation Measure	Lesser is Better?	GIS Query Units	Corridor Query Results					
					1c	1d	1e	2a	2b	
Purpose and Need Considerations										
Travel Efficiency	1a	Daily Vehicle Miles Traveled (VMT) Reduction in Study Area	N	Miles	28,303	42,418	38,718	66,967	75,611	
	1b	Daily Vehicle Hours Traveled (VHT) Reduction in Study Area	N	Hours	1,984	2,221	2,168	2,597	2,734	
	1c	Daily Vehicle Operating Cost (VOC) Reduction in Study Area	N	Dollars	3,708	5,557	5,072	8,773	9,905	
	1d	Access to Population within 20-mile radii of assumed interchanges	N	Count	134,801	134,577	151,785	154,184	149,886	
Travel Safety	2a	Total Annual Accidents Prevented in Study Area	N	Count	196	205	204	218	224	
	2b	Daily Trucks Diverted in Study Area	N	Count	4,400	4,400	4,400	4,300	4,300	
	2c	Annual Truck Accidents Prevented in Study Area	N	Count	5	6	6	7	7	
Economic Development	3a	Undeveloped uplands inside Rural Redevelopment Zone (RRZ) not currently within 20 mi of Interstate route	N	Acres	47,494	47,420	49,383	47,494	49,383	
	3b	Undeveloped uplands outside RRZ not currently within 20 mi of Interstate route	N	Acres	137,677	130,960	121,639	128,410	113,850	
	3c	Total Businesses within 20-mile radii of assumed interchanges	N	Count	1,687	1,681	1,527	1,672	1,503	
	3d	Employees within 20-mile radii of assumed interchanges	N	Count	97,670	97,615	87,725	97,185	86,985	
	3e	Unemployed within 20-mile radii of assumed interchanges		Count	12,865	12,849	12,605	12,792	12,500	
	3f	Employed within 20-mile radii of assumed interchanges		Count	153,876	153,684	150,671	153,298	149,449	
3g	Unemployed/Employed within 20-mile radii of assumed interchanges	N	Count	0.09123	0.09123	0.09130	0.09104	0.09127		
Environmental Considerations										
Wetlands	4	Wetlands inside 2-mile-wide Corridor	Y	Acres	11,418	10,076	11,803	12,685	13,429	
Scenic Streams	5	Scenic Stream Crossings along Corridor Centerline	Y	Count	1	1	2	1	2	
Threatened & Endangered Species	6	Threatened & Endangered Species Records- 0.5-mile buffer intersections with 2-mile-wide Corridor	Y	Count	2	3	7	3	6	
Cultural Resources	7a	Archeological Sites inside 2-mile-wide Corridor	NRHP or Eligible Archeological Points	Y	Count	3	1	1	1	1
	7b		NRHP or Eligible Archeological Areas	Y	Count	0	0	0	0	0
	7c		Unknown NRHP Eligibility Archeological Points	Y	Count	16	16	16	17	14
	7d		Unknown NRHP Eligibility Archeological Areas	Y	Count	1	2	0	1	1
	7e	Architectural Resources inside 2-mile-wide Corridor	NRHP or Eligible Architectural Points	Y	Count	0	0	1	0	1
	7f		NRHP or Eligible Architectural Areas	Y	Count	0	0	0	0	0
	7g		Unknown NRHP Eligibility Architectural Points	Y	Count	21	23	12	22	21
	7h		Unknown NRHP Eligibility Architectural Areas	Y	Count	0	0	0	0	0
	7i		Predicted Unrecorded Archeological Site Potential of Corridor acreage	Y	NA*	91	89	84	85	79

**CORRIDOR SELECTION REPORT
TECHNICAL MEMORANDUM**

**Table 4.1
Preliminary Evaluation Summary**

Criteria Category and Sub-Category	Criterion Measure ID	Evaluation Measure	Lesser is Better?	GIS Query Units	Corridor Query Results				
					1c	1d	1e	2a	2b
Federal and State Lands and Recreational Areas	8a	Wildlife Management Areas & Other Federal/State Land acreage inside 2-mile-wide Corridor	Y	Acres	670	623	623	3,656	3,278
	8b	Public Parklands inside 2-mile-wide Corridor	Y	Count	0	0	0	0	0
	8c		Y	Count	0	0	0	0	0
	8d	Recreational Areas inside 2-mile-wide Corridor	Y	Count	0	0	0	0	0
Cost Considerations									
Total Length	9	Constructed Length of Alignment - along Corridor Centerline	Y	Miles	65.9	62.6	63.3	60.4	59.7
Bridge Length	10	Bridges Spanning Wetlands/Navigable Waters - assumed along Corridor Centerline	Y	Feet	39,503	34,747	45,140	44,363	44,367
Crossings	11a	Railroad Crossings along Corridor Centerline	Y	Count	3	3	3	3	3
	11b	Non-navigable Waterway Crossings along Corridor Centerline	Y	Count	15	17	10	18	9
	11c	Roadway Crossings along Corridor Centerline	Y	Count	20	19	17	18	17
Other Considerations									
Industrial Facilities	12a	Businesses inside 2-mile-wide Corridor	Y	Count	9	10	16	5	15
	12b	Landfill Sites inside 2-mile-wide Corridor	Y	Count	0	0	0	0	0
	12c	CERCLA Sites 0.5-mile buffer intersections with 2-mile-wide Corridor	Y	Count	0	0	0	1	1
	12d	Active Oil Well Sites inside 2-mile-wide Corridor	Y	Count	204	166	157	67	54
	12e	Lignite mines 0.25-mile buffer intersections with 2-mile-wide Corridor	Y	Count	4	2	0	4	0
Community Facilities	13a	Schools inside 2-mile-wide Corridor	Y	Count	6	4	3	6	6
	13b	Cemeteries inside 2-mile-wide Corridor	Y	Count	14	18	23	19	25
	13c	Churches inside 2-mile-wide Corridor	Y	Count	11	11	13	19	21
	13d	Hospitals inside 2-mile-wide Corridor	Y	Count	0	0	0	0	0
	13e	Correctional Institutions inside 2-mile-wide Corridor	Y	Count	0	0	0	1	1
	13f	Airports inside 2-mile-wide Corridor	Y	Count	0	0	0	0	0
	13g	Towers inside 2-mile-wide Corridor	Y	Count	4	3	0	4	1
Residential Inventory	14	Households within 2-mile-wide Corridor	Y	Count	591	513	508	464	469
Environmental Justice	15a	Low Income Households % difference from Study Area	Y	NA*	-4.1%	16.1%	-2.3%	0.4%	-3.1%
	15b	Non-White Population % difference from Study Area	Y	NA*	-24.9%	-14.7%	-17.9%	-7.9%	-13.4%
	15c	Age 65+ Population % difference from Study Area	Y	NA*	-1.7%	-1.3%	-3.0%	-1.8%	-3.1%
Miscellaneous	16	Sparta Aquifer Recharge Zone Acreage inside 2-mile-wide Corridor	Y	Acres	0	0	0	166	166



Based on the preliminary evaluation summarized above and detailed in *Corridor Evaluation*, the following facts can be gleaned about the five remaining 2-mile-wide corridors (i.e., Corridors 1c, 1d, 1e, 2a, and 2b):

- All five corridors meet the national purpose and need for the project;
- All five corridors appear to have relatively equal potential to meet the local purpose and need objectives of the project;
- Corridors 1e and 2b require crossings of two scenic streams, where other corridors require crossing of only one;
- Corridors 1e and 2b, intersect the most 0.5-mile buffers around recorded sitings of federally-protected flora and fauna species;
- Corridor 1d appears to have the potential to adversely affect the fewest wetland acres;
- All five corridors appear to have relatively equal potential to yield encounters with unrecorded archaeological sites;
- Corridor 2a/b encompasses land designated as National Forests; however, field reconnaissance suggests that adequate room exists to avoid these lands; and
- Based on average unit costs, Corridors 1c and 1d have the lowest likely construction costs.²

4.2 Public and Agency Comments

As summarized in **Section 2** of this report, most comments received from the public are regional in nature, reflecting local desires for the proposed corridor alternative to be located in close proximity of respondents. While expected, such comments were of marginal use in evaluating the potential relative public benefits of the five corridors under consideration. Several useful facts were revealed in the comments received from the public. Among these are as follows:

- Economic development was noted throughout the Study Area as the most important regional need;
- A more direct route is desired due to perceived cost efficiency and travel time savings; and
- An alignment north of Haynesville (i.e., Corridors 1c, 1d, or 2a) would capture hazardous materials prior to entering Haynesville, effecting safety benefits.

Additionally, most agency comments provided only general guidance and data without preference for a specific 2-mile-wide corridor. Agency comments germane to the selection of a single 2-mile-wide corridor to retain for detailed study include:

² Average unit costs are \$3 million per mile and \$10,000 per foot for 4-lane interstate roadway and 4-lane bridging, respectively.

- Quality of affected natural areas, not just quantity, should be important influencing factors on the corridor selection;
- Minimization of adverse effects to the Bayou Dorcheat system should be considered in the selection of the corridor; and
- Potential to avoid the Kisatchie National Forest lands should be considered in the corridor selection.

4.3 Supplemental Evaluation

Supplemental information found by the field work conducted in September 2003 revealed several important facts, as well. These are as follows:

- Undisturbed natural areas in all corridors are in good condition;
- Clear-cutting/timber harvesting and infrastructural rights of way were the dominant perturbations observed;
- Most uplands are in some stage of timber management;
- Bayou Dorcheat is a substantial resource to which adverse effects must be avoided where possible and minimized where unavoidable;
- The middle Bayou Dorcheat Crossing (i.e., for Alternatives 1d and 1e) appears to have the greatest potential for 300-foot-wide alignment crossings in the least environmentally sensitive areas;
- The lower Bayou Dorcheat Crossing is considered the most environmentally sensitive crossing of the three investigated (i.e., upper, middle, and lower), and the southern portion of this crossing (i.e., for Corridors 2a and 2b) is the least sensitive area of the lower Bayou Dorcheat crossing;
- North of Haynesville Corridors 1c, 1d, and 2a appear to traverse less sensitive aquatic and riparian habitats than Corridors 1e and 2b;
- While Group 2 Corridors encompass land designated as National Forests, field reconnaissance suggests that adequate room inside of Corridors 2a and 2b exist to avoid these lands;
- Open reaches of the southern third of the upper and the lower half of the middle Bayou Dorcheat crossings appear to be potentially suitable foraging and/or nesting habitat for the federally threatened bald eagle (*Haliaeetus leucocephalus*);
- Two locations along Corridor 1e and one location along Corridor 2a were noted to have potentially suitable habitat for the federally endangered red cockaded woodpecker (*Picoides borealis*); and
- Much mature bottomland forest associated with Bayou Dorcheat, Bayou D'Arbonne, and Black Bayou is suitable Louisiana black bear (*U. americanus luteolus*) habitat, and some old cypress in these regions could qualify as "candidate den trees" per 50 CFR 17.40(i)(2).

4.4 Synthesis of Information

Synthesis of the initial evaluation, public and agency comments, and reconnaissance data yields the following conclusions:

- Because Corridors 1c, 1d, and 2a have the benefit of capturing southbound commercial vehicle operations on US 79 prior to entering Haynesville; and these corridors appear to be in an area of less ecological sensitivity than Corridors 1e and 2b, Corridors 1e and 2b are recommended to be omitted from further consideration;
- Because the middle Bayou Dorcheat Crossing (i.e., Alternatives 1d and 1e) appears to have the greatest potential for crossings in comparatively the least environmentally sensitive areas; and neither the upper or lower Bayou Dorcheat crossings appear to have substantial relative benefits over the middle Bayou Dorcheat crossing, both the upper and lower Bayou Dorcheat crossings are recommended to be omitted from further consideration;
- Corridor 1d appears to have the most opportunity for alignments through areas considered to be the least sensitive riparian zones;
- Corridor 1d appears to have the best potential to adversely affect the fewest wetland acres;
- Corridor 1d has the best potential to yield reasonable and *practicable* costs because it has the fewest cost-impacting constraints; and
- Corridors 1c, 1d, and 2a extend further north than Corridors 1e and 2b, providing better access to the more remote northern Louisiana and southern Arkansas regions of the Study Area in need of economic stimulation.

5.0 PROPOSED CORRIDOR

Based upon the evaluation chronicled herein, Corridor 1d (see **Figure 5.1**) is proposed as the single 2-mile-wide corridor for detailed study in the EIS for this project for the following reasons:

1. **It has the best potential to yield the overall least environmentally damaging 300-foot-wide interstate highway alignment.** It was viewed as the overall best corridor in the preliminary evaluation conducted prior to the August 2003 public and agency involvement efforts. Factors evaluated in this preliminary evaluation are listed in **Table 4.1** and include:
 - estimated number of businesses and population inside each corridor;
 - wetland acreage inside each corridor;
 - required number of scenic stream crossings for each corridor;
 - corridor proximity to recorded sitings of federally-protected species;
 - corridor proximity to recorded cultural resources sites;
 - potential for encounters for unrecorded cultural resource sites;
 - effects to the Sparta Aquifer recharge

Reconnaissance in September 2003 confirmed that its alignment is the least ecologically sensitive with respect to parameters evaluated in the September 2003 reconnaissance. Based on these facts, Corridor 1d is the overall “environmentally preferred” alternative.

2. **It has the best potential to yield reasonable and *practicable* costs** because it has the fewest cost-impacting constraints. Cost impacting constraints identified for consideration in the Corridor Selection include overall total corridor length, length of bridged sections, number of anticipated interchanges, and overpasses and other structures.
3. **It has the best potential for both public and agency support.** Of all five corridors under consideration, it is the most consistent with both public and agency concerns related to overall economic development, natural environment effects, and hazardous materials shipments.

Color infrared aerial imagery dated 1998 for Corridor 1d is displayed in **Figures 5.2a** through **5.2h** along with relevant data that provide other details of the corridor.

Figure 5.1
Corridor 1d
(Please download Figure 5-1.pdf)

Figure 5.2a
Proposed Corridor – Map 1 of 8
(Please download Figure 5-2a.pdf)

Figure 5.2b
Proposed Corridor – Map 2 of 8
(Please download Figure 5-2b.pdf)

Figure 5.2c
Proposed Corridor – Map 3 of 8
(Please download Figure 5-2c.pdf)

Figure 5.2d
Proposed Corridor – Map 4 of 8
(Please download Figure 5-2d.pdf)

Figure 5.2e
Proposed Corridor – Map 5 of 8
(Please download Figure 5-2e.pdf)

Figure 5.2f
Proposed Corridor – Map 6 of 8
(Please download Figure 5-2f.pdf)

Figure 5.2g
Proposed Corridor – Map 7 of 8
(Please download Figure 5-2g.pdf)

Figure 5.2h
Proposed Corridor – Map 8 of 8
(Please download Figure 5-2h.pdf)

6.0 NEXT STEP IN ALTERNATIVES DEVELOPMENT PROCESS

6.1 Development of 300-Foot-Wide Draft EIS Alternatives

Once concurrence that Corridor 1d is the best corridor for detailed study in the EIS is gained by the resource agencies, Corridor 1d will be advanced to more detailed alternatives evaluation in the Draft EIS. The process of developing the alternative 300-foot-wide alignments will be similar to that employed for development of the corridors; however, maximum horizontal curvature, maximum grade, bridge type and span, and other engineering constraints will be of primary importance in alternatives development. Alternatives will be conceptually designed on a CAD platform, with selected important GIS constraints layers exported to CAD for this purpose. Quality control reviews on the CAD base mapping will be conducted prior to alternatives' conceptual design activities to insure that all consideration layers needed for evaluation have been imported, and that projection and placement of features are accurate. Amelioration of alternatives' alignments will be conducted to the extent practicable by maximizing offsets from noise-sensitive sites, minimizing aerial impacts to sensitive areas, and similar. Reasonable engineering design options will also be employed to minimize such adverse effects once alignments have been ameliorated to the extent practicable.

Resulting alternatives will be evaluated in detail in the Draft EIS. Evaluations will include objective GIS queries, subjective evaluations, field review, design and cost evaluations, and public and agency comments.

6.2 Preferred Alternative and Final EIS

Following the Draft EIS public and agency commenting period, a Preferred Alternative (PA) will be identified. The selection of the PA will consider environmental, engineering, and socio-economic issues; and public and agency comments. The PA will be the alternative that best balances the transportation benefits of the project with the sensitive nature of the Study Area's environment. Specifically, it will be the 300-foot-wide highway alignment deemed by the FHWA to meet the project's purpose and needs and provide the most reasonable balance of project benefits and adverse effects.

This PA and the subjective discussion explaining how the PA was selected will be presented to the resource agencies for concurrence in a meeting. Following receipt of resource agency concurrence on the PA, the Final EIS will be prepared. Effects of the PA will be discussed along with the basis for the decision.

6.3 Record of Decision and Completion of Study

Responses to remaining agency comments on the Final EIS will be included in the Record of Decision (ROD). The ROD will identify the selected alternative that meets the regional transportation needs and desires and fulfills project objectives. The selected alternative can be either the environmentally preferred alternative, the locally preferred alternative, or both. Alternatively, the “No-Action,” or “No-Build,” Alternative could be proposed. This ROD will also include details on mitigation measures that will be incorporated into the PA to make the alternative acceptable to the public, resource agencies, and the FHWA.

7.0 REFERENCES⁴

- URS. 2003. *Scoping Report*. I-69 Corridor Shreveport to El Dorado. Technical Memorandum. Developed by URS Corporation, Metairie, Louisiana. May.
- URS. 2003. *Purpose and Need*. I-69 Corridor Shreveport to El Dorado. Technical Memorandum. Developed by URS Corporation, Metairie, Louisiana. June.
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- USFWS. 1995. Recovery Plan, Louisiana Black Bear (*Ursus americanus luteolus*). United States Department of the Interior, Fish and Wildlife Service. Jackson, Mississippi.

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