

Chapter 1

Purpose and Need

1.1 Description of Proposed Action

The Mississippi Department of Transportation (MDOT) and the Federal Highway Administration (FHWA) are proposing to construct a multi-lane, interstate highway of approximately 120 miles that travels in a southwest-northeast direction from southwest of Benoit near State Route 1 (SR 1) in Bolivar County to east of Robinsonville near SR 304 in Tunica County, Mississippi. The project, located in several Mississippi Delta counties in the northwest part of the state, is identified as Section of Independent Utility Number 11 (SIU 11) of the national Interstate 69 (I-69) corridor (see **Figure 1-1**). This Final Environmental Impact Statement (FEIS) documents the need for constructing the 120-mile corridor. Alternatives were developed to respond to the social, economic, and environmental consequences. In order to respond adequately to the environmental, engineering, and planning issues associated with the Preferred Alternative for SIU 11 of the national I-69 corridor and to evaluate the impacts of the Preferred Alternative, this FEIS was prepared.

1.2 Study Area Description

1.2.1 Location

Most of Tunica, Coahoma, and Bolivar Counties are contained in the study area. In addition, the northwest portion of Sunflower County also is in the study area. The study area (see **Figure 1-2**) is located east of the Mississippi River Levee; south of SR 304; west of US 49 West and SR 3; and north of SR 442 and SR 448.

Sunflower County is located within the study area, but does not contain any municipalities inside the study area. Within the remainder of the study, Tunica County has one municipality, Coahoma County has six, and Bolivar County has fourteen. Based on data from the 2000 Census, the population is 1,132 for the Town of Tunica in Tunica County. The City of Clarksdale (with a

population of 20,645) is the largest municipality in Coahoma County; and the City of Cleveland (with a population of 13,841) is the largest municipality in Bolivar County. The population of the second largest municipality in Coahoma County is 1,467 for the Town of Jonestown; and the population for the second largest municipality in Bolivar County is 2,595 for the City of Rosedale. The cities of Clarksdale and Cleveland have substantially more population than other municipalities in this primarily rural study area.

1.2.2 Topography

Because the study area is located within the Lower Mississippi River Delta, the topography of the land is primarily flat. Levees have been constructed along the Mississippi River. The levees are earthen structures with a steeper slope on the river side than on the land side and were built to control flooding. Little topographical change occurs within the study area. Any undulation or minor topographical changes in the study area are a result of the Mississippi River meandering over geologic time, leaving depositional and erosional remnants.



1.2.3 Land Use

In general, most of the land in the study area is rural. Agricultural activity is the predominant land use. The land is farmed for cotton, rice, soybeans, or converted into ponds for aquaculture. In the rural environment, most of the uncultivated land is in low areas around lakes and streams. US 61 is the primary north-south corridor through the study area. The majority of the cities, as

well as commercial and industrial activity, are located along US 61 or near other modes of transportation, including existing county airports or railroad lines. From the south, the primary urban areas are Cleveland in Bolivar County, Clarksdale in Coahoma County, and Tunica in Tunica County. These cities as well as smaller municipalities are located along US 61.

1.3 Project Purpose and Need

1.3.1 History and Purpose

The I-69 Corridor has been defined by the United States Congress to commence in Port Huron, Michigan/Sarnia, Ontario, Canada and terminate in the Lower Rio Grande Valley (LRGV) in Texas at the United States/Mexico border, a distance of over 1,600 miles.

This I-69 Corridor, which was originally known as Corridor 18, was designated by Congress as a High Priority Corridor of National Significance in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). It was further defined and formalized in the National Highway System Designation Act of 1995, the Transportation Equity Act for the 21st Century (TEA-21), and the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The I-69 Corridor has been identified to address the transportation needs associated with the anticipated increase in the movement of goods between the United States, Mexico, and Canada, partners in the North American Free Trade Agreement (NAFTA) of 1992. The I-69 Corridor has been designated as high priority for planning studies and eventual construction. Once complete, this corridor would provide for the national economic interests, enhance local economic development opportunities along and near the corridor, and provide an improved system of transportation for both routine travel and emergency travel in the event of a national crisis.

The I-69 Steering Committee adopted the following statement of overall purpose:

- To improve international and interstate trade in accordance with national and state goals;
- To facilitate economic development in accordance with state, regional, and local policies and plans; and
- To improve surface transportation consistent with national, state, regional, and local needs, and with the congressional designation of the corridor.

Based on the general location of the I-69 Corridor, the Steering Committee also developed the following overall goals:

Goal 1: To improve international and interstate movement of freight and people by ensuring a safe transportation system that is accessible, integrated, and efficient while offering flexibility of transportation choices in mid-America.

Goal 2: To enhance the regional and local transportation systems by providing transportation capacity to meet current and future needs.

Goal 3: To facilitate economic development and enhance economic growth opportunities domestically and internationally through efficient and flexible transportation with particular emphasis being given to economic growth in the Lower Mississippi Delta Region.

Goal 4: To facilitate connections to intermodal facilities and major ports along the corridor.

Goal 5: To facilitate the safe and efficient movement of persons and goods by fostering a reduction in incident risk.

Goal 6: To upgrade existing facilities to be utilized as I-69 within the corridor to design standards suitable for Interstate highway and commensurate with the projected demand.

Goal 7: To directly connect the urban areas named by Congress (the “named cities” of Indianapolis, Evansville, Memphis, Shreveport/Bossier City, and Houston and the Lower Rio Grande).

I-69 also is a key transportation recommendation of the Delta Initiatives, which is aimed at the revitalization and economic development of the Lower Mississippi Delta. The Lower Mississippi Delta is composed of portions of seven states bound together through their location along the Mississippi River. Those seven states are Illinois, Missouri, Kentucky, Tennessee, Arkansas, Louisiana, and Mississippi. This Lower Mississippi Delta region has long been considered one of the poorest regions in the nation, and the Mississippi Delta counties contained within SIU 11 are located in the heart of the Lower Mississippi Delta.

With a total length of over 1,600 miles, the added sections for the I-69 Corridor would require a long construction period. This length precludes development of the full corridor as a single construction project. Further, the types of work to be undertaken vary from location to location. The practical approach is to undertake a series of projects in sections, which all fit into and are consistent with the overall purpose and need for I-69. Accordingly, the entire corridor was broken down into viable sections of sufficient length to address environmental issues on a broad scope. The sections must have independent utility or independent significance, which provides each section the ability to be used without additional future transportation improvements in the area. The sections also must not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. Each of these sections is referred to as a Section of Independent Utility, or a SIU.

The I-69 Corridor in Mississippi is divided into the following four SIUs.

- SIU 9 begins in Tennessee north of Memphis near Millington and ends in De Soto County, Mississippi at the new I-55/SR 304 interchange. A draft environmental impact statement (DEIS) has been completed for this segment and has been through the Public Hearing. The final environmental impact statement (FEIS) is being prepared.
- SIU 10 includes the relocated section of SR 304 in De Soto County between I-55 and US 61, as well as a spur that intersects the existing section of SR 304 east of Robinsonville in Tunica County. SIU 10 has been approved as part of the I-69 Corridor and is presently under construction.
- SIU 11 begins at the new spur with existing SR 304 east of Robinsonville in Tunica County and ends at SR 1 near Benoit in Bolivar County.
- SIU 12 begins at SR 1 near Benoit in Bolivar County and proceeds to the southwest across the Mississippi River along the alignment of the Great River Bridge project into Arkansas and ends near McGehee, Arkansas. A final environmental impact statement (FEIS) has been completed for SIU 12 and the ROD has been issued.

The general purpose of the SIU 11 project is to provide a safe, efficient, and cost effective interstate/freeway transportation facility that would meet design year traffic flow and promote economic development within the Mississippi Delta region of Mississippi. This project has logical termini consisting of a northern connection to SIU 10 and a southern connection to SIU 12.

1.3.2 Project Status

In response to the ISTEA of 1991, several studies were made to give form to the I-69 authorizing legislation. Those studies included the 1995 Corridor 18 Feasibility Study, the 1996 Corridor 20 Feasibility Study, and the 1997 Corridor 18 Special Issues Study. After ISTEA and TEA-21, additional studies were made to refine planning efforts. These additional studies included a 1999 report on SIUs and a February 2000 report on purpose and need. The additional studies also included a study of the SR 304 corridor in Mississippi, which eventually became SIU 10.

The statement of purpose and need for the I-69 Corridor identified benefits to the nation that have been shown to outweigh the costs of providing the transportation facility. These benefits are related to system linkage, capacity, transportation demand, economic development, modal/freight interrelationships, safety, and roadway deficiencies. Studies considering alternative means of transportation have shown that an Interstate highway facility will best meet the needs as identified. Completed planning and feasibility studies for I-69 verified that it qualified for additional study.

The 32 SIUs that encompass the I-69 Corridor were developed in a manner consistent with FHWA's procedures for establishing logical termini and independent utility. FHWA approval was then granted for the states to advance the SIUs to the stages of project planning, development, and the FHWA National Environmental Policy Act (NEPA) decision-making process. The SIUs will be studied by the state(s) contained within the SIUs, addressing state and local needs, schedules, and funding constraints in accordance with the NEPA process.

Interagency workshops and briefings have been conducted. The primary mechanism for working with the resource agencies has been through the Southeast Natural Resource Leaders Group (SENRLG) and its counterparts in Dallas, Texas, and Chicago, Illinois. SENRLG, which will continue to serve as an advisory group to I-69 decision makers, is a collaboration of regional and federal executives who lead agencies with natural resources as part of their mission.

There have been many public involvement activities and opportunities throughout the I-69 Corridor development process. During the planning and feasibility study stages, a series of public meetings were held in Memphis, Tennessee. On November 7, 1994, a meeting was held to receive suggestions and comments. Another meeting was held on September 25, 1995, to discuss

the results of the feasibility study. A meeting was held on August 29, 1996, to receive suggestions and comments. On May 28, 1997, a meeting was held to discuss the results of the Special Issues Study.

A number of advocacy groups were involved during corridor studies. Additionally, ten Metropolitan Planning Organizations (MPOs) have been involved in the planning for I-69, and more opportunities for public involvement will continue throughout the process. Currently, state-specific studies are being conducted in accordance with each state's public involvement process.

1.3.3 System Linkage

SIU 9 will determine the routing of I-69 through or around Memphis, Tennessee. SIU 10 has already been determined as the relocated section of SR 304 under construction in De Soto County, Mississippi between I-55 and US 61, and its spur that connects to the south to existing SR 304 in Tunica County (see **Figure 3-8**). The study on SIU 12 begins at SR 1 near Benoit in Bolivar County, Mississippi and proceeds to the southwest across the Mississippi River into Arkansas and ends near McGehee, Arkansas. The approximately 120-mile study of SIU 11 will connect SIU 10 with SIU 12 and will compose the majority of mileage for I-69 in Mississippi. Since Memphis, Tennessee and Shreveport, Louisiana are two of the federally-mandated cities that I-69 would serve, the SIU 11 study is vital to the I-69 Corridor in providing an efficient link between Memphis and Shreveport.

The surface transportation network within the study area of SIU 11 consists of a combination of U.S. highways, state highways, city streets, and county roads in a primarily rural setting. This road network, connecting to and surrounding the location of the proposed project, provides good levels of service to local traffic. These existing highways and county roads generally follow a north-south or east-west direction. SIU 11 of I-69 would provide a new north-south interstate highway, with a small amount of east-west movement, over its approximate 120 miles between SIU 10 and SIU 12. With its northeast to southwest diagonal tracking path, this new interstate highway would provide a new corridor and cross a number of major north-south and east-west highways and county roads. At these major crossings, interchanges would be provided to access the intersecting routes and the traffic generators these intersecting routes serve. Due to its diagonal path and the connections it would provide to the existing transportation system, this section of I-69 would improve the existing surface transportation network.

Three US highways—US 61, US 278/SR 6, and US 49—are located in the study area. US 61 serves communities, towns, and cities such as Jonestown, Robinsonville and Tunica in Tunica County; Lula, Rich, Coahoma, Lyon, and Clarksdale in Coahoma County; and Alligator, Duncan, Shelby, Winstonville, Mound Bayou, Merigold, Cleveland, and Boyle in Bolivar County. The MDOT has either four-laned or is in the process of four-laning the entire section of US 61 within the study area. US 278/SR 6 enters into Mississippi concurrent with US 82 near Greenville, which is south of the study area. US 278/SR 6 then exits US 82 and becomes concurrent with US 61 at Leland, which is roughly 10 miles east of Greenville. US 278/SR 6 and US 61 then separate in the study area at Clarksdale, where US 278/SR 6 become concurrent with SR 6 and resume its east-west orientation. Within the study area, the overlapping section of US 278/SR 6 and US 61 connects the cities of Cleveland and Clarksdale. US 49 crosses the Mississippi River approximately five miles west of Lula and runs south along the alignment of US 61. At Clarksdale, US 49 separates from US 61 and moves southeast out of the study area. Within the study area US 49 joins Lula, Rich, Coahoma, Jonestown, and Lyon with the city of Clarksdale.

Nine state highways are located in the study area. SR 1 (also called the Great River Road) runs south to north along the western edge of the study area. It begins outside the study area at Onward in the central part of the state, enters the study area south of Benoit in Bolivar County, and leaves the study area at US 49 in Coahoma County. Within the study area, SR 1 serves communities, towns, and cities such as Benoit, Beulah, Rosedale, and Gunnison in Bolivar County; and Rena Lara, Sherard, Stovall, and Friars Point in Coahoma County. SR 8 begins at the intersection with SR 1 at Rosedale in Bolivar County and extends east through the town of Pace and the city of Cleveland. After exiting Cleveland, SR 8 continues east into Sunflower County and then out of the study area. Other west to east state highways within the study area—such as SR 446, SR 32, and SR 444 in Bolivar County; SR 322 and SR 316 in Coahoma County; and SR 4 and SR 304 in Tunica County—serve communities, towns, or cities such as Skene, Benoit, Shelby, and Duncan in Bolivar County; Sherard and Jonestown in Coahoma County; and Tunica and Robinsonville in Tunica County.

Each of the counties contains a network of county roads. The major county roads are graveled or paved and follow a north-south, east-west grid pattern corresponding to section lines.

1.3.4 Transportation Demand

One of the purposes of the I-69 corridor is to support international and domestic trade related traffic. Memphis is a major distribution center and Shreveport is one of the cities mandated by legislation for the location of I-69. With construction of the I-69 Great River Bridge (SIU 12) near Benoit, Mississippi, it is estimated that the cumulative daily traffic on SIU 11 in the 2030 Design Year will range from 18,000 to more than 50,000 vehicles. Truck traffic is expected to account for as much as 30% of the daily volume on some segments, as many as 10,400 trucks per day. The traffic demand data reported herein was obtained or derived from the traffic studies conducted for the national I-69 corridor and for the two adjacent segments (SIUs 10 and 12), as well as from discussions with MDOT Planning Division.¹

Level of Service (LOS) is a measure describing operating conditions on a roadway segment or at an intersection. Six levels are defined using the letters A to F, with A representing the least congested condition and F the most congested. Generally, LOS D for urban areas and LOS C for rural areas are the minimum acceptable LOS during peak periods, with LOS E and F indicating failing or near-failing conditions. While there are many roadway and traffic characteristics that affect the LOS for a given segment, it is possible to approximate volume intervals for each LOS on a roadway such as I-69 on both rural and urban segments. Most of SIU 11 is characterized as rural; however, in the immediate vicinity of Cleveland, Clarksdale, and the gaming area in northern Tunica County, the interstate would exhibit more urban operational characteristics. Volume thresholds for a given LOS on an urban interstate segment are about 25% higher than those for a rural segment. **Tables 1-1** and **1-2** show volume thresholds for rural and urban LOS, respectively. It must be noted that **Tables 1-1** and **1-2** reflect nominal volume-LOS relationships, not hard and fast values. Precise LOS calculations require consideration of all parameters for the analysis segment, including truck percentages, driver population factors, peak-hour factors, etc.

¹ 1. *Corridor 18 Feasibility Study*, 1995. Wilbur Smith Associates, and HNTB Corporation.
2. *Draft Environmental Impact Statement for SIU 12 of the I-69 Corridor*. July 29, 2002.
3. *MDOT Environmental Assessment for SR 304 Between US 61 and I-55 in DeSoto County and Tunica County, Mississippi*, approved June 3, 1996.
4. *Approved Re-Evaluation of MDOT Environmental Assessment for SR 304 Between US 61 and I-55 in DeSoto County and Tunica County, Mississippi*. The re-evaluation redesignated a portion of this section of SR 304 for I-69. November 22, 2000.

Table 1-1 ADT Volumes for Rural Segments Within the Study Area	
Level of Service	Daily Volume
A	< 18,200
B	18,200 – 31,800
C	31,800 – 45,500
D	> 45,500

Source: Neel-Schaffer, Inc., 2003.

Table 1-2 ADT Volumes for Segments in North Tunica County, Cleveland, Clarksdale	
Level of Service	Daily Volume
A	< 23,600
B	23,600 – 38,200
C	38,200 – 58,200
D	> 58,200

Source: Neel-Schaffer, Inc., 2003.

The cities of Greenville, Cleveland, Clarksdale, and Tunica—along with the river ports at Greenville and Rosedale—presently generate a substantial amount of truck traffic from within and outside Mississippi; and SIU 11 would be expected to increase the amount of truck traffic to these generators. The casinos and development near the casinos at Robinsonville in Tunica County have made this gaming area the third largest in the nation, trailing only Las Vegas and Atlantic City. The Robinsonville area has become a major one-day traffic generator and a major tourist attraction for Mississippi.

The MDOT adopted its updated four-lane program on November 27, 2001. That program is called “Vision 21.” The four I-69 SIUs that impact Mississippi, including SIU 11, are part of that program.

1.3.5 Legislation

Since 1991, the I-69 Corridor has been supported by Congressional mandates.

- In 1991, Corridor 18 (from Indianapolis, Indiana, to Memphis, Tennessee, via Evansville, Indiana) and Corridor 20 (Texarkana, Texas, to Laredo, Texas) were designated by Congress as corridors of national significance in the Intermodal Surface Transportation Efficiency Act.

- In 1992, the North American Free Trade Agreement was passed. This agreement has resulted in additional traffic demands and an increase in international freight movement.
- In 1993, Corridor 18 was amended by Congress to extend from Memphis, Tennessee, to Houston, Texas via Shreveport/Bossier City, Louisiana.
- In 1995, Corridor 18 was again amended by Congress in the National Highway System Designation Act to extend from Houston to a crossing of the Mexico border in the Lower Rio Grande Valley. Additionally, the Act required Corridor 18 to be located in Mississippi and Arkansas for the section between Memphis and Shreveport/Bossier City.
- In 1998, the TEA-21 added connecting facilities to Corridor 18 and officially designated the extension south of Indianapolis as Interstate 69.
- In 2005, the states of Texas, Louisiana, Arkansas, Mississippi, Tennessee, Kentucky, and Indiana received planning, design, and construction funding for I-69 through the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

1.3.6 Social Advancement/Economic Development

Two important needs for this section of the I-69 corridor are enhancing the opportunity for local residents in the disadvantaged Delta region to improve their quality of life and encouraging economic development to provide for long-range stability in the region. An economic study and analysis was conducted in the early stages of this project to identify the corridors that would have the greatest potential for stimulating economic development² (A copy of the 2002 Economic Report is contained in **Appendix I**). Factors that were evaluated in the report included:

- Economic and demographic profiles for the study area, including current and historic population and housing trends, employment, income, and public services;
- Publications on rural highway development and the associated potential positive and negative effects on economic development;
- Interviews with public and private economic development officials to gain a greater understanding of the factors influencing economic development within the study area; and
- Analysis of factors that can influence economic development, including proximity to population centers, concentrations of development, industrial parks, major employers, tourist development opportunities, and transportation facilities such as river ports and airports. In addition, GIS analysis was used identify areas that would have adverse social, economic, and environmental effects.

² *Stimulating Economic Development, I-69 Alternatives Alignments*, Neel-Schaffer, 2002.

The results of the analysis evaluated three corridors for their potential for economic development. All three corridors were later refined to the detailed study alternatives as discussed in Sections 2.3.2.2 and 2.4. The economic development study was updated in 2004 to reflect the detailed study alternatives (A copy of the 2005 Economic Report is contained in **Appendix J**). The corridors with the greatest potential for economic development include the Eastern and Central corridors.

With the construction of this I-69 in Northwest Mississippi, disadvantaged persons living in this region would have greater transportation access to health services, educational opportunities, job training and opportunities, and other social and cultural activities.

Employees would be able to reach places of employment more easily and safely, increasing commuter safety and expanding the area where employees would reside and commute. Travelers, commuters, shippers, and public transportation systems would have the opportunity to experience savings in travel time, greater safety, and reduced costs for operating their vehicles.

The public transportation system has been driven by the area's development as well as increased tourism within the study areas to places such as the casinos, resorts, "Blues Highway", and Delta Blues Museum. Tunica County, for example, has a high concentration of poverty, many disabled individuals, many households without autos, and high unemployment. With nearly 16 percent of the local population lacking access to a vehicle -- more than double the national non-metro rate of non-car ownership -- public transportation has been used to transport workers from throughout the county as well as from surrounding counties.³

Currently, each county in the study area has public transportation services. The primary public transportation services are provided by the Delta Area Rural Transit System (DARTS), Bolivar County Council on Aging, and North Delta Planning & Development District. In Tunica and Coahoma counties, DARTS operates more than 30 multi-passenger vehicles and has funding from MDOT. Its services include transporting people to and from jobs and training opportunities. According to DART's director, Antionette Gray, the DARTS program covers 7 counties. In 2002 to 2003 DARTS provided more than 228,350 one-way trips, of which she estimated 40% were for job transportation within Tunica and Coahoma counties.

³ *Public Transportation on the Move in Rural America*, Economic Research Center, USDA, 2004.

This section of the I-69 Corridor is located in one of the most economically depressed areas in the entire country. As indicated in the economic study report⁴ as well as by Mississippi State Economist, Dr. Phil Pepper, it is difficult to obtain an accurate assessment of potential jobs created that would be created by this section of I-69 as there are too many other factors that also play major roles in the economic vitality of an area. The corridor would have a positive effect on the rural Empowerment Zones and Enterprise Communities (EZ/EC) identified in legislation and located in the area. Increased opportunities for employment and large population shifts due to migration may not occur to the extent these shifts have occurred in the past.

Environmental Justice is part of this study to ensure that minority and low-income persons are not adversely impacted by the project and to make sure minority and low-income persons are afforded increased opportunities.

In 1988, Congress enacted Public Law 100460, establishing the Lower Mississippi Development Commission to assess the needs, obstacles, and goals of the people living in the Lower Mississippi Delta Region. The region includes 219 counties and parishes within the seven states of Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. This commission, which is commonly called the Delta Commission, studied and made recommendations on the economic needs, problems, and opportunities of the region, developing a 10-year economic development plan for the Delta. The initial report of the Delta Commission was released in 1989. In 1990, the final report was prepared and submitted to President Bush and the 101st Congress. That report was titled “The Delta Initiatives: Realizing the Dream.... Fulfilling the Potential.” Issues addressed in the Delta Initiatives Report include high rates of poverty, especially among the African-American population, inadequate economic development, and problems resulting from the legacy of segregation. The Delta Initiatives Report called for an aggressive plan of revitalization and development of the Delta. Improving the physical infrastructure was one of the twelve central themes whose resolution would help the Delta reach its potential. Developing an improved system of limited access highways, airports, rail, and water port facilities, in order to promote economic development and expansion, was a public infrastructure transportation goal contained in the report.

The Empowerment Zones and Enterprise Communities program was created under the 1993 Omnibus Budget Reconciliation Act. Approximately one fourth of all the rural EZs and ECs

⁴ *Stimulating Economic Development, I-69 Alternatives Alignments*, Neel-Schaffer, 2002.

nationwide that were announced in 1994 were located in the Delta. This program's purpose is to promote economic development and improve the quality of life in these distressed areas. Eligible areas are those with a maximum population of 30,000 that have pervasive poverty, unemployment, and general distress. The EZ/EC program is based upon the principles of sustainable development, leadership from the local grassroots level, economic opportunity, long-range strategic planning, and community-based partnerships. Enterprise communities receive special consideration in competition for funding under numerous federal programs. The federal government has focused special attention on working cooperatively with designated enterprise communities to overcome regulatory impediments. The Mid-Delta Empowerment Zone Alliance (MDEZ) is a federally recognized alliance of three empowerment zones, which includes the Bolivar County Empowerment Zone. The MDEZ encompasses parts of Bolivar, Holmes, Humphreys, Leflore, Sunflower, and Washington Counties in Mississippi. The portion of the MDEZ in Bolivar County is inside the SIU 11 study area, while the portion of the MDEZ in Sunflower County is south and east of the SIU study area. Holmes is the only county in the MDEZ that does not border a county included in the SIU 11 study area. This alliance works to coordinate and support the efforts of the individual zones. Projects of the alliance zone include an extensive outreach program composed of trained education advocates who serve to educate the community on the EZ/EC initiative, encourage creative problem solving by localities, and promote meaningful participation by citizens and business owners.

In 1995, the FHWA released "Linking the Delta Region with the Nation and the World," which analyzed the progress toward fulfilling most of the Lower Mississippi Delta Commission transportation recommendations. That document related the emergence of community development innovations such as the EZ/EC Program. The document noted that between 1990 and 1995 many of the highway-related recommendations of the Lower Mississippi Delta Development Commission had been substantially or partially implemented. It was noted in the report that during the same period of time the counties and parishes of the Delta region, where these transportation improvements were being implemented, cumulatively outperformed the U.S. as a whole in relative job growth.

In 1999, the Board of Trustees of Mississippi's Institutions of Higher Learning, Center for Policy Research and Planning, released a report titled "Mississippi Handbook of Selected Data." The report provides statistics on the 82 counties in the state, as well as some nationwide statistics. Among other things, the handbook includes information on population, education, income, and

employment. The 1995 estimates for percentage of all ages in poverty for each county in the state—based on the U.S. Bureau of the Census, State and County Income and Poverty Estimates—are shown in the handbook. For the five counties that are in the study area for SIU 11, the poverty percentage estimates varied from a low of 35.2% in Bolivar County to a high of 41.6% in Sunflower County. The county in Mississippi with the highest percentage poverty estimate was Holmes County with 44.9% and the 8.8% estimate for DeSoto County was the lowest percentage. The county average for the state was 21.4%.

In 2000, the FHWA released “Delta Visions, Delta Voices: The Mississippi Delta Beyond 2000.” The Federal section of the report is organized around four key themes, and one of those themes is to revitalize the regional economy. Transportation development is cited as critical to the economic advancement of the region. The report recommends that a number of high-priority projects—such as I-69 and the Great River Bridge—should receive the required funding to make them a reality. The other themes of the report are to improve the quality of life; to protect and restore the natural resources and the environment and enhance tourism; and to promote regional planning and development. Infrastructure improvements have the potential to address the problems the report cites in each of these three other themes.

The Delta Regional Authority (DRA), a federal and state partnership, was created in an effort to remedy chronic economic distress in the Lower Mississippi Delta Region. The DRA consists of 240 counties or parishes in an eight-state region, including 49 counties located in Mississippi. The Authority is lead by a Federal Co-Chairman, who is appointed by the President and confirmed by the Senate, and the governors of each participating state. The initiative of the authority is to help local, economically distressed communities to leverage other federal and state programs to improve basic infrastructure and stimulate growth. The authority must use at least 75% of funds in distressed counties and parishes, with 50% of the funds to be used for transportation and basic infrastructure improvements. The DRA is a partner with USDA’s Rural Development Program (RDA), which assists the DRA in evaluating criteria for potential projects. Also assisting the DRA is Local Development Districts (LDD), whose purpose is to act as a liaison between State and local governments. The planned responsibilities of the DRA are outlined in the statute:

- Produce a regional development plan
- Set Priorities for approval of grants in the region

- Assess the region's needs and assets
- Inform participating states about interstate cooperation
- Work with states and local agencies to develop model legislation
- Enhance the capacity of and support Local Development Districts (LDD)
- Encourage private investment in economic development projects within the region
- Assist state governments with the states' economic development programs

Consistent with the research conducted at these federal, state, and regional levels, the proposed I-69 Corridor within the study area would enhance economic development—not only through the extensive construction program, but more importantly by bringing an efficient and competitive route for the movement of goods through the Delta and for tourist travel to the area. These factors would serve as a catalyst for long-term job growth to help this region catch up with others in the national economy.

Studies of the movement of commodities—both finished goods and raw materials—show that there is a significant demand for this movement to occur along a route within the designated I-69 Corridor. With an increasing global economy and evolving international trade opportunities, direct and continuous connections from Canada and Mexico play a key role in the health of the U.S. economy. The update to the *I-69 (Corridor 18) Special Environmental Study*-(HNTB, February 7, 2000) estimated that more than four billion (4,000,000,000) tons of freight move within the I-69 Corridor each year. As trade increases between U.S., Canada, and Mexico, the amount of freight certainly would increase. I-69 would give the nation new capacity to efficiently ship commodities from border to border, significantly reducing travel time and costs.

1.4 Modal Interrelationships

Several railroad corridors are found throughout the study area. One main rail corridor runs in a north-south orientation from the Tunica/De Soto County Line to the Bolivar/Washington County Line. However, most of this rail corridor is abandoned and the railroad is selling its right-of-way. The only active part of this railway is the Mississippi Delta Railroad, which runs from the Tunica/Coahoma County Line to Clarksdale. Active spurs branch off of the Mississippi Delta Railroad and run from Lula to Jonestown in Coahoma County. Another active section of the Mississippi Delta Railroad follows the US 49 corridor from Clarksdale southeast and leaves the

study area near Mattson. Another railroad, the Great River Railroad, begins in Rosedale and runs southward through both Beulah and Benoit before leaving the study area. The Rosedale-Bolivar County Port Commission operates the Great River Railroad, which connects the cities of Rosedale and Greenville. The city of Greenville is in Washington County, which is outside the study area and south of Bolivar County.

Three general aviation airports are located within the study area. One airport is in Tunica County, and it is located approximately two miles east of Tunica. A new runway is currently under construction at this airport to better accommodate the air travel demand in this area generated by the casinos at Robinsonville. That new runway will measure 8,200 feet by 150 feet. The second airport is located to the west of US 61 in Coahoma County approximately seven miles north of Clarksdale. The Clarksdale Airport's runway measures 5,400 feet by 100 feet. The third airport is in Bolivar County, just to the north of SR 8 in Cleveland, approximately two miles west of the junction of SR 8 and US 61. The Cleveland Airport's runway measures 4,000 feet by 75 feet. Delta State University at Cleveland has a flight school that uses the Cleveland Airport. Comparing the runway size of these airports with the ones in Mississippi that provide commercial airline flights for the traveling public—which include the Greenville Airport—the airport in Tupelo has the smallest runway measuring 6,500 feet by 100 feet. Several landing strips for crop dusting aircraft also are located throughout the SIU 11 study area.

The Rosedale-Bolivar County Port Commission operates the only water port contained in the study area. This port is located in Bolivar County at Rosedale, just west of SR 1 and south of the junction of SR 1 and SR 8. The Rosedale-Bolivar County Port is one of the state's five Mississippi River ports that accommodate barge traffic. An industrial park is located opposite the port to the east of SR 1 and to the south of SR 8. Washington County is outside the study area and borders Bolivar County to the south along the Mississippi River. It is noteworthy that the port at the city of Greenville in Washington County is another of the five Mississippi River ports that accommodate barge traffic, and the Greenville Port is larger than the port at Rosedale.

Interchanges would be provided for this section of I-69 in reasonable proximity to these railroads, airports, and water ports. These intermodal connections should further enhance the opportunity for economic development in and near the study area. Special emphasis has been placed on efficient connection(s) to the Rosedale-Bolivar County Port, including the widening of SR 8 to connect with I-69.

1.5 Safety

There is not an Interstate highway in the five-county study area for this section of I-69. Although the segment would have some east-west orientation, it primarily would run in a north-south direction. This Interstate segment at its northern termini would provide a safer system of transportation to the casinos at Robinsonville and to the Memphis metropolitan area. At its southern terminus, SIU 11 would connect to a new crossing of the Mississippi River into Arkansas at the Great River Bridge and reduce the exposure time it presently takes for traffic to cross the river into Arkansas by traveling to either Helena or Greenville.

An Interstate highway of this length would draw appreciable traffic from the existing system of US highways, state highways, and county roads. With its control of access to interchange locations, this interstate would provide a safer system of transportation for the traveling public that elects to use it instead of the existing system, which primarily has limited or no access control.

Analysis of crash records has consistently shown that Interstate highways provide safer conditions than other facilities. This safety benefit is due to the geometric design standards, medians, safety features such as guardrail, and particularly control of access, which greatly reduces conflicts among vehicles. Safety benefits of Interstate highways are quantified in Table 1-3, using 2000 statewide crash data for Mississippi. The fatal accident rate is over 25% less for Interstate facilities than for other major highways in the state.

Table 1-3 Safety Benefits of Interstate Highways		
	Interstate System	All Other NHS Facilities
Total Fatalities	125	191
Total VMT (Millions)	6,370	7,054
Accident Rate (Fatalities/100M VMT)	1.96	2.71

Source: Neel-Schaffer, Inc., 2003 MDOT Planning Division.

1.6 Roadway Deficiencies

Crossing highways and county roads would be reconstructed to appropriate standards at interchange locations for I-69. Upgrading of some highways and county roads outside the interchange limits also must occur to provide a connector capable of accommodating I-69 truck traffic. Major county roads crossing I-69 without an interchange would be reconstructed a sufficient length each side of I-69 to accommodate a grade separation bridge.

Chapter 2

Alternatives

The proposed project involves construction on new location and/or improvement of existing roadways. The following alternatives are presented:

- No-Build Alternative
- Transportation System Management (TSM)
- Other Modes
- Build Alternatives

The selection of the Preferred Alternative, including the reasons for its selection is also discussed.

2.1 No-Build Alternative

The No-Build Alternative would retain the existing roadway network. It would avoid negative impacts caused by highway construction to residences and businesses, wetlands, streams, forests, cultural resources, and other resources.

The No-Build Alternative would not meet the project purpose of providing a safe, efficient, and cost-effective transportation facility that would serve design year traffic and promote economic development within the Mississippi Delta region. Moreover, the No-Build Alternative would leave a gap in the construction of the national I-69 corridor. Therefore, the No-Build Alternative would not fulfill the purpose and need of the project.

2.2 Transportation System Management

Transportation System Management (TSM) is the application of minor construction, operational, and institutional actions to make productive and cost-effective use of existing transportation facilities and services. Specific TSM measures that would be considered for I-69 include traffic

signals and signal progression, adding turning lanes, adding passing lanes, and travel demand reduction strategies.

Signal improvements and progression refer to modifications in traffic signal timing and phasing to optimize traffic and reduce vehicle delay. There are very few signals in the I-69 study area, and signal progression is neither an existing problem nor a potential solution for the proposed project. Therefore, signal improvements and progression are not a viable alternative for the proposed project. Signal improvements would not meet the purpose and need for this project.

Separate turn lanes at intersections can improve traffic flow by providing a separate storage area for turning vehicles and thus reducing the delay to through-traffic and rear-end accidents. The proposed study area does not have existing problems with delay or a high number of rear-end collisions where turn lanes do not exist. Turn lanes at intersections would not meet the project purpose and need.

Passing lanes on two-lane highways can provide additional capacity by creating a separate lane for passing slower vehicles. The proposed study area does not have existing problems with capacity; therefore, a two-lane highway with passing lanes would not serve the project purpose and need.

Reducing travel demand can be a way of providing an improved level of service in a corridor without the major capital investment or environmental impacts associated with a roadway construction project. Travel demand reduction strategies could include staggered work hours at employment sites, growth management, and road-use pricing. One of the national goals of the I-69 corridor is to improve international and interstate trade. Many of the trips on I-69 would be interstate transport of goods, which would not respond to staggered work hours. Therefore, staggered work hours would not substantially reduce traffic and truck trips also would not be affected. Growth management and road-use pricing are not considered feasible options because they involve area-wide policies rather than policies applicable to distinct corridors. Reducing travel demand would not serve the project purpose and need.

2.3 Other Modes

Interchanges for the proposed project would be provided in reasonable proximity to the existing railroads, airports, and water ports. These intermodal connections would further enhance the opportunity for economic development in and near the study area. Special emphasis was placed on efficient connection(s) to the Rosedale–Bolivar County Port. The Rosedale–Bolivar County Port is located in Bolivar County at Rosedale, just west of SR 1 and south of the junction of SR 1 and SR 8. It is one of the state’s five Mississippi River ports that accommodate barge traffic and is the only state port located in the study area. An industrial park is located opposite the port to the east of SR 1 and to the south of SR 8. As part of the proposed project, existing SR 8 would be widened to provide an intermodal connection to the Rosedale-Bolivar County Port.

Rail in the study area consists of the Mississippi Delta line and its spurs from the Coahoma County line to Clarksdale. Nearby airports include Tunica, Coahoma County, and Bolivar County facilities (all general aviation) as well as Memphis International. The proposed interstate would improve access to these other modes. None of these existing facilities (or potential improvement) would address the economic development, national transportation, or truck commerce goals identified as the project’s purpose and need. Railroads or airports would not be as beneficial to the study area as the construction of the proposed project. The I-69 corridor would help to connect the less developed areas to the more developed areas within the study area. As an alternative, other modes would not address the purpose and need of the project.

2.4 Build Alternatives

Other alternatives examined consist of construction on new location and/or improvement of existing roadways. The following section describes the process of evaluating highway corridors and determining those to be carried forward for additional study.

2.4.1 Preliminary Alternative Corridors

To determine the location of alternatives for study, social and environmental databases were entered into a Geographic Information System (GIS). One-mile-wide corridor segments through Bolivar, Coahoma, and Tunica Counties were determined through analysis of GIS data. The

beginning and end points of the preliminary corridors correspond to termini for SIU 10 and SIU 12, which were discussed in Section 1.3.1.

2.4.1.1 Description of Segments

The one-mile-wide preliminary corridors and segments are shown on **Figure 2-1**. Each preliminary corridor consisted of individual segments. Each segment is described below (segments that follow existing US 61 are indicated by an “*”):

Bolivar County

- B1 – This segment is located in the southwestern corner of Bolivar County and encompasses Benoit. I-69 would enter Mississippi through this segment.
- B2 – This segment is located to the east of B1 and is directly south of the Dahomey National Wildlife Refuge.
- B3 – This segment begins at the northern terminus of B1 and runs northward. It ends south of SR 8.
- B4 – This segment begins at the northeastern terminus of B2 and runs north-northeast. It ends just southwest of Merigold.
- B5 – This segment begins at the southeastern terminus of B2. It runs east and then turns northward to end just southeast of Merigold.
- B6 – This segment begins at the northern terminus of B3 and travels northward east of SR 1. It ends just north of the Bolivar/Coahoma County Line.
- B7 – This segment begins at the northern terminus of B3 and travels eastward to end west of Mound Bayou.
- B8* – This segment begins at Merigold and runs northward. It ends just south of the Bolivar/Coahoma County Line.

Coahoma County

- C1 – This segment begins at the northern terminus of B6. It runs northeast and ends just north of Harris Bayou.
- C2* – This segment begins at the northern terminus of B8 just south of the Bolivar/Coahoma County Line. It runs northward and ends approximately two miles south of Clarksdale.
- C3* – This segment is an east-west segment that provides connectivity between the northern termini of C1 and C2.
- C4 – This segment begins at the northern terminus of C1 and travels northward along SR 1. It ends just north of Moon Lake.
- C5* – This segment begins at the northern termini of C2 and C5. It travels eastward along the Clarksdale Bypass and ends east-southeast of the city.

- C6* – This segment begins at the eastern terminus of C5 and travels north-northeast. It ends approximately one mile west of Rich.
- C7 – This segment begins at the eastern terminus of C5 and travels along the eastern edge of the study area. It ends at the Coahoma/Tunica County Line.
- C8 – This segment begins at the end of C4 and runs northward. It ends at the Coahoma/Tunica County Line.
- C9 – This segment travels southeast between SR 1 and US 61 along US 49.
- C10* – This segment begins at the northern terminus of C6. It runs northward and ends at the Coahoma/Tunica County Line.

Tunica County

- T1 – This segment begins at the Coahoma/Tunica County Line at the northern terminus of C8. It runs along the western edge of the study area and ends approximately two miles southwest of Beaver Lake.
- T2* – This segment starts at the Coahoma/Tunica County Line at the northern terminus of C10 and goes north-northeast along US 61. It ends approximately two miles east of Dundee.
- T3 – This segment begins at the Coahoma/Tunica County Line at the northern terminus of C7. It runs along the eastern edge of the study area for approximately seven miles.
- T4 – This segment begins at the northern terminus of T1 and follows the western edge of the study area. It ends just north of Beaver Lake.
- T5 – This segment begins at the northern terminus of T1 and goes northeast. It ends just southeast of Beaver Lake.
- T6* – This segment begins at the northern end of T1 and travels north-northeast. It ends at the northern terminus of T5 just south of Beaver Lake.
- T7 – This segment begins at the southern terminus of T6 and travels northeast for approximately three miles.
- T8 – This segment begins at the northern terminus of T4 and goes approximately one mile in a northeasterly direction. It ends southwest of Tunica.
- T9* – This segment begins at the northern terminus of T4 and goes approximately one mile in a northeasterly direction. It ends southwest of Tunica.
- T10 – This segment begins at the northern terminus of T6 and travels east for approximately two miles.
- T11 – This segment begins at the northern termini of T7 and T3. It travels northward and ends at the eastern terminus of T10 just south of SR 4.
- T12 – This segment is northwest of Tunica and is approximately one mile long.
- T13 – This segment begins at the northwest terminus of T12. It travels along the western edge of the study area and ends at SR 304.
- T14* – This segment provides a connection between T8 and T12 west of Tunica.
- T15 – This segment begins at the northern end of T11 and travels north for approximately eight miles.

- T16 – This segment begins at the northern terminus of T3 and runs northward along the eastern edge of the study area. It ends at SR 304.
- T17* – This segment begins at the northern terminus of T3 and runs northward along the eastern edge of the study area. It ends at SR 304.
- T18 – This segment begins at the northern termini of T15 and T17 and ends at the northern terminus of T13.
- T19 – This segment begins at the northern terminus of T18 and encompasses SR 304 to the end of the project.
- T20 – This segment provides a connection between T4 and T13.

2.4.1.2 Description of Segment Combinations

The individual segments described in the previous section were arranged into 17 combinations. **Table 2-1** lists the various combinations. Different parameters were screened for each of the combinations. The results of these combinations were evaluated to determine potential refined 1,000-foot-wide corridors.

Table 2-1 Segment Combinations for Preliminary Alternative Corridors	
Combination	Segments
Bolivar County Alternatives	
1	B1+B3+B6
2	B1+B3+B7+B8
3	B1+B2+B4+B8
4	B1+B2+B5+B8
Coahoma County Alternatives	
5	C1+C4+C8
6	C1+C3+C5+C6+C10
7	C1+C3+C5+C6+C8+C9
8	C2+C5+C7
Tunica County Alternatives	
9	T1+T4+T20+T13+T18+T19
10	T1+T4+T8+T14+T17+T18+T19
11	T1+T5+T9+T10+T15+T18+T19
12	T2+T6+T9+T14+T13+T18+T19
13	T2+T6+T9+T14+T17+T18+T19
14	T2+T7+T11+T15+T18+T19
15	T2+T7+T16
16	T3+T11+T15+T18+T19
17	T3+T16

Source: Kimley-Horn and Associates, Inc., 2004.

2.4.1.3 Analysis of Preliminary Alternative Corridors

Potential natural and human environmental impacts were evaluated for the preliminary alternative corridors. Impact categories included crossings of streams, open water, floodplain, potential wetland sites, and farmland. Other non-natural impacts that were evaluated included crossings of railroads, power lines, and gas lines. In addition, potential impacts were calculated for historic, archaeological, and hazardous material sites. **Table 2-2** shows the impacts.

The public and resource agencies were invited to comment on the preliminary alternative corridors. Major items of concern expressed by the public were the location for the crossing of SR 8 and the control of access that an interstate highway requires on adjacent property. The public recognized Dahomey National Wildlife Refuge (NWR) as a sensitive environmental area, and recognized that an alternative bypassing the refuge to the south and east may be necessary to avoid environmental damage to the refuge. In Tunica County, community leaders expressed that the T15 alternative segment provides the best opportunities for Tunica's economic growth. They believed the T15 segment makes the best use of the expanding airport and nearby industrial areas.



2.4.2 Refined Alternative Corridors

The 17 preliminary one-mile corridors were refined and narrowed to nine 1,000-foot corridors based on the results listed in **Table 2-2**, input from the public and regulatory/resource agencies, and field visits to verify conditions. Coordination was conducted with the EPA and any information provided was implemented into the GIS analysis.

**Table 2-2
Preliminary Alternative Corridor Screening Analysis**

Name	Segments/ Combinations	Length			Crossings				Open Water (acres)	Potential Wetlands (acres)	100-Year Floodplain ^b (acres)	Farmlands (acres)	Historic Sites ^c	NRHP ^d Archaeology Sites	Total Hazardous Materials Sites ^e
		New Alignment (miles)	Existing Alignment (miles)	Total Length (miles)	Railroad	Power Line	Gas Line	Perennial Stream							
Bolivar County Alternatives															
1	B1+B3+B6	26.7	14.0	40.7	2	3	1	5	294	3,373	2,341	107,048	5	5	1
2	B1+B3+B7+B8	16.8	28.0	44.9	4	3	4	6	190	2,876	2,490	151,635	6	3	1
3	B1+B2+B4+B8	22.9	21.8	44.7	3	2	5	7	443	3,143	17,861	265,161	6	7	1
4	B1+B2+B5+B8	28.8	23.7	52.5	4	4	6	12	545	3,807	18,827	308,711	7	7	1
Coahoma County Alternatives															
5	C1+C4+C8	11.9	17.3	29.2	1	2	2	6	410	1,553	567	29,514	7	5	0
6	C1+C3+C5+C6+C10	1.1	30.1	31.2	3	1	4	6	159	671	1,544	57,478	5	7	0
7	C1+C3+C5+C6+C9+C8	2.0	33.5	35.5	3	5	4	7	235	845	1,551	58,837	5	6	0
8	C2+C5+C7	19.0	12.9	31.9	1	1	2	5	58	865	2,582	33,459	0	3	1
Tunica County Alternatives															
9	T1+T4+T20+T13+T18+T19	33.9	3.4	37.3	1	1	2	6	418	1,658	1,727	89,185	2	3	0
10	T1+T4+T8+T14+T17+T18+T19	25.9	5.0	30.9	1	1	2	5	624	1,488	1,435	72,583	2	1	0
11	T1+T5+T9+T10+T15+T18+T19	29.2	5.4	34.6	1	2	2	8	610	1,796	1,498	91,778	8	1	1
12	T2+T6+T9+T14+T13+T18+T19	23.4	18.5	41.9	1	3	3	10	370	989	994	107,887	7	2	0
13	T2+T6+T9+T14+T17+T18+T19	12.8	18.8	31.5	1	3	3	7	565	1,017	860	89,680	7	0	0
14	T2+T7+T11+T15+T18+T19	24.9	5.9	30.9	1	2	3	6	144	1,271	897	115,109	2	0	1
15	T2+T7+T16	19.6	8.7	28.3	1	2	2	3	70	666	2,236	130,908	1	1	0
16	T3+T11+T15+T18+T19	30.4	2.3	32.7	1	2	1	7	152	1,545	1,541	99,306	2	0	1
17	T3+T16	25.1	5.0	30.1	1	2	0	4	78	941	2,880	115,105	1	1	0

^aThe acreage within the corridor includes total corridor width of one mile. Actual impact of an alignment using this corridor would be much less.

^bThe 100-year floodplain consists of area in Zone A on the Flood Insurance Rate Maps (FIRMs).

^cHistoric sites include both historic structures and National Register of Historic Places (NRHP) sites.

^dNational Register of Historic Places.

^eHazardous Materials Sites involve those sites that are either Resource Conservation and Recovery Act (RCRA) sites or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites.

Source: Kimley-Horn and Associates, Inc., 2003.

Each of the refined alternative corridors begins at SIU 12 east of the Great River Bridge and extends to SIU 10 in Tunica County. The following paragraphs describe each of the nine refined alternative corridors shown in **Figure 2-2**.

2.4.2.1 Description of Corridors

Corridor A (MS 1 to Lula/West of Tunica)

Corridor A begins at the Mississippi terminus of the Great River Bridge. It turns northward west of Benoit and passes to the west of the Dahomey National Wildlife Refuge, crosses Route 1 south of Beulah, and passes east of both Beulah and Gunnison. In Coahoma County, Corridor A continues to the northeast, passing approximately two miles to the east of Rena Lara. At Route 322, it turns northward until it crosses Route 1, where it turns again to the northeast. It passes west of Stovall and east of Friars Point, where it turns to the northeast. Corridor A crosses US 61 and loops back to US 61 east of Lula near the Tunica County Line. In Tunica County, Corridor A follows US 61 for nine miles until it turns to the northwest to pass west of Tunica. It then turns to the north and northeast to the project terminus in northeastern Tunica County.

Corridor B (West of Cleveland to US 61 to Mid-East of Tunica)

Corridor B begins at the Mississippi terminus of the Great River Bridge. It passes south of Benoit and continues east to pass south of the Dahomey National Wildlife Refuge. Approximately two miles east of the Bogue Phalia River, it turns to the north to pass west of Cleveland. Just west of Merigold, it joins with the newly aligned US 61 and follows US 61 through Bolivar County. At Clarksdale, it joins the Clarksdale Bypass and near Lyon it goes onto new location east of US 61 before rejoining US 61 approximately five miles north of Clarksdale. Corridor B follows US 61 through the remainder of Coahoma County with the exception of a two-mile section near Lula. In Tunica County, Corridor B diverges from US 61 after approximately five miles. It stays generally parallel to US 61, passing east of the Tunica airport. About six miles northeast of Tunica, it turns to the northeast and ends at the project terminus in northern Tunica County.

Corridor C (East of Cleveland/East US 61 Corridor)

Corridor C begins at the Mississippi terminus of the Great River Bridge. It turns southeast just west of Benoit before turning east and continuing east between one and three miles north of Route 488. After crossing US 61, it turns north and passes to the east of Boyle, Cleveland, and

Renova. After crossing the Big Sunflower River, it continues north along the county line before crossing into Sunflower County and Coahoma County. Once in Coahoma County, Corridor C turns to the north-northeast to reenter Bolivar County southeast of Duncan. It enters Coahoma County again at US 61 northeast of Alligator. Corridor C continues northeast on new location and bypasses Clarksdale to the south and east on the Clarksdale Bypass. Once northeast of Clarksdale, it veers back to the northeast and turns to the north as it enters Quitman County. It enters Tunica County near the intersection of the Coahoma County/Quitman County/Tunica County Lines. In Tunica County, Corridor C shifts to the north-northeast and runs through the eastern portion of the county until it ends at the project terminus in northeastern Tunica County.

Corridor D (Westernmost)

Corridor D begins at the Mississippi terminus of the Great River Bridge. It turns northward west of Benoit and passes to the west of the Dahomey National Wildlife Refuge, crosses Route 1 south of Beulah and passes east of both Beulah and Gunnison. In Coahoma County, Corridor D continues to the northeast, passing approximately two miles to the east of Rena Lara. At Route 322, it turns northward until it crosses Route 1, where it turns again to the northeast. Once it crosses Route 1, it roughly parallels Route 1. In Tunica County, it follows the same course several miles west of US 61 until it crosses US 61 and ends at the project terminus in northeastern Tunica County.

Corridor E (East of Cleveland to US 61 to Mid East of Tunica)

Corridor E begins at the Mississippi terminus of the Great River Bridge. It turns southeast just west of Benoit before turning east and continuing east between one and three miles north of Route 488. After crossing US 61, it turns north and passes to the east of Boyle, Cleveland, and Renova. After crossing the Big Sunflower River, it continues north along the county line before crossing into Sunflower County and Coahoma County. Once in Coahoma County, Corridor E turns to the north-northeast to reenter Bolivar County southeast of Duncan. It enters Coahoma County again at US 61 northeast of Alligator and follows US 61 to the Clarksdale Bypass. Corridor E joins the Clarksdale Bypass and goes onto new location east of US 61 before following US 61 approximately five miles north of Clarksdale. Corridor E follows US 61 through the remainder of Coahoma County with the exception of a two-mile section near Lula. In Tunica County, Corridor E diverges from US 61 after approximately five miles. It stays generally parallel to US 61, passing east of the Tunica airport. About six miles northeast of Tunica, it turns to the northeast and ends at the project terminus in northeastern Tunica County.

Corridor F (West of Dahomey to US 61)

Corridor F starts at the Mississippi terminus of the Great River Bridge. It shifts southeast, passes south of Benoit, and then turns north to bypass the Dahomey National Wildlife Refuge to the west. After crossing Route 8, it then swings to the east until it intersects the existing US 61. Corridor F follows US 61 out of Bolivar County and into Coahoma County. It loops to the south and east of Clarksdale on the Clarksdale Bypass and rejoins the existing US 61 north of Clarksdale. It follows US 61, loops briefly to the east on new alignment, and rejoins US 61 before it leaves Coahoma County. Upon entering Tunica County, Corridor F follows the existing US 61 corridor until approximately 1.5 miles east of Dundee. It then veers to the north-northeast and roughly parallels US 61 until it turns to the northeast and ends in northeastern Tunica County.

Corridor G (East of Cleveland/Easternmost)

Corridor G begins at the Mississippi terminus of the Greater River Bridge. It bypasses Benoit to the southwest and roughly parallels Route 448. Once it crosses US 61, it turns to the north and passes east of Boyle, Cleveland, and Renova. It leaves Bolivar County and enters the northwestern corner of Coahoma County. Once in Coahoma County, Corridor G turns to the northeast until it crosses Route 322, where it shifts to the north. It returns to a northeastern orientation approximately 3.5 miles south of Jonestown. It then leaves Coahoma County and enters Quitman County on a roughly northward track. Corridor G enters Tunica County roughly at where the Coahoma County/Quitman County/Tunica County Lines intersect. Once in Tunica County, Corridor G roughly parallels US 61 five to six miles east of the highway before ending in the northeastern part of the county.

Corridor H (Westernmost to Easternmost)

Corridor H starts at the Mississippi terminus of the Great River Bridge. It shifts to the north and passes west of the Dahomey National Wildlife Refuge. It roughly parallels Route 1 as it leaves Bolivar County. Upon entering Coahoma County, Corridor H continues to parallel Route 1. Approximately four miles east of Sherard, it veers to the northeast, crosses the county, and leaves the county approximately 3.5 miles south-southwest of Rich. In Quitman County, it turns to the north and leaves the county approximately at the intersection of the Coahoma County/Quitman County/Tunica County Lines. In Tunica County, Corridor H parallels US 61 two to six miles east of the highway. It ends in northeastern Tunica County.

Corridor I (Westernmost to Easternmost North of Rich)

Corridor I begins at the Mississippi terminus of the Great River Bridge. It bypasses Benoit to the northwest and passes west of the Dahomey National Wildlife Refuge. It roughly parallels Route 1 as it leaves Bolivar County and enters Coahoma County. In Coahoma County, Corridor I turns to the northeast approximately two miles to the east of Friars Point. It continues to the northeast and exits Coahoma County approximately a mile and a half northeast of Rich. Once in Tunica County, Corridor I roughly parallels US 61 approximately six to eight miles east of the highway. It ends in northeastern Tunica County.

2.4.2.2 Analysis of Refined Corridors

The preliminary impacts associated with each of the refined corridor alternatives are summarized in **Tables 2-3** and **2-4**. These preliminary impact estimates were used to evaluate the nine 1,000-foot corridors. The environmental screening estimates and mapping were sent to cooperating agencies for their review. Comments on the corridors were evaluated and later discussed in an April 2002 cooperating agency scoping meeting (see Chapter 7). Some of the major concerns were related to the corridors west of Dahomey National Wildlife Refuge (Corridors A, D, F, H, and I), as the USFWS desires to avoid barriers to wildlife traveling between the Refuge and the Mississippi River. There were concerns that this natural environmental corridor between the Mississippi River and Refuge would be bisected and habitats fragmented. In fact, the USFWS intends to purchase property west of the Refuge for expansion towards the Mississippi River. The most easternmost alternative (Corridor G) would place I-69 as far from the river as possible. Several agencies also stated a preference for Corridor B because it uses as much of existing US 61 as possible.

Following the agency scoping meeting, a report titled *Screening Analysis: I-69 Alternate Alignments— Stimulating Economic Development* (Neel-Schaffer, June 2002) was prepared. This economic report analyzed three corridors: Corridor D (generally paralleling the Mississippi River and SR 1), Corridor B (utilizing as much as US 61 as possible), and Corridor G (eastern limits of the Delta counties).

After the *Screening Analysis: I-69 Alternate Alignments— Stimulating Economic Development* was prepared, Corridor D was refined so that it would be located to the east of the Dahomey National Wildlife Refuge. Corridors D, B, and G represent a western corridor (east of the refuge), central corridor, and an eastern corridor through the study area.

**Table 2-3
Summary of Impacts for Refined Alternative Corridors**

Corridor	Corridor Description	Length			Crossings				
		Existing Alignment (miles)	New Alignment (miles)	Total Length (miles)	Active Railroad Crossings	Power Line Crossings	Gas Line Crossings	Perennial Stream Crossings	Intermittent Stream Crossings
A	MS 1 to Lula/West of Tunica	10.5	93.9	104.4	4	6	7	18	94
B	West of Cleveland/US 61/Mid-East of Tunica	31.8	84.8	116.6	4	5	16	18	105
C	East Cleveland/East 61 Alignment	1.6	120.4	122.0	3	7	8	23	119
D	Westernmost	0.9	102.2	103.0	2	5	5	14	95
E	Eastern Cleveland to US 61/US 61 to Mid-East Tunica	20.2	102.9	123.1	4	7	17	23	122
F	West of Dahomey to US 61	31.8	83.4	115.2	4	5	14	15	113
G	East Cleveland/Easternmost	1.1	115.6	116.7	3	5	4	20	123
H	Westernmost to Easternmost	0.3	101.7	102.0	4	5	4	16	105
I	Westernmost to Easternmost North of Rich	0.5	101.1	101.7	4	5	4	15	102

Source: Kimley-Horn and Associates, Inc., 2004.

**Table 2-3
Summary of Impacts for Refined Alternative Corridors (contd.)**

Corridor	Corridor Description	Acreage within Corridors				Historic Sites	Archaeological Sites	Total Hazardous Materials Sites
		Open Water (acres)	Potential Wetlands (acres)	100-Year Floodplain (acres)	Farmlands (acres)			
A	MS 1 to Lula/West of Tunica	27.1	308.6	825.6	6,420.7	4	28	0
B	West of Cleveland/US 61/Mid-East of Tunica	20.2	149.0	868.9	6,504.1	0	55	2
C	East Cleveland/East 61 Alignment	27.6	280.9	1,470.3	7,279.1	2	18	1
D	Westernmost	68.0	387.6	713.5	6,340.0	0	4	0
E	Eastern Cleveland to US 61/US 61 to Mid-East Tunica	23.3	229.7	1,182.4	6,883.9	1	52	2
F	West of Dahomey to US 61	32.2	246.7	311.3	6,330.9	0	54	1
G	East Cleveland/Easternmost	41.1	326.0	1,642.1	7,127.6	1	7	0
H	Westernmost to Easternmost	45.1	355.2	1,111.5	6,236.2	1	2	0
I	Westernmost to Easternmost North of Rich	20.9	292.4	1,010.3	6,427.9	1	13	0

Source: Neel-Schaffer, Inc., 2004.

Kimley-Horn and Associates, Inc., 2004.

Table 2-4				
Maximum and Minimum Impacts of the Refined Alternative Corridors				
Parameter	Minimum Values		Maximum Values	
	Corridor	Quantity	Corridor	Quantity
Existing Alignment (miles)	Corridor H	0.3	Corridor F	31.8
New Alignment (miles)	Corridor F	83.4	Corridor C	120.4
Total Length (miles)	Corridor I	101.7	Corridor E	123.1
Active Railroad Crossings	Corridor D	2	Corridors A, B, E, F, H, and I	4
Power Line Crossings	Corridors B, D, F, G, H, and I	5	Corridors C and E	5
Gas Line Crossings	Corridors G, H, and I	4	Corridor E	17
Perennial Stream Crossings	Corridor D	14	Corridor C	23
Intermittent Stream Crossings	Corridor A	94	Corridor G	123
Open Water (acres)	Corridor B	20.2	Corridor D	68.0
Potential Wetlands (acres)	Corridor B	149.0	Corridor D	387.6
100-Year Floodplains (acres)	Corridor F	311.3	Corridor G	1,642.1
Farmlands (acres)	Corridor H	6,236.2	Corridor C	7,279.1
Historic Sites	Corridors B, D, and F	0	Corridor A	4
Archaeological Sites	Corridor H	2	Corridor B	55
Total Hazardous Materials Sites	Corridors A, D, G, H, and I	0	Corridors B and E	2

Source: Neel-Schaffer, Inc., 2004.

Kimley-Horn and Associates, Inc., 2004.

2.4.3 Alternatives Carried Forward for Detailed Study

The 1,000-foot corridors were narrowed and refined based on impacts calculated using GIS, detailed investigation of the corridors in the field, analysis of economic development potential, and agency/public comments. For each alternative, important resources were identified early in the process and avoided to the extent practicable (as described in **Appendix H**). These resources included wetlands, natural areas, residences, businesses, major utilities, and cultural resources. Where such resources could not be avoided, alignments were developed to minimize impacts. Based on these factors, three south-north alternatives were selected for detailed study. For each of the alternatives, 2030 future traffic volumes were evaluated. The Western Alternative, Central Alternative, and Eastern Alternative and their 2030 future volumes/planning levels of service are shown on **Figures 2-3** through **2-9**. The right-of-way width for each alternative would be approximately 450 feet on new location. Alternatives that would use existing alignment would use the existing right-of-way as well as 200 additional feet of right-of-way to accommodate frontage roads.

Due to the length of the project and to facilitate a combination of segments, each alternative is divided into a southern, middle, and northern section (see **Figure 2-3**). These three sections of the project are consistently used through the remainder of the FEIS. Each section of the study area is described below:

Southern Section

The southern section begins at SIU 12 (Great River Bridge-Eutaw Landing) terminus, in Bolivar County to the west of SR 1 and Benoit. As mentioned in Chapter 1, a FEIS and ROD have been completed for SIU 12. The southern section ends at the Clarksdale Bypass in Coahoma County. Alternatives carried forward for detailed study in this section include three alternatives crossing SR 1 near Benoit, two alternatives south of Dahomey NWR, two alternatives around Cleveland – one east and one west – and three alternatives north of Cleveland – one along existing US 61, one to the east and one to the west (see **Figure 2-3**). Additional analyses have evaluated only the section from the project terminus to east of Benoit (see Section 2.4.3.2) and for the alternatives from south of Cleveland to south of Clarksdale.

SR 8 Improvements

SR 8 between Cleveland and Rosedale, currently a two-lane highway, would be improved to four lanes. The widening should help stimulate economic development by providing a multi-lane connection between the Rosedale – Bolivar County Mississippi River Port and I-69.

During the preliminary stages, the alternative concepts considered for widening SR 8 addressed:

- four-lane divided vs. five-lane sections,
- rural five-lane sections with open ditches vs. urban curb and gutter sections with storm drainage pipes,
- widening on either side of the existing road as well as symmetric widening,
- treatment of the section through Pace, and
- treatment of the western project terminus

The existing western terminus of SR 8 at the SR 1 intersection in Rosedale is located slightly north of the SR 1 intersection with the access road to the Great River Road State Park. The widening of SR 8 would offset these two intersections by realigning SR 8 to the south to intersect SR 1 opposite the access road to the State Park. From west to east, the plan for widening SR 8 includes:

- One common alternative for a five-lane curb and gutter section on new and existing alignment through the built up area at Rosedale,
- One common alternative for a five-lane open ditch section along existing alignment on the outskirts of Rosedale,
- One common alternative for adding two lanes adjacent to the existing lanes to provide a four-lane divided section to the western limits of Pace,
- Three alternatives to the Bolivar County Correctional Facility,
- One common alternative for a five-lane open ditch section along existing alignment on the outskirts of Cleveland, and
- One common alternative for a five-lane curb and gutter section along existing alignment to connect with the existing five-lane curb and gutter section at Cleveland.

While a four-lane divided section is generally preferred by MDOT, a five-lane section was recommended in the congested areas of Rosedale and Pace to reduce impacts to residences and businesses, and to encourage economic development in accordance with the purpose and need for this road. In addition, east of Rosedale, continuation of the five-lane section to the east would avoid a stream crossing, an agricultural airstrip with likely chemical contamination, and several

residences. At the eastern portion of Pace, for alternates that would widen SR 8 along existing alignment, a five-lane section was needed to avoid cemeteries located on both sides of the highway and to avoid residences located nearby the cemeteries. At Cleveland, the five-lane section was extended to the west to be consistent with the existing five-lane section and to minimize relocations.

The three alternatives between the western limit of Pace extending east to the Bolivar County Correctional Facility are:

- Alternative B (Referred to in the Draft EIS as the Widening Alternative) – Widening to a five-lane open ditch section along existing alignment over the entire length between the point where the Pace Bypass Alternate leaves SR 8 and the Bolivar County Correctional Facility;
- Alternative C (Referred to in the Draft EIS as the Bypass Alternative) – Bypassing to the north with a four-lane divided section on new location to east of Pace where the bypass would rejoin SR 8 and adding two new lanes adjacent to the existing lanes to provide a four-lane divided section to the Bolivar County Correctional Facility; and,
- Alternative D (a combination of Alternative B and C to minimize impacts) – Continuing the four-lane divided section by adding two new lanes adjacent to the existing lanes from the point where the Pace Bypass Alternative leaves SR 8 to the western part of Pace, widening to a five-lane open ditch section to slightly east of Pace where the Pace Bypass Alternative rejoins SR 8, and adding two new lanes adjacent to the existing lanes to provide a four-lane divided section to the Bolivar County Correctional Facility.

Impacts for Alternative D have been estimated based on the previous impact analyses that had been completed for the other two SR 8 alternatives. The SR 8 improvement is included with the Western, Central, and Eastern Alternatives for this section of I-69 (see **Figure 2-3**).

Middle Section

The middle section begins at the Clarksdale Bypass in Coahoma County and ends approximately four miles south of the Coahoma/Tunica County Line (near the town of Rich). During the alternatives evaluation, the Middle Section was determined to be superior to other preliminary alignments in avoiding and minimizing impacts. Therefore, all three alternatives are identical from the Clarksdale Bypass north to approximately four miles south of the Coahoma/Tunica County Line (see **Figure 2-3**).



Northern Section

The northern section begins in Coahoma County, four miles south of the Coahoma/Tunica County Line and ends at SIU 10, which is to the north and east of Robinsonville. SIU 10 has already been approved as part of the national I-69 corridor; the construction is complete; and, it is open to traffic. SIU 10 includes the eastern portion of the relocated four-lane section of SR 304 built to interstate standards between I-55 in De Soto County, and US 61 in Tunica County as well as a four-lane interstate spur from the from the eastern portion of relocated SR 304 in De Soto County to the existing two-lane section of SR 304 in Tunica County (see **Figure 2-3**).

Interchanges, Spurs, and Upgrades

To compare the alternatives in each section, the locations of interchanges were selected. Interchanges are mandatory at some locations, particularly at state and federal routes. Other interchanges have been proposed near communities for construction phasing and for stimulating economic development. The condition of the crossroad at each interchange location was analyzed to determine the improvements that were needed on the crossroad to accommodate truck traffic generated by the interchanges.

It is important to consider the improvements needed on the crossroad at interchange locations for several reasons. One reason is to satisfy the expectation of the drivers for the various types of vehicles, including legally loaded trucks, which will exit and enter the interstate by using the

crossroad within and outside the limits of the interchange. Another important reason is associated with the maintenance of traffic during and after the construction of I-69.

Because the cost for building the entire section of I-69 is so great, the construction would almost certainly have to be accomplished in a number of segments. The segmental construction would require I-69 traffic to use the interchange locations and the connecting network of county roads and state and Federal highways to enter and exit the interstate segments that are opened to traffic. Therefore, it is important for truck traffic to have at least one connecting approach to each interchange location capable of accommodating truck traffic and a posting of the maximum allowable weight limit in Mississippi of 80,000 pounds.

At some interchange locations, a crossroad is recommended on new location from the interchange to a nearby state or Federal highway that has an 80,000-pound weight limit posted for truck traffic. In addition to addressing the need of accommodating truck traffic, the new crossroad approach might be needed to address transportation network connectivity or Design Year 2030 traffic. In these instances the new crossroad approach is called a “Spur.”

Several of the proposed interchanges are with state or Federal highways that currently have an 80,000-pound weight limit. Improvements are either already planned or not needed outside the limits of many of these interchanges for the crossing highway to accommodate the Design Year 2030 projected traffic.

Other existing crossroads at proposed interchange locations may have a legal weight limit of less than 80,000 pounds posted from the interchange to a nearby state or Federal highway with the maximum allowable weight limit. Improvement to such a crossroad along its existing alignment is needed to accommodate 80,000-pound truck traffic and Design Year 2030 projected traffic. In such instances, the needed crossroad approach improvement is called an “Upgrade.”

The interchanges, spurs, and upgrades for the alternatives are shown on **Figures 2-4, 2-6, and 2-8**. The impacts of interchanges and spurs (shown in solid lines) are included in the overall analysis of impacts, as are frontage roads associated with any of the alternatives. Upgrades are not included in this FEIS, and would require separate environmental documentation on a project-by-project basis.

Alternative Combinations

While descriptions, graphics, and impact summaries are highlighted for each alternative, combinations of alignments between and within the alternatives were also considered within each of the three sections. In particular, the Southern Section has several possible connections from the project's southern terminus to the alignments, as discussed in detail in Section 2.4.3.2.

2.4.3.1 Western Alternative

Southern Section

In the southern section, the Western Alternative begins at SIU 12, Great River Bridge-Eutaw Landing, and proceeds east to Lake Bolivar before turning southeast to cross SR 1 south of Benoit and just north of Ray Brooks School. The alternative crosses SR 448 north of the point where the alignment of SR 448 changes from north-south to east-west. From SR 448, the Western Alternative proceeds east before turning to the north several miles northwest of Shaw. The Western Alternative continues north and parallels US 61 to the west. It bypasses Boyle, Cleveland, Merigold, and Shelby on new alignment. It then turns northeast and crosses SR 444. The Western Alternative continues in a northeast direction, past Duncan, Alligator, and Rena Lara. It then proceeds east to cross US 61 and connects to New Africa Road at the Clarksdale Bypass. The Western Alternative is shown on **Figure 2-4**, with projected traffic volumes shown on **Figure 2-5**.

The following interchanges, spurs, and crossroad connectivity improvements are identified with the Western Alternative's southern section.

- SR 1 Interchange
- Shaw–Litton Road Interchange
- Litton Road West Spur/Shaw Spur and US 61 Interchange
- SR 446 Interchange; also upgrade east to US 61
- SR 8–Cleveland Interchange
- Hiter Road-Merigold Interchange; also upgrade east to US 61
- Mound Bayou Street Interchange; also upgrade county road east to US 61
- SR 32 Interchange
- SR 32 West/East Spur (provides access between US 61 and SR 32)
- SR 444 Interchange; also upgrade west to SR 1 and east to US 61
- Rena Lara–Alligator Interchange

- Rena Lara Spur and Alligator Spur and upgrade east to US 61
- US 61–South Clarksdale Interchange
- New Africa Road Interchange

Middle Section (Western, Central, and Eastern Alternatives)

The Western, Central, and Eastern Alternatives are identical for the middle section of the study area. The middle section begins at the south end of the New Africa Road Interchange and ends approximately four miles south of the Coahoma/Tunica County Line. The alternatives would use the current Clarksdale Bypass south and east of Clarksdale. To avoid development near Lyon, the alternatives leave US 49/US 61 to the east and turn north to parallel US 49/ US 61. They rejoin US 49/ US 61 north of Eagles Nest Road and end approximately four miles south of the Coahoma/Tunica County Line, where the three major alternatives split in the northern section.

The following interchanges, spurs, and crossroad connectivity improvements are identified with the middle section:

- US 49 Interchange (includes a five-lane connecting road from the interchange northwest to the Old US 61 intersection in Clarksdale)
- SR 6 Interchange
- Eagles Nest Road Interchange
- Eagles Nest Road Spur
- Coahoma Interchange; also upgrade county road west to SR 1 and SR 316 east to Jonestown

Northern Section

The Western Alternative continues northeast on existing US 61 from four miles south of the Coahoma/Tunica County Line to just south of Crenshaw Road. It then continues to the northeast on new location and crosses Dubbs Road, SR 4, Prichard Road, and Arkabutla Dam Road. The Western Alternative then turns east and crosses Kirby Road and SR 3. It turns north to cross the two-lane SR 304 and end on the SIU 10 Spur (SIU 11 project north terminus; SIU 10 south terminus).

The following interchanges spurs, and crossroad connectivity improvements are identified with the Western Alternative’s northern section:

- US 49 Interchange; also upgrade county road and SR 315 east to SR 3 in order to provide access to the towns of Rich and Sledge
- US 61 Interchange and Crenshaw Road Spur
- Dubbs Road Interchange; also upgrade Dubbs Road west to US 61
- SR 4 Interchange
- Prichard Road Interchange; also upgrade west to US 61 and east to SR 3
- Arkabutla Dam Road; also upgrade west to US 61
- Kirby-Counce Road Interchange; also upgrade Counce Road east to SR 3
- SR 304–Kirby Road Spur (this spur would connect the Kirby Road – Counce Road Interchange to the five-lane section of SR 304 between US 61 and SR 3, and serve as a major access to the casinos at Robinsonville)
- SR 304 Interchange; a portion of two-lane SR 304 to the west of this interchange south of the SIU 10 Spur would be rebuilt to provide a multilane facility on new location with grade separations at the Illinois Central Railroad and SR 3 (by connecting directly to the five-lane section of Old SR 304 west of the railroad between US 61 and SR 3, the multilane facility will serve as a major access to the casinos at Robinsonville)

2.4.3.2 Central Alternative

Southern Section

One of the objectives of the Central Alternative was to use as much of existing US 61 as possible. In places, the Central Alternative is on new location to avoid environmental impacts, cultural resources, and relocation of homes, businesses, church, cemeteries, or other important community facilities. As shown on **Figure 2-6**, the original Central Alternative begins at the SIU 12 terminus and proceeds east to Lake Bolivar before turning southeast to cross SR 1 south of Ray Brooks School. It continues to the southeast and crosses several water bodies, including Lake Vista and Bushy Lake. Because a relatively large quantity of wetlands was identified within this initial segment, another option was developed in this area to minimize wetland impacts, relocations, and costs. The new option proceeds southeast across Lake Bolivar, crosses SR 1 north of Scott at Lake Vista, and then turns east to join the original alignment near SR 448. This second option is also part of the Eastern Alternative. The difference in impacts between the original Central Alternative alignment in this area and the revised alignment is summarized in **Table 2-5**. The various figures in this document show the revised alignment for the Central Alternative in this area, and all quantities are based on the revised alignment.

Table 2-5 Benoit Segment Options Central Alternative in the Southern Section		
Impact Category	Original Option*	Segment Option to Minimize Wetland and Relocation Impacts
Residential Relocations	0	0
Wetlands (acres)	62	18
Construction Cost w/R.O.W. (Estimated, Millions)	\$91.3	\$87.2

Additional categories did not have any substantial difference.

* As shown on Figure 2-6.

Source: Neel-Schaffer, Inc. 2004; Kimley-Horn and Associates, Inc. 2004

East of SR 448, the Central Alternative parallels SR 448 to the north and parallels the Western Alternative. Several miles northwest of Shaw the Central Alternative turns north, joins the Western Alternative south of SR 446, and separates from it after crossing SR 8. The Central Alternative turns northeast and joins US 61 near Merigold. The alignment for this section was revised following the Public Hearing, as discussed in Section 2.4.3.4 It continues along US 61 to the Coahoma County line near Bobo with the exception of the portion between Shelby and Hushpuckena where the Central Alternative is slightly east of US 61. At Bobo, the Central Alternative then proceeds west of existing US 61. South of Clarksdale, the Central Alternative turns east and crosses US 61. It then connects to the New Africa Road at the Clarksdale Bypass (on same alignment as the Western Alternative). The Central Alternative is shown on **Figure 2-6**, with projected traffic volumes shown on **Figure 2-7**. The following interchanges, spurs, and crossroad connectivity improvements are identified with the Central Alternative's southern section:

- SR 1 Interchange
- Shaw–Litton Road Interchange
- Litton Road West Spur/Shaw Spur and US 61 Interchange
- SR 446 Interchange; also upgrade east to US 61
- SR 8–Cleveland Interchange
- Merigold US 61 Interchange
- Merigold–US 61 Spur
- Mound Bayou Interchange
- Mound Bayou Spur
- Hutton Road Interchange; also upgrade county road west to SR 161
- Shelby Interchange
- Shelby Spur

- Duncan Interchange
- Alligator Interchange
- Bobo Interchange
- US 61–S. Clarksdale Interchange
- New Africa Road Interchange

Middle Section

There is only one alternative for the middle section, which extends from the south end of the Clarksdale Bypass to approximately four miles south of the Coahoma/Tunica County Line. The alternative is described in detail in Section 2.4.3.1 (Middle Section: Western, Central, and Eastern Alternatives).

Northern Section

The Central Alternative continues northeast on new location from approximately four miles south of the Coahoma/Tunica County Line to just south of Crenshaw Road; it then turns north and joins the Western Alternative prior to crossing Dubbs Road. The alternative remains concurrent with the Western Alternative to the end of the project north of SR 304. It turns north to cross the two-lane SR 304 and end on the SIU 10 Spur (SIU 11 project north terminus; SIU 10 south terminus).

The following interchanges, spurs, and crossroad connectivity improvements are identified with the Central Alternative's northern section:

- US 49–US 61 Interchanges and Upgrade County Road and SR 315 east to SR 3
- Crenshaw Road Interchange and Upgrade of Crenshaw Road west to US 61
- Dubbs Road Interchange and Upgrade of Dubbs Road west to US 61
- SR 4 Interchange
- Prichard Road Interchange and Upgrade of Prichard Road west to US 61 and East to SR 3
- Arkabutla Dam Road Interchange and Upgrade of Arkabutla Dam Road west to US 61
- Kirby–Counce Road Interchange and Upgrade of Counce Road to SR 3
- SR 304–Kirby Road Spur (this spur would connect the Kirby Road – Counce Road Interchange to the five-lane section of SR 304 between US 61 and SR 3 and serve as a major access to the casinos at Robinsonville)

- SR 304 Interchange and a portion of the two-lane SR 304 to the west of this interchange south of the SIU 10 Spur would be rebuilt to provide a multilane facility on new location with grade separations at the Illinois Central Railroad and SR 3 (by connecting directly to the five-lane section of Old SR 304 west of the railroad between US 61 and SR 3, the multilane facility will serve as a major access to the casinos at Robinsonville)

2.4.3.3 Eastern Alternative

Southern Section

The Eastern Alternative begins at the SIU 12 terminus and proceeds southeast across Lake Bolivar. It crosses SR 1 north of Scott at Lake Vista and then turns east to join the Central Alternative before crossing SR 448. Near the crossing of the Bogue Phalia, the Eastern Alternative and the Central Alternative separate, with the Eastern Alternative continuing east. After crossing US 61, the Eastern Alternative turns north paralleling US 61 to the east. After crossing SR 8 the Eastern Alternative takes a slight northeast turn and crosses into Sunflower County where it continues to the north and passes west of the State Penal Farm at Parchman. It continues north into Coahoma County. East of Bobo, it turns northeast and then connects to the Clarksdale Bypass prior to New Africa Road. The Roundaway–Tutwiler Spur is an important element of this alternative. Since a major purpose of an eastern corridor alternative is to serve the eastern portion of the Delta along US 49 and SR3, this spur is essential to provide a connection to the east. The Eastern Alternative is shown on **Figure 2-8**, with projected traffic volumes shown on **Figure 2-9**. The following interchanges, spurs, and crossroad connectivity improvements are identified with the Eastern Alternative’s southern section:

- SR 1 Interchange
- US 61 Interchange
- Boyle Interchange
- Merigold Spur and US 61 Interchange
- Merigold US 61 Interchange
- SR 8–Cleveland Interchange
- Merigold Upgrade/Spur; county road four-laned to provide bypass of Cleveland from county road west to US 61
- Parchman Road Interchange; also upgrade Parchman Road west to US 61
- Roundaway Interchange
- Roundaway–Tutwiler Spur
- Bobo Interchange; also upgrade county road west to US 61

- South Clarksdale Interchange
- New Africa Road Interchange

Middle Section

There is only one alternative for the middle section from the south end of the Clarksdale Bypass to approximately four miles south of the Coahoma/Tunica County Line. Please see Section 2.4.3.1 (Middle Section: Western, Central, and Eastern Alternatives).

Northern Section

The Eastern Alternative is concurrent with the Central Alternative from four miles south of the Coahoma/Tunica county line to north of Crenshaw Road where the Eastern Alternative turns northeast to cross Dubbs Road, SR 4, Prichard Road, and SR 3. After crossing SR 3, it proceeds in a northerly path and crosses Arkabutla Dam Road. The Eastern Alternatives makes a slight turn to the northeast and crosses the two-lane SR 304 to end on the SIU 10 Spur (SIU 11 project north terminus; SIU 10 south terminus). The following interchanges, spurs, and crossroad connectivity improvements are identified with the Eastern Alternative's northern section:

- US 49–US 61 Interchanges; also upgrade county road and SR 315 east to SR 3 in order to provide access to the towns of Rich and Sledge.
- Crenshaw Road Interchange; also Upgrade Crenshaw Road west to US 61
- Dubbs Road Interchange; also Upgrade Dubbs Road west to US 61
- SR 4 Interchange
- Prichard Road Interchange; also Upgrade Pritchard Road west to US 61 and east to SR 3
- Arkabutla Dam Road Interchange; also Upgrade Arkabutla Dam Road west to US 61
- SR 304–Kirby Road Spur (this spur would connect the Kirby Road – Counce Road Interchange to the five-lane section of SR 304 between US 61 and SR 3 and serve as a major access to the casinos at Robinsonville)
- SR 304 Interchange, A portion of the two-lane SR 304 to the west of this interchange south of the SIU 10 Spur would be rebuilt to provide a multilane facility on new location with grade separations at the Illinois Central Railroad and SR 3 (by connecting directly to the five-lane section of Old SR 304 west of the railroad between US 61 and SR 3, the multilane facility will serve as a major access to the casinos at Robinsonville)

During economic studies conducted for the alternatives, one potential shift was considered in this section of the Eastern Alternative (A copy of the 2002 Economic Report is contained in **Appendix I**). The east side of Cleveland along SR 8 has the highest number of employees of any

alignment within a 2.5-mile radius of interchanges. This one area made the major difference in the employment data for the three alternatives since all three alternatives follow the same alignment through the Clarksdale area. Based on this factor, the economic study recommended a modified eastern alignment that would connect with existing US 61 at Merigold and basically utilize the Central Alternative from that point to the north. This modified alignment would be able to take advantage of the heaviest concentration of industrial employment in Bolivar County and also utilize all other existing resources to the fullest potential possible along US 61. The modified Eastern Alternative was considered along with the other three build alternatives in the subsequent and more quantitative 2004 economic analysis, as described in Section 4.3.1 (A copy of the 2005 Economic Report is contained in **Appendix J**). No detailed alignment shifts were developed or studied.

2.4.3.4 Selection of the Preferred Alternative

The Preferred Alternative is a modified version of the Central Alternative, which uses as much of existing US 61 as possible (see **Figure 2-10**). The Preferred Alternative and the basis for its selection are discussed in the following text.

Southern Section

The Preferred Alternative begins at the SIU 12 terminus and proceeds southeast across Lake Bolivar. It crosses SR 1 north of Scott at Lake Vista and then turns east before crossing SR 448. As discussed in Section 2.4.3.2, this crossing avoids and minimizes impacts. After crossing SR 448, the Preferred Alternative parallels SR 448 to the north until several miles northwest of Shaw where it turns to the north. This portion of the Preferred Alternative is identical to the Central Alternative, including the revised alignment at Lake Bolivar.

After crossing SR 446, the Preferred Alternative generally proceeds northeast and crosses SR 8 on the west side of Cleveland. Northwest of Renova, the Preferred Alternative turns east to join US 61 near Merigold. It follows existing US 61, passing west of Merigold and Mound Bayou, and then passing east of Winstonville and Shelby. At the northern portion of Shelby, the Preferred Alternative leaves US 61 to avoid impacts and proceeds slightly to the northeast on new location to parallel US 61 as it continues north until rejoining US 61 at Hushpuckena. The Preferred Alternative then continues along US 61 to the Coahoma County line near Bobo. It then proceeds on new location west of existing US 61. South of Clarksdale, it turns east and follows

the US 61 Clarksdale Bypass. The following interchanges, spurs, and crossroad connectivity improvements are identified with the Preferred Alternative in the southern section:

- SR 1 Interchange
- Litton Road Interchange
- Shaw-US 61 Spur and US 61 interchange
- SR 446 Interchange; also upgrade SR 446 east to US 61
- SR 8–Cleveland Interchange
- US 61 South- Merigold Interchange
- Mound Bayou Interchange
- Mound Bayou Spur
- Hutton Road Interchange; also upgrade county road west to SR 161
- Shelby Interchange
- Duncan Interchange
- Alligator Interchange
- Bobo Interchange
- South State Street Interchange
- New Africa Road Interchange (existing)

The Preferred Alternative includes several modifications made to the Central Alternative in the Southern Section. Following the public hearing and public comment, the alignment between Litton Road and Merigold was modified. This modified alignment resulted in

- dividing less farmland,
- using more existing county roads as frontage roads,
- reducing residential relocations,
- more equitably impacting farmland between landowners,
- crossing farmland at the outer property edges or adjacent to a county road,
- having less disruption to drainage, and
- there were less disruptions to county roads.

SR 8 Improvements

The Preferred Alternative would include the widening of SR 8 from Cleveland to Rosedale. SR 8 would have a five-lane section extended west of Cleveland to a point west of the SR 8-Cleveland Interchange, where the roadway would transition to a four-lane divided section and remain this way until the eastern edge of Pace. At that point, the roadway would transition to a five-lane

section through the built-up area of Pace. The roadway would then transition back to a four-lane divided section to a point slightly east of Rosedale where it would again transition to a five-lane section to the intersection with SR 1.

The Preferred Alternative (Alternative D) was selected based on input received at the Public Hearings. It is a combination of the B and C alternatives presented at the Public Hearing. Like Alternative B, the Preferred Alternative D uses the existing SR 8 corridor through Pace. Therefore, it avoids the expected negative impacts associated with using the portion of the Pace Bypass Alternative, Alternative C, that would have opened a new environmental corridor through a major farming environment.

Middle Section

In the middle section, the Preferred Alternative begins at the south end of the New Africa Road Interchange and ends approximately four miles south of the Coahoma/Tunica County Line. It would use the current Clarksdale Bypass south and east of Clarksdale. Near Lyon, the Preferred Alternative would parallel US 49/US 61 to the east to avoid existing development. It rejoins US 49/ US 61 north of Eagles Nest Road to approximately four miles south of the Coahoma/Tunica County Line, where the northern section begins.

The following interchanges, spurs, and crossroad connectivity improvements are identified with the middle section:

- US 49 Interchange (includes a five-lane connecting road from the interchange northwest to the Old US 61 intersection in Clarksdale)
- SR 6 Interchange
- Eagles Nest Road Interchange
- Eagles Nest Road Spur
- Jonestown-Coahoma Interchange; also upgrade county road west to SR 1 and SR 316 east to Jonestown

Following the public hearing, the Coahoma-Jonestown Interchange was modified to better accommodate traffic, to lessen farmland impacts, and to avoid archaeological sites.

Northern Section

The Preferred Alternative continues northeast on new location from approximately four miles south of the Coahoma/Tunica County Line to just south of Crenshaw Road; it then turns north prior to crossing Dubbs Road. The alternative turns northeast near Arkabutla Dam Road. The Preferred Alternative proceeds northeast and crosses SR 3. It turns north to cross the two-lane SR 304 and end on the SIU 10 Spur (SIU 11 project north terminus; SIU 10 south terminus).

- Modification due to the presence of Pondberry
- Dubbs Road Interchange modification to incorporate more parallel county roads to share the farmland impacts more equitably.

The following interchanges, spurs, and crossroad connectivity improvements are identified with the Preferred Alternative's northern section:

- US 49 North–US 61 North Interchanges and Upgrade County Road and SR 315 east to SR 3
- Crenshaw Road Interchange and Upgrade of Crenshaw Road west to US 61
- Dubbs Road Interchange and Upgrade of Dubbs Road west to US 61
- SR 4 Interchange
- Prichard Road Interchange and Upgrade of Prichard Road west to US 61 and East to SR 3
- Arkabutla Dam Road Interchange and Upgrade of Arkabutla Dam Road west to US 61
- Kirby–Counce Road Interchange and Upgrade of Counce Road east to SR 3
- SR 304–Kirby Road Spur (this spur would connect the Kirby Road – Counce Road Interchange to the five-lane section of SR 304 between US 61 and SR 3 and serve as a major access to the casinos at Robinsonville)
- SR 304 Interchange and a portion of the two-lane SR 304 to the west of this interchange south of the SIU 10 Spur would be rebuilt to provide a multilane facility on new location with grade separations at the Illinois Central Railroad and SR 3 (by connecting directly to the five-lane section of Old SR 304 west of the railroad between US 61 and SR 3, the multilane facility will serve as a major access to the casinos at Robinsonville)

Archeological surveys identified sites that would be impacted by the Western Alternative in the vicinity of US 49 and the Welcome Center. Therefore, the decision was made to use the Central Alternative as the Preferred Alternative. The interchange with US 49 and US 61 was modified to provide a grade separation and interchange at US 61 and the US 49 connector.

2.4.3.5 Basis for Selecting the Preferred Alternative

The Central Alternative was designated as the Preferred Alternative for the following reasons:

- Greatest economic benefits
- Most minority and low-income population served
- Least environmental impacts
- Most cost effective route
- Best intermodal connections
- Greatest community support

Greatest economic benefits

Research has been conducted into the potential benefits of the I-69 corridor. Based on a study completed in 2005 (*Evaluating Economic Benefits of I-69 in the Mississippi Delta Region*, Wilbur Smith Associates, 2005), the build alternatives would differ in their potential economic effects (A copy of the 2005 Economic Report is contained in **Appendix J**). The Preferred Alternative provides the greatest economic benefits based on:

- Providing the greatest savings in vehicle miles traveled as a total throughout the study area, based on the transportation model used to project traffic volumes for the alternatives.
- Offering the most opportunities for attracting business development and diversifying the economy, with fewer competitive disadvantages.
- Offsetting potential job losses in the agricultural industry with the attraction of new businesses.

Facilitating economic development and enhancing economic growth opportunities are an important part of the purpose and need for the I-69 corridor. Research from the Delta Regional Authority as well as by others shows that economic development is likely to follow a “clustering” concept that involves concentrating public and private investment in key areas or clusters. Cleveland and Clarksdale are key cities for creating an environment for economic development opportunities (see Section 4.3.1), since existing development provides a base for additional development to occur in close proximity. Therefore, population centers and interchanges along I-69 would be prime candidate areas for economic development. In the Southern Section, the Preferred Alternative is closer to more communities than is the East or West Alternatives. Through the Southern and Middle Sections, the Preferred Alternative follows much of US 61 and would benefit Bolivar County’s existing population centers between Cleveland and Clarksdale. In addition, this alternative has more proposed interchange locations and thus provides more access opportunities and opportunities for economic development.

The Preferred Alternative would be closer to more industrial parks. One major exception, the industrial site on the east of Cleveland, has limited expansion area. Bolivar County believes this alternative has the best long-term economic growth potential for Cleveland and Bolivar County as a whole. Furthermore, it does more to develop the tourism and heritage efforts of the Blues Corridor by following US 61. By following US 61, it offers the shortest and least expensive route for manufacturers located between Cleveland and Clarksdale. By being located closer to the municipalities along US 61, the cost to municipalities of providing utility services to businesses at interchange locations would be less.

Most minority and low-income population served

The Preferred Alternative is the only alternative within the Mid-Delta Empowerment Zone and serves more disadvantaged and minority residents. By passing closest to the minority communities along US 61, this alternative best meets Environmental Justice guidelines. The Preferred Alternative also has been endorsed by the leaders of the minority communities along US 61.

Least environmental impacts

The Preferred Alternative is supported by the EPA as being the least damaging from an ecological standpoint. As the alternative that minimizes overall impacts, the modified Central Alternative also has been determined to be the Environmentally Preferred Alternative. By following US 61, there would be less right-of-way needed and fewer environmental issues. The Preferred Alternative would have the least wetland impacts. In addition, it would avoid more Wetland Reserve Program land than the other alternatives and would be the least disruptive to wild game and the natural habitat.

Most cost effective.

The Preferred Alternative is most cost effective alternative. It costs approximately \$40 million dollars less than the next least expensive alternative and has the least amount of maintenance associated costs. In addition, this alternative is the shortest length route and thus would minimize user cost.

Best intermodal connections

The Preferred Alternative is located closer to the Rosedale-Bolivar County Port than the Eastern Alternative, and the same distance as the Western Alternative. It includes an improved SR 8 connection between Cleveland and Rosedale, which addresses improved access to the Port from Cleveland and other areas of the Delta, such as the industries in Cleveland. In addition, the Preferred Alternative would also be located near the Cleveland, Clarksdale, and Tunica airports.

Greatest community support

Following the Public Hearing, comments were received which indicated support for alternatives. The greatest support was demonstrated for the Central Alternative, which was modified to reduce impacts, and then selected as the Preferred Alternative. It was preferred by more than 80% of the public attending the public hearings, including cities and towns along US 61 in Bolivar County north of Cleveland (see Chapter 8).

Based on the above support, the Central Alternative as revised is the generally Preferred Alternative.

2.4.3.6 Typical Section and Design Summary

The proposed Interstate facilities consist of two lanes in each direction, a grassed median, and where appropriate, a two-lane frontage road. The typical section, which applies to the Preferred Alternative, is shown as **Figures 2-11A, B, and C**. **Figure 2-11A** represents the highway on new location, while **Figures 2-11B and 2-11C** represent widening along existing US 61 to the east and west, respectively. **Figure 2-12A, B, and C** correspond to the typical sections found along SR 8. The access for I-69 will be full control (Type 1).

The location of potential frontage roads began during the development of the Preliminary Alternative Corridors. Frontage roads will not be provided for the entire length of the project, but will be developed on one or both sides where it is determined to be economically justified. Frontage roads may vary in width from 16 feet to 24 feet, and may be paved or gravel, depending on the number of property owners served. The following factors were considered to retrofit an efficient frontage road concept into the alternatives eventually selected for detailed study:

- The large initial widths for the alternative corridors allowed flexibility for narrowing the widths for the chosen corridors as the study progressed.

- Efforts were made to cross major streams at good angles in anticipation of having bridges at those locations.
- Efforts were made to cross county roads and highways at good angles in anticipation of having either grade separation bridges or interchanges at those locations.

In the process of refining the preliminary alternative corridors, complete property ownership information was obtained. The property information was necessary to determine the locations of alternatives relative to property lines; to determine how much of a specific owner's property was impacted; and, to determine if the alternatives could be adjusted to lessen or avoid the impact of dividing farmland.

Within the opportunities and constraints allowed by the natural and human environments, the following approach was used to refine the alternatives in a manner that took into account disruptions to neighborhoods or farming operations, community cohesion, and possible frontage roads.

- Alternative corridors were generally placed at the fringe areas of municipalities and communities, and a grade separation bridge or interchange was placed at a nearby U.S. highway, state highway, or county road to provide access for local traffic to cross the interstate.
- The typical spacing between interchanges or grade separations was kept to no more than two miles when a property owner's access to the other side of the interstate was divided.
- In most instances where county road bridges were proposed, the county roads would be bridged over the interstate. This approach meant only one bridge would be needed instead of the two bridges that would be required if the interstate were taken over the county roads.
- The alternative corridors were placed adjacent to or nearby the existing road network. This approach maintained existing traffic patterns, lessened the need for providing frontage roads, and was an effort to lessen the impact to farming operations divided by the interstate.
- The locations of primary drainage ditches were considered when refining the alternatives because these ditches tend to naturally divide farming operations.
- When bisecting of farmland occurred, efforts were made to leave large or very small tracts of land on each side of the alternative. The property retained by the owner after the I-69 right-of-way was acquired could then hopefully be large enough to farm or it would be so small that the remaining property would be an uneconomical remnant.

The following describes the frontage road concept used for the new location alternatives and for alternatives using US 61:

- For new location alternatives, the alternatives followed and paralleled the county roads when possible. Recognizing the concept of taking most county roads over the interstate, the alternatives had to be kept a sufficient distance away from paralleling county roads to allow the county road to be bridged over the interstate. In most instances this minimum distance from the county road to the alternative was **700** to 1,000 feet. Such distances provided enough distance to take a county road over the interstate without impacting that county road's intersection with another nearby county road. By keeping alternatives a minimum of 700 to 1000 feet away from the parallel county roads, the belief was that the remaining farmland divided by alternatives would not become an uneconomical remnant of property for the landowner.
- When new location alternatives were proceeding east to west or north to south, efforts were made to follow section lines and property lines as much as possible to eliminate the need for providing frontage roads.
- For new location alternatives, a combination of parallel county roads and added frontage roads was used in conjunction with the grade separation bridges and interchanges as the means of providing access to large parcels of property divided by alternatives.
- For alternatives using US 61, the existing southbound lanes of US 61 would be converted to a two-lane, two-way frontage road from Merigold to the north part of Shelby in Bolivar County and from Hushpuckena in Bolivar County to the Bolivar/Coahoma County Line. From the Swan Lake/Clarksdale Airport area in Coahoma County to the Dundee area in Tunica County, the existing northbound lanes of US 61 would be converted to a two-lane, two-way frontage road. This was used as a means to maintain traffic on US 61 during the construction of I-69 for these alternatives. Should an incident occur requiring the closure of the northbound and/or southbound lanes of the interstate, this frontage road concept would provide a means to detour the interstate traffic over a continuous frontage road between Merigold and the Bolivar/Coahoma County Line and between Swan Lake and Dundee. The concept of utilizing one of the existing lanes of US 61 for a frontage road addresses access needs on one side of the interstate, and also provides a two-lane road for economic development. The access needs for the other side of alternatives that use US 61 was addressed in a similar manner to that of the new location alternatives.

2.4.3.7 Project Phasing

Subsequent to selection of the Preferred Alternative, the project was reviewed for the applicability of recent guidance on major projects receiving federal funding. Construction of the I-69 SUI 11 is envisioned to be phased over the next 19 years. Therefore, the project was determined to consist of five distinct and operationally independent phases:

Section 1: 18.465 miles, SR 304 Interchange to South of SR 4 Interchange
 Anticipated Letting Date: 2016
 Estimated Letting Year Construction Cost: \$275 Million

- Section 2: 31.549 miles, South of SR 4 Interchange to North of SR 6 Interchange
Anticipated Letting Date: 2022
Estimated Letting Year Construction Cost: \$460 Million
- Section 3: 48.160 miles, North of SR 6 Interchange to South of SR 446 Interchange
Anticipated Letting Date: 2019
Estimated Letting Year Construction Cost: \$483 Million
- Section 4: 22.807 miles, South of SR 446 Interchange to Great River Bridge
Anticipated Letting Date: 2026
Estimated Letting Year Construction Cost: \$408 Million
- Section 5: 17.764 miles, SR 1 at Rosedale to Cleveland
Anticipated Letting Date: 2029
Estimated Letting Year Construction Cost: \$124 Million

The five sections are detailed in **Appendix G** (in a separate binder) with updated plan and profile sheets as well as cost estimates in 2001 dollars to maintain consistency with previous estimates used in the DEIS. In addition, to correlate with the varying dates of construction, total costs by section were estimated (also included in **Appendix G**) by adjusting cost factors to reflect the anticipated year of letting.

Chapter 3

Affected Environment

This chapter provides a general description of the current social and economic characteristics and natural environment of the study area. The descriptions establish a baseline condition of the social and environmental settings of the study area and provide a basis for determining environmental consequences of the proposed project.

3.1 Study Area

The study area for the proposed I-69 SIU 11 corridor is located in the Delta region of northwest Mississippi. The study area is located east of the Mississippi River; south of the Tunica/DeSoto County Line; west of US 49 W; and north of SR 450. As shown by the study area boundary lines on **Figure 3-1**, the majority of Bolivar, Coahoma, and Tunica Counties, as well as the northwestern portion of Sunflower County, are within the study area. These counties cover approximately 1,367 square miles. The major towns and cities located within these counties include the following:

Bolivar

- Alligator
- Benoit
- Beulah
- Boyle
- Cleveland (Co-County Seat)
- Duncan
- Gunnison
- Merigold
- Mound Bayou
- Pace
- Rosedale (Co-County Seat)
- Shelby
- Winstonville

Coahoma

- Clarksdale (County Seat)
- Coahoma
- Jonestown
- Lula
- Lyon

Tunica

- Tunica (County Seat)

Sunflower

- No towns or cities within the study area.

Based on the data from the 2000 Census, the City of Clarksdale in Coahoma County is the largest city within the study area with a population of 20,645. The City of Cleveland, with a population of 13,841, is the largest municipality in Bolivar County and the Town of Tunica has the largest population—1,132—in Tunica County. As noted above, in Sunflower County, there are no major cities or towns within the study area. The cities of Clarksdale and Cleveland have substantially more population than other municipalities in the primarily rural study area.

Although it is not identified as being part of the four-county study area, a spur to the Eastern Alternative extends approximately one mile across the Coahoma County Line into Tallahatchie County. All impacts associated with each alternative and their associated spurs will be discussed in Chapter 4.

3.2 Land Use

3.2.1 Existing Land Use

In general, most of the land in the study area is rural. Agricultural activity is the predominant land use of Bolivar, Coahoma, Sunflower, and Tunica Counties (see **Figure 3-2**). The soils within the Lower Mississippi Delta Region make up some of the richest soils in the region. Most of the rural land is farmed for cotton, rice, soybeans, or converted into ponds for aquaculture. In the rural environment, most of the uncultivated land is in low areas around lakes and streams.

Due to the topography of the study area being predominately flat, levees have been constructed along the Mississippi River to help with flood control. Little topographical change occurs outside of the levee system. Any undulation in the land follows the meanders created by the Mississippi River as it shifted over the years.

From the south, the primary urban areas within the study area are Cleveland in Bolivar County, Clarksdale in Coahoma County, and Tunica in Tunica County. These cities as well as smaller municipalities are located along US 61.

US 61 is the primary north-south corridor through the study area. Most of the commercial and industrial activity within the study area is located along US 61 or near other modes of transportation including existing county airports or railroad lines. All counties within the study area have at least one industrial park. Most of these industrial parks have space available for future industrial development. Major employers within the study area include: Cooper Tire & Rubber Company (Coahoma County) and Baxter Healthcare (Bolivar County). In Tunica County, employment is supported by a number of casinos and hotels located in the Robinsonville area. There are a few other private employers within Tunica County, the largest being Pillowtex which employs approximately 320 employees.



3.2.2 Land Use Plans

Only Tunica County has a comprehensive land use plan. No other counties within the study area have land use plans. The Tunica County Comprehensive Plan had the following comments pertaining to the proposed construction of the I-69 corridor through Tunica County:

- Tunica County will show the proposed I-69 alternative on the Future Land Use and Transportation Plans.
- Tunica County plans to limit development in the desired I-69 corridor to avoid conflicts with right-of-way acquisition when construction begins.
- Most of the proposed alternatives would be acceptable and would not interfere with the county's land use planning for that area.
- Proposed construction of I-69 should be near existing modes of transportation to help allow for more economic growth in already industrial areas.

Interviews with County officials for the study area also were conducted to gain a perspective of each county's needs and wants for the proposed project. The interviews were conducted to allow all counties within the study area to voice their concerns on issues associated with the construction of this section of the I-69 corridor. Interviewed officials stated specific factors and locations within the county to encourage benefits from economic development. Concerns voiced by the officials included avoiding a large amount of relocations for businesses and residents of

the area, and looking at environmental issues such as degradation of prime and unique farmland that is essential to the region's economy.

3.3 Farmland

In general, farmland is land that is suitable for crop production. However, farmland may be categorized more specifically by the individual characteristics of the soils and their ability to produce crops. One category of farmland is "prime farmland." Prime farmland is defined by the Federal Farmland Protection Act (1981) and the U.S. Council on Environmental Quality (1976) as land having the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmlands have the soil quality, growing season, and moisture supply needed to economically and consistently produce high yields of crops when properly managed. Prime farmland includes cropland, pastureland, rangeland, and forestland, but does not include land converted to urban, industrial, transportation, or water uses.



"Unique farmland" is categorized with prime farmland for analysis purposes and is defined as an area which has physical and environmental characteristics that support the cultivation of specialty crops. In addition, the Mississippi Department of Agriculture also defines areas as "statewide and locally important farmland." These areas are evaluated separately from prime and unique farmland. Statewide and locally important farmlands are essential to the production of food, feed, fiber, forage, or oilseed crops, which are particularly important to the region.

Prime, unique, statewide and locally important farmlands are present throughout the study area. Coordination with the Natural Resource Conservation Service (NRCS) has occurred to determine the locations of prime, unique, statewide and locally important farmland within the proposed construction areas for this section of the I-69 corridor.

Land in the study area is intensively cultivated. The soils are part of the Southern Mississippi Valley Alluvium soil group, which is considered essential to the productivity of the croplands in the study area. Approximately 55 percent of the croplands in the study area are made up of Southern Mississippi Valley Alluvium soils.

According to the NRCS, more than half of the total acreage of each county is considered prime farmland. **Table 3-1** presents acres of farmable land, percent farmable land, percent prime farmland, and average farm size for each county within the study area.

Table 3-1 Total Acres of Prime Farmland				
Farmland	Bolivar	Coahoma	Sunflower	Tunica
Acres of Farmable Land	508,067	274,000	417,974	182,200
Percent of Farmable Land	87%	76.7%	94.2%	67.2%
Total Acres of Prime Farmland	387,588	234,834	328,236	143,020
Percent of Prime Farmland	66%	64%	74%	52.6%
Average Size of Farm in Acres	888	840	853	840

Source: NRCS Jackson, Mississippi for Kimley-Horn and Associates, Inc., 2003.

3.4 Social and Economic Characteristics

3.4.1 Demographics

The currently available 2000 Census data was used to determine the demographics associated with the study area. To investigate historic trends in the study area, both 1990 and 2000 Census data were compared.

3.4.1.1 Population

To determine population trends, population totals for the counties, towns, and cities within the study area were reviewed. **Table 3-2** shows the population breakdown by county for the years 1990 and 2000.

Table 3-2 Population Data for 1990-2000			
State/County	Population		Percent Change
	1990	2000	1990-2000
Mississippi	2,573,216	2,844,658	10.5
Bolivar	41,875	40,633	-3.0
Coahoma	31,665	30,622	-3.3
Sunflower	32,867	34,369	4.6
Tunica	8,164	9,227	13.0

Source: U.S. Census Bureau SF1 100% Count Data, 1990 and 2000.
Kimley-Horn & Associates, Inc, 2004.

Tunica County has had the greatest increase in population. It is likely that the gaming industry in Tunica County has influenced this change. In 1992, Tunica County opened its first casino. Eight additional casinos have opened since then. Both Bolivar and Coahoma Counties have lost small amounts of their population, a trend that occurred throughout the 1990s.

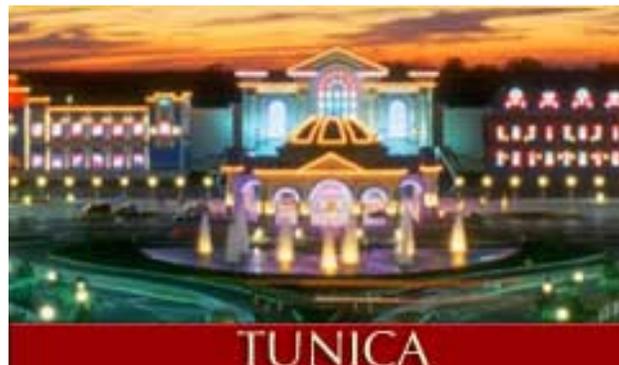


Table 3-3 shows population trends and percent change for the major cities and towns within the study area. Most of the towns and cities within the four-county study area are small towns with populations of less than 1,000. The major cities and towns within the study area that have experience growth include Clarksdale, Shelby, and Jonestown. The second largest city in the study area, Cleveland, has had a decline in population.

Table 3-3 Population Trends by Place				
County	Towns and Cities	Population		Percent Change 1990-2000
		1990	2000	
Bolivar	Alligator	187	220	17.6
	Benoit	641	611	-4.7
	Beulah	460	473	2.8
	Boyle	651	720	10.6
	Cleveland	15,384	13,841	-10.0
	Duncan	416	578	38.9
	Gunnison	611	633	3.6
	Merigold	572	664	16.1
	Mound Bayou	2,222	2,102	-5.4
	Pace	354	364	2.8
	Shelby	2,806	2,926	4.3
	Winstonville	277	319	15.2
	Clarksdale	19,717	20,645	4.7
Coahoma	Coahoma	254	325	28.0
	Jonestown	1,467	1,701	16.0
	Lula	224	370	65.2
	Lyon	446	418	-6.3
Sunflower	No major cities or towns within the study area.			
Tunica	Tunica	1,175	1,132	-3.7

Source: U.S. Census Bureau, 2000.

Kimley – Horn and Associates, Inc., 2004.

3.4.1.2 Age

Information about age distribution within Mississippi and the study area is shown in **Table 3-4**. In the table, the population is identified for each age group and county within the study area. In addition, the percentage of overall population within each age group is shown.

Table 3-4					
County Population by Age Range					
Age Range	Total Population (Percent)				
	County				Mississippi
	Bolivar	Coahoma	Sunflower	Tunica	
Total Population	40,633	30,622	34,369	9,227	2,844,658
0-10	6,928 (17.1)	6,052 (19.8)	5,574 (16.2)	1,725 (18.7)	465,032 (16.4)
11-17	5,118 (12.6)	4,056 (13.3)	4,020 (11.7)	1,812 (19.6)	310,155 (10.9)
18-21	3,672 (9.0)	2,029 (6.6)	3,002 (8.8)	613 (6.6)	190,179 (6.7)
22-34	7,248 (17.8)	4,722 (15.4)	7,030 (20.5)	1,590 (17.2)	502,593 (17.7)
35-49	7,759 (19.1)	6,081 (19.9)	7,510 (21.9)	1,950 (21.1)	617,483 (21.7)
50-64	5,428 (13.4)	3,928 (12.8)	3,900 (11.4)	1,238 (13.4)	433,685 (15.3)
65-74	2,216 (5.5)	1,922 (6.3)	1,673 (4.9)	500 (5.4)	185,710 (6.5)
75+	2,264 (5.6)	1,832 (6.0)	1,660 (4.8)	433 (4.7)	157,813 (5.6)

Source: U.S. Census Bureau SFI 100% Count Data, 2000.
Kimley-Horn and Associates, Inc., 2004.

As shown above, the percentage of people aged less than 18 years is higher in the study area counties, particularly Tunica County, than for Mississippi. Generally, the population of people age 65 or older is less than 12.5 percent for each county in the study area.

The population over 65 within the study area and shown by Census tract (Year 2000) is identified in **Table 3-5**. At the Census tract level, the percent of the population over 65 ranges from 5.8 to 14.5 percent.

Table 3-5 Study Area Population Over 65 by 2000 Census Tracts				
County	Census Tract	Total Population	Population over 65	Percent Population over 65
Bolivar	9501.00	5,145	679	13.2
	9502.00	4,296	451	10.5
	9503.00	4,366	506	11.6
	9504.00	5,757	610	10.6
	9505.00	5,352	476	8.9
	9506.00	7,453	842	11.3
	9507.00	8,264	909	11.0
Coahoma	9501.00	5,120	548	10.7
	9502.00	2,791	338	12.1
	9503.00	3,707	382	10.3
	9504.00	4,828	632	13.1
	9505.00	5,715	794	13.9
	9506.00	1,917	213	11.1
	9507.00	6,544	851	13.0
Sunflower	9501.00	9,067	557	5.8
	9502.00	5,073	736	14.5
	9503.00	3,135	282	9.0
Tunica	9501.00	4,253	349	8.2
	9502.00	4,974	582	11.7

Source: U.S. Census Bureau Year 2000, 2003.
Kimley-Horn and Associates Inc., 2004.

3.4.1.3 Race

Minority population trends for Mississippi and the four-county study area are shown in **Table 3-6** for the years 1990 and 2000. The minority Year 2000 populations for Bolivar County (66.8 percent), Coahoma County (70.7 percent), Sunflower County (66.9 percent), and Tunica County (72.5 percent) are nearly double the statewide minority population for Mississippi, which is 37.9 percent. Coahoma County had the largest increase in minority population between 1990 and 2000.

Table 3-6 Minority Population: 1990 – 2000							
State/ County	Total Population		Minority Population		Percent Minority		
	1990	2000	1990	2000 ^a	1990	2000	Percent Change
Mississippi	2,573,216	2,844,658	939,755	1,078,538	36.5	37.9	1.4
Bolivar	41,875	40,633	26,616	27,126	63.6	66.8	3.2
Coahoma	31,665	30,622	20,664	21,657	65.3	70.7	5.4
Sunflower	32,867	17,815	21,263	11,925	64.7	66.9	2.2
Tunica	8,164	9,227	6,172	6,686	75.6	72.5	-3.1

^aMinority populations from the 2000 Census include persons who consider themselves to be of two or more races.

Note: Total population and minority population data is based on populations of entire county.

Source: U.S. Census Bureau SF1 100% Count Data, 1990 and 2000.

Kimley-Horn and Associates, Inc., 2004.

Minority populations by 2000 Census tract are shown in **Table 3-7** and on **Figure 3-3**. Only one Census tract (Bolivar County, Tract 9506.00) has a minority population below 20 percent. All other Census tracts have minority populations that are above 47 percent. Two census tracts in Coahoma County (Tract 9506.00 and 9507.00) have minority populations at or above 98 percent. Based on data shown in Tables 3-6 and 3-7, most of the census tracts within the study area have minority populations at or above the countywide percentages, and considerably higher than the statewide percentage.

Table 3-7				
Minority Population by 2000 Census Tracts				
County	Census Tract	Total Population	Minority Population	Percent Minority
Bolivar	9501.00	5,145	4,333	84.2
	9502.00	4,296	3,617	84.2
	9503.00	4,366	3,927	90.0
	9504.00	5,757	4,413	76.7
	9505.00	5,352	2,539	47.4
	9506.00	7,453	842	11.3
	9507.00	8,264	7,229	87.5
Coahoma	9501.00	5,120	4,372	85.4
	9502.00	2,791	1,347	48.3
	9503.00	3,707	2,379	64.2
	9504.00	4,828	2,286	47.4
	9505.00	5,715	2,769	48.5
	9506.00	1,917	1,898	99.0
	9507.00	6,544	6,421	98.1
Sunflower	9501.00	9,067	6,259	69.0
	9502.00	5,073	3,612	71.2
	9503.00	3,135	2,001	63.8
Tunica	9501.00	4,253	3,127	73.5
	9502.00	4,974	3,490	70.2

Source: U.S. Census Bureau SF3 Summary Data, 2000.
Kimley-Horn and Associates, Inc., 2004.

3.4.2 Economics

The percent of population below the poverty level, median household income, and per capita income data were obtained for Mississippi, counties, and 2000 Census tracts. **Table 3-8** provides information related to Mississippi and the four-county study area.

Table 3-8 Poverty Data for Study Area						
State/County	Total Population		Below Poverty Level^a		Percent of Population Below Poverty Level	
	1990	2000	1990^b Population	2000^b Population	1990	2000
Mississippi	2,573,216	2,844,658	631,029	568,932	24.5%	20.0%
Bolivar	41,875	40,633	17,158	13,531	41.0%	33.3%
Coahoma	31,665	30,622	13,997	10,993	44.2%	35.9%
Sunflower	32,867	17,815	12,302	10,311	37.4%	57.9%
Tunica	8,164	9,227	4,597	3,054	56.3%	33.1%

^aThe poverty level thresholds vary between family size and composition and is a dollar amount set for the total family income. The population below the poverty threshold describes the amount of people that are below the defined threshold.

^bCensus estimates were based on the one-in-six sample of housing units that received the long form. Poverty level was based on 1989 data for the 1990 Census and 1999 data for the 2000 Census.

Source: U.S. Census Bureau SF3 Summary Data, 1990 and 2000.
Kimley-Horn and Associates, Inc., 2004.

According to the 2000 Census, approximately 20 percent of the population in Mississippi lives below the poverty level. Within the study area, Sunflower County has the greatest percentage of people below the poverty level (57.9 percent) and Tunica County has the least amount (33.1 percent).

The median household income for Mississippi is \$31,330 (see **Table 3-9**). The median household incomes for the four-county study area are nearly \$10,000 less than that of the average median income for all of Mississippi. The median household income for Tunica County is \$23,270. This amount represents more than a \$13,000 increase from 1990. The counties within the study area have a median household income that ranges from \$22,338 to \$24,970. All four counties in the study area have a median household income that is below the state median. The per capita income levels for the four-county study area are also lower than that for Mississippi (\$15,853). The per capita incomes range between \$11,365 and \$12,558 for the counties within the study area (see **Table 3-9**).

Table 3-10 presents economic data on poverty level, median household income, and per capita income for each of the 2000 Census tracts within the study area. **Figures 3-4** and **3-5** show the

median household income and percent population below poverty level in the study area by 2000 Census tract. **Table 3-10** displays the economic data for each census tract.

State/County	Total Population	1990 Median Household Income^a	2000 Median Household Income^a	Percent Change	1990 Per Capita Income^a	2000 Per Capita Income^a	Percent Change	Percent Below Poverty Level
Mississippi	2,844,658	\$20,136	\$31,330	55.6%	\$9,648	\$15,853	64.3%	19.9%
Bolivar	40,633	\$14,020	\$23,428	67.1%	\$6,889	\$12,088	75.5%	33.3%
Coahoma	30,622	\$13,780	\$22,338	62.1%	\$7,197	\$12,558	74.5%	35.9%
Sunflower	34,369	\$14,431	\$24,970	73.0%	\$7,067	\$11,365	60.8%	30.0%
Tunica	9,227	\$10,965	\$23,270	112.2%	\$6,449	\$11,978	85.7%	33.1%

^a Census estimates were based on the one-in-six sample of housing units that received the long form. Median household income and per capita incomes were based on 1989 data for the 1990 Census and 1999 data for the 2000 Census.

Source: U.S. Census Bureau SF3 Summary Data, 1990 and 2000.
Kimley-Horn and Associates, Inc., 2004.

As shown in Tables 3-9 and 3-10, most of the census tracts within the study area have a higher percentage of population below the poverty level than the state as a whole, and at or above the countywide percentages.

County	Census Tract	Total Population	Median Household Income	Per Capita Income	Below Poverty Level	
					Population	Percent
Bolivar	9501.00	5,145	\$17,763	\$10,015	2,382	46.3
	9502.00	4,296	\$19,776	\$9,122	1,830	42.6
	9503.00	4,366	\$19,111	\$9,480	1,729	39.6
	9504.00	5,757	\$21,035	\$14,415	2,257	39.2
	9505.00	5,352	\$26,969	\$19,021	1,231	23.0
	9506.00	7,453	\$44,229	\$9,665	701	9.4
	9507.00	8,264	\$19,335	\$10,474	3,124	37.8
Coahoma	9501.00	5,120	\$17,718	\$10,474	2,166	42.3
	9502.00	2,791	\$36,818	\$17,598	544	19.5
	9503.00	3,707	\$23,775	\$13,619	1,257	33.9
	9504.00	4,828	\$32,600	\$15,836	869	18.0
	9505.00	5,715	\$25,080	\$12,327	1,834	32.1
	9506.00	1,917	\$14,207	\$8,993	1,164	60.7
	9507.00	6,544	\$14,933	\$10,302	3,108	47.5
Sunflower	9501.00	9,607	\$22,666	\$8,242	3,065	31.9
	9502.00	5,073	\$24,597	\$12,332	1,593	31.4
	9503.00	3,135	\$22,226	\$14,498	1,019	32.5
Tunica	9501.00	4,253	\$26,465	\$12,193	1,272	29.9
	9502.00	4,974	\$18,780	\$11,795	1,786	35.9

Source: U.S. Census Bureau SF3 Summary Data, 1990 and 2000.
Kimley-Horn and Associates, Inc., 2004.

3.4.3 Environmental Justice

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse effects of federally funded projects on minority and low-income populations as part of the environmental justice (EJ) analysis. To determine the impacts of this section of the I-69 corridor on the four-county study area, two parameters were investigated. These parameters are as follows:

- **Minority population;** Minority population refers to any readily identifiable group of *minority persons* (Black, Hispanic, Asian or Pacific Islander, American Indian or Alaskan Native, and other non-white populations). The EJ analysis used the definitions from the 2000 Census collectively as a comparison between white and non-white population.

- **Low-income population;** Low-income population can be based on several indicators. For the EJ analysis in this **FEIS**, the low-income threshold was based on *percent below the poverty level* from the 2000 Census. The 2000 Census questionnaires identified income levels from 1999.

To determine potential environmental justice impacts, 2000 Census data were reviewed at the state, county, and Census Tract level. To ascertain whether a Census tract would pose a potential EJ concern, the 2000 Census tract data in the four-county study area were compared to the data for the county in which they reside. For minority populations, potential EJ concerns exist if the percent minority for the Census tracts is *at least 20 percent greater* than (1.2 times) the percent minority at the county level. For calculating the percent below poverty level, a potential EJ concern would exist if the percent below the poverty level for the Census tracts were *at least 20 percent greater* than (1.2 times) the percentage at the county level. **Table 3-11** provides the results of this analysis.

With exception of two Census tracts in Tunica County, all the Census tracts in the study area have potential EJ concerns related to either percentage minority population and/or percentage of population below the poverty level. To address potential EJ concerns related to the proposed project, an Environmental Justice Outreach Plan was implemented and is discussed in **Chapter 4**.

**Table 3-11
Potential Environmental Justice Concerns for Minority Populations and Income Levels**

	Unit	Total Population	Minority			Poverty Level	
			Population	Percent	Potential EJ Concern	Percent Below Poverty Level	Potential EJ Concern
State and Counties	Mississippi	2,844,658	1,078,538	37.9	--	19.9	--
	Bolivar County	40,633	27,126	66.8	Yes	33.3	Yes
	Coahoma County	30,622	21,657	70.7	Yes	35.9	Yes
	Sunflower County	17,815	11,925	66.9	Yes	30.0	Yes
	Tunica County	9,227	6,686	72.5	Yes	33.1	Yes
Bolivar County	Tract 9501.00	5,145	4,333	84.2	Yes	46.3	No
	Tract 9502.00	4,296	3,617	84.2	Yes	42.6	No
	Tract 9503.00	4,366	3,927	90.0	Yes	39.6	Yes
	Tract 9504.00	5,757	4,413	76.7	No	39.2	Yes
	Tract 9505.00	5,352	2,539	47.4	No	23.0	Yes
	Tract 9506.00	7,453	842	11.3	No	9.4	Yes
	Tract 9507.00	8,264	7,229	87.5	Yes	37.8	Yes
Coahoma County	Tract 9501.00	5,120	4,372	85.4	Yes	42.3	Yes
	Tract 9502.00	2,791	1,347	48.3	No	19.5	Yes
	Tract 9503.00	3,707	2,379	64.2	No	33.9	Yes
	Tract 9504.00	4,828	2,286	47.4	No	18.0	Yes
	Tract 9505.00	5,715	2,769	48.5	No	32.1	Yes
	Tract 9506.00	1,917	1,898	99.0	Yes	60.7	No
	Tract 9507.00	6,544	6,421	98.1	Yes	47.5	Yes
Sunflower County	Tract 9501.00	9,067	6,259	69.0	No	31.9	Yes
	Tract 9502.00	5,073	3,612	71.2	No	31.4	Yes
	Tract 9503.00	3,135	2,001	63.8	No	32.5	Yes
Tunica County	Tract 9501.00	4,253	3,127	73.5	No	29.9	No
	Tract 9502.00	4,974	3,490	70.2	No	35.9	No

Source: U.S. Census Bureau, 2000.
Kimley-Horn and Associates, Inc., 2004.

3.5 Community Facilities

Schools, churches, cemeteries, and public, recreational, and correctional facilities were identified within the study area. Due to the length of this project, some of the figures for the study area, such as the community facilities figure, required two separate pages. **Figure 3-6** shows how these Figures are divided.

Figures 3-7A and **3-7B** identify community facilities located within the study area. Due to the scale, some of the facilities near the alternatives may appear to be within the alignment. A discussion of impacts to community facilities is included in Chapter 4.

3.5.1 Schools

There are 75 public and private elementary, middle, and high schools in the study area. There are also three institutions of higher learning, including the Coahoma Community College north of Clarksdale, Delta State University in Cleveland, and the Joe Barnes Vocational/Technical Center in Rosedale. In addition, there are 43 schools listed as “historical,” indicating that the school is no longer operational. In those cases, the unused school buildings may have fallen into disrepair, or may have been demolished since the school was deactivated.

3.5.2 Churches and Cemeteries

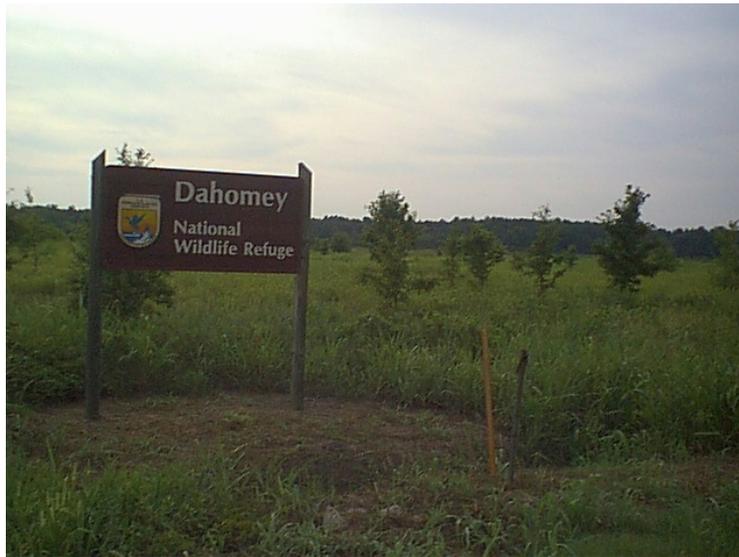
There are 341 churches and 124 cemeteries in the study area. While some are clustered in the cities and towns, the majority are scattered throughout the rural areas. Most of the rural churches are small frame structures, many of which serve African American congregations.

3.5.3 Public Facilities

Public facilities in the study area include city and government buildings such as the Cleveland City Hall, the Clarksdale City Hall, the Bolivar County Courthouse in Cleveland, the Coahoma County Courthouse in Clarksdale, and the Tunica County Courthouse in Tunica. The Western Bolivar County Courthouse in Rosedale is immediately adjacent to the study area. Other important public facilities include the Carnegie Library and the Delta Blues Museum, which are both in Clarksdale. The Walter Sellers Coliseum is in Cleveland at Delta State University.

3.5.4 Parks and Recreation

There are five golf courses within the study area, with the course at Delta State University being the only public course. Three of the golf courses are in Bolivar County. The Cleveland Country Club and the Delta State University Golf Club are in the western part of Cleveland along SR 8. The Shelby Country Club is located southwest of Shelby along SR 32. There are two golf courses in Coahoma County, including the Clarksdale Country Club northwest of Clarksdale, and the Coahoma County Country Club southwest of Clarksdale along US 61.



The Dahomey National Wildlife Refuge is located in southwestern Bolivar County. It consists of agricultural fields, bottomland hardwood forested wetlands, and areas of reforestation. The Askew Wildlife Management Area is located in southeastern Tunica County and serves as a refuge for wildlife and as a floodway for Arkabutla Lake.

In addition to the recreational facilities mentioned above, there are numerous boat landings on the Mississippi River and nearby lakes as well as small public and private parks scattered throughout the cities and towns along the corridor.

The Great River Road State Park is just outside the study area. It is located along the Mississippi River south of Rosedale and north of the Rosedale Port. The park offers activities such as tent and trailer camping, fishing and other water sports, a Frisbee golf course, picnic facilities, a nature trail, and a viewing platform for observing the Mississippi River. Three other recreational

facilities are located immediately adjacent to the study area. The Walter Sellers Country Club is south of Rosedale along SR 1, and Cottonwoods at Grand Casino and the River Bend Links at Casino Strip Resort are in Robinsonville.

3.5.5 Correctional Facilities

The Mississippi State Penitentiary is immediately adjacent to the east of the study area. As shown in **Figure 3-7A**, the penitentiary is located in Parchman in northwestern Sunflower County. A correctional facility is also located in Bolivar County, approximately four miles west of the Cleveland city limits.

3.5.6 Emergency Medical Services

Emergency medical services are provided for each county through either private or county-run services. In Bolivar County, the emergency response service is provided by Bolivar Medical Ambulance Service with routes directly to the Bolivar County Medical Center in the City of Cleveland. Coahoma County uses the Emergystat Ambulance Service with service to the Northwest Regional Medical Center located in the City of Clarksdale. Sunflower County has two hospitals, North Sunflower County Hospital and South Sunflower County Hospital. The two hospitals in Sunflower County are not within the study area, but Medstat Ambulance Services provides service within the study area to both North Sunflower County Hospital and South Sunflower County Hospital. Tunica County has no hospitals in the county, but does have one medical center, Tunica County Medical Center located in the City of Tunica. Ambulance service from Tunica County to neighboring hospitals is provided by Rural Metro Ambulance Service. There are also two additional health centers located in the study area: the Aaron E. Henry Community Health Center in Clarksdale (Coahoma County) and the Delta Health Center in Mound Bayou (Bolivar County).

3.6 Transportation and Utilities

3.6.1 US Highways, State Highways, and County Roads

The transportation network within the study area consists of a combination of US highways, state highways, and county roads (see **Figure 3-8**). Three US highways—US 61, US 278/SR6, and US 49 run through the study area.

- US 61 generally runs north to south and serves communities, towns, and cities such as Boyle, Cleveland, Merigold, Mound Bayou, Winstonville, Shelby, Duncan, and Alligator in Bolivar County; Clarksdale, Lyon, Coahoma, Rich, and Lula in Coahoma County; and Tunica and Robinsonville in Tunica County. With the exception of the segment between Shelby and Clarksdale, which is two-lane, US 61 within the study area is four-lane.
- US 278/SR 6 is concurrent with US 61 in the southern portion of the study area. US 278/SR 6 and US 61 then separate in the study area at Clarksdale, where US 278/SR 6 becomes concurrent with SR 6 and resumes its east-west orientation. Within the study area, the overlapping section of US 278/SR 6 and US 61 connects the cities of Cleveland and Clarksdale.
- US 49 joins the city of Clarksdale and the community of Rich in the study area. US 49 is out of the study area until it reaches Clarksdale where it joins US 61 and moves northeast towards Rich. Approximately one mile from Rich, US 49 separates from US 61 and travels northwest to cross the Mississippi River approximately five miles west of Lula.

Nine state highways run throughout the study area. SR 8 and SR 1 are the primary state highways within the study area. Each is described below.

- SR 8 begins at the intersection with SR 1 at Rosedale and extends east through the Town of Pace and the City of Cleveland. After exiting Cleveland, SR 8 continues east out of the study area.
- SR 1 (also called the Great River Road) extends along the western edge of the study area. It begins at Onward in central Mississippi and terminates at US 49 in northern Mississippi. Within the study area, SR 1 serves communities, towns, or cities such as Benoit, Beulah, Rosedale, Gunnison, Rena Lara, Sherard, Stovall, and Friars Point.
- In addition to SR 1 and SR 8, there are other state highways within the study area—such as SR 446, SR 32, SR 444, SR 322, SR 316, SR 4, and SR 304 that serve communities, towns, or cities such as Skene, Benoit, Shelby, Duncan, Sherard, Jonestown, Tunica, and Robinsonville. In addition, SR 161 (Old 61) travels through Merigold, Mound Bayou, Winstonville, and, Shelby.

Each county in the study area also contains a network of county roads. Generally, these roads follow a grid pattern.

3.6.2 Railroads

Railroad corridors occur throughout the study area (see **Figure 3-8**). One main rail corridor runs in a north-south orientation from the Southern Bolivar County Line to the Tunica/DeSoto County Line. However, most of this rail corridor is abandoned. The only active parts of the railway are the Mississippi Delta Railroad, which runs from the Tunica/Coahoma County Line to Clarksdale. Active spurs branch off of the Mississippi Delta Railroad and run from Lula to Jonestown in Coahoma County. Another active railroad line follows US 49 from Clarksdale to the southeast. The Columbus and Greenville Railway begins at Cleveland in Bolivar County and runs south out of the study area. Another railroad, the Great River Railroad, begins in Rosedale and runs southward through both Beulah and Benoit before leaving the study area. Its route parallels the route of SR1. The Rosedale–Bolivar County Port Commission operates the Great River Railroad.

3.6.3 Airports

Three airports are located within the study area (see **Figure 3-8**). All of these airports are general aviation facilities. The first airport is located in Tunica County. It is located approximately two miles east of Tunica. A new runway was recently completed at this airport. The second airport is located in Coahoma County just to the west of US 61 approximately seven miles north of Clarksdale. The third airport is in Bolivar County approximately two miles west of the junction of SR 8 and US 61 in Cleveland. Shelby Airfield also is located approximately one mile northwest of Shelby. Several landing strips for crop dusting aircraft are also located throughout the study area.

3.6.4 Pedestrian and Bicycle Facilities

There are no designated bicycle routes located along existing US 61. Designated bike facilities located near the study area include the Mississippi River Trail (MRT) that follows SR 1 from Minnesota and ends in Louisiana.

3.6.5 Scenic Byways

There are no nationally designated Scenic Byways located within the study area. “The Great River Road,” designated by the Mississippi River Parkway Commission (MRPC), is a system of

roads that follow the Mississippi River in 10 states. In Mississippi, the Great River Road follows US 61 north from the Louisiana state line through Natchez and Vicksburg to Onward, then proceeds on SR 1 north to US 49, US 49 to US 61, then north on US 61 to the Tennessee state line. While portions of the Great River Road in other states have been designated as National Scenic Byways, the portion in Mississippi has not received that designation. It is a goal of MRPC to have the entire length of the Great River Road designated as a National Scenic Byway.

3.6.6 Utilities

The study area contains both natural gas lines and transmission line corridors (see **Figure 3-9**). The transmission lines, which are owned by Entergy, enter the northern part of the study area west of US 61 and parallel US 61 through Tunica County to Clarksdale in Coahoma County. A transmission line corridor branches to the southeast of Tunica, and another corridor branches both to the west and the east just north of the Tunica County Line. South of Clarksdale, the transmission line corridor follows a southerly direction until it reaches Cleveland, where it turns to the southeast and leaves the study area. At Renova in Bolivar County, another transmission line corridor, which is also owned by Entergy, crosses the north-south corridor in an east-west direction. The corridor crosses US 61 approximately five miles south of Tunica and again approximately 10 miles south of Tunica. Another crossing of the US 61 corridor occurs just outside of Clarksdale in Coahoma County.

Several natural gas pipelines cross the proposed alternatives. Two pipelines owned by Texas Gas Transmission Company run through the entire length of the study area in a southwest to northeast direction. These pipelines cross US 61 both north and south of the Tunica County Line and then to the northeast of Clarksdale in Coahoma County. They cross the US 61 corridor again north of both Winstonville and Merigold before leaving the southern edge of the study area south of the Dahomey National Wildlife Refuge. Another pipeline owned by the Wisconsin Pipeline Company enters the study area to the northeast of the Mississippi State Penitentiary and crosses US 61 just north of Renova. Two other pipelines owned by the Tennessee Gas Transmission Company cross US 49W north of Ruleville and run to the southwest before leaving the study area approximately five miles east of Shaw.

3.7 Air Quality

The Clean Air Act directed the United States Environmental Protection Agency (USEPA) to establish standards for clean air. As a result, the USEPA established National Ambient Air Quality Standards (NAAQS) for six atmospheric pollutants that affect the air quality of a region. These pollutants are carbon monoxide, sulfur dioxide, lead, particulate matter, ozone, and ozone precursors: hydrocarbons and oxides of nitrogen. Each pollutant is described below:

- *Carbon Monoxide* — Carbon monoxide (CO) is an odorless, colorless gas formed by the burning of fuels containing carbon. Motor vehicles are the principal source of CO emissions in urban areas. Maximum concentrations usually occur near intersections and other areas of traffic congestion, and they decrease rapidly with distance from the source.
- *Sulfur Dioxide* — Sulfur Dioxide (SO₂) belongs to the family of Sulfur Oxide gases (SO_x). SO_x gases are formed when fuel-containing sulfur, such as oil, is burned, and when gasoline is extracted from oil. SO₂ interacts with other gases and particulates in the air to form sulfates and other products that can be harmful to people and their environment.
- *Lead* — Levels of the pollutant “Lead” (Pb) in the air have decreased dramatically since 1978, primarily due to reductions in emissions from cars and trucks. Today, metal processing plants are generally responsible for most of the lead in the air.
- *Particulate Matter* — Particulate matter (PM) enters the air from industrial operations, vehicular traffic, and other sources, including fireplaces. Most of the particulate matter generated by motor vehicles consists of re-suspended road dust. Two common classifications for particulate matter are total suspended particulates (TSP) and particulate matter small enough to get in the lungs (PM₁₀), which only includes particles with a diameter less than or equal to 10 micrometers.
- *Ozone* — Ozone (O₃) in the lower atmosphere is a harmful air pollutant and contributes to the formation of smog. It is a secondary pollutant formed by the reaction of hydrocarbons and oxides of nitrogen in the presence of strong sunlight. Thus, ozone levels are reduced by minimizing emissions of those precursor pollutants.
- *Hydrocarbons* — Hydrocarbons (HC) are a key component in the formation of ozone. These organic compounds are emitted or evaporate into the atmosphere from a variety of sources, particularly the storage and combustion of fuels in motor vehicles.
- *Oxides of Nitrogen* — Oxides of nitrogen (NO_x) are another precursor to the formation of ozone. They are produced as the result of high-temperature fuel combustion and subsequent atmospheric reactions. Major sources of NO_x include diesel engines, power plants, refineries, and other industrial operations.

In addition to the above pollutants, individual states can establish standards that are equal to or more stringent than the national standards. The State of Mississippi has established criteria for Total Suspended Particulates (TSP). A summary of the national and state ambient air quality standards are shown in **Table 3-12**.

Table 3-12 Mississippi and National Ambient Air Quality Standards		
Pollutant	Averaging Time	Mississippi and National Standards
Carbon Monoxide (CO)	One Hour*	35 ppm
	Eight-Hour*	9 ppm
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	0.03 ppm
	Twenty-Four Hour*	0.14 ppm
	Three-Hour* Secondary	0.50 ppm
Lead (Pb)	Three-Month Arithmetic Mean	1.5 ug/m ³
Particulates (PM 10)	Annual Arithmetic Mean Primary & Secondary	50 ug/m ³
	Twenty-Four-Hour** Primary & Secondary	150 ug/m ³
Particulates (PM 2.5)	Annual Arithmetic Mean Primary & Secondary	15 ug/m ³
	Primary Twenty-Four-Hour	65 ug/m ³
Ozone	One Hour	0.12 ppm
	Eight-Hour	0.08 ppm
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm
Total Suspended Particulates (TSP)	Twenty-Four-Hour*	150 ug/m ³
*	Not to be exceeded more than once per year.	
**	Statistically estimated number of days with exceedances is not to be more than 1 per year.	
***	Not more than one expected exceedance per year on a three year average.	
	ppm	Parts of pollutant per million parts of air (by volume) at 25° C.
	ug/m	Micrograms of pollutant per cubic meter of air.

Sources: Code of Federal Regulations: Title 40 Part 50: Last amended July, 1987.
Mississippi Department of Natural Resources, Bureau of Pollution Control; Regulation APC-S-4: Last amended June 22, 1988.

This project falls within the Mississippi Delta Intrastate Air Quality Control Region (AQCR #134). The National Air Monitoring System (NAMS) and State and Local Air Monitoring System (SLAMS) program conduct air monitoring for the above pollutants at various locations throughout the region and within Mississippi. The results of air quality monitoring data determine the state's ability to meet and maintain the NAAQS. The areas where air pollution levels persistently exceed standards may be designated “nonattainment.”

The EPA Office of Air Quality Planning and Standards (OAQPS) manages EPA programs both to improve air quality in areas where the current quality does not meet air quality standards and to prevent deterioration in areas where the air is relatively free of pollution. According the EPA

OAQPS, Mississippi does not exceed air quality standards and is in attainment for all criteria pollutants. The regulatory citations and actions that determined this area is in attainment for the 1-hour ozone standard and other NAAQS, with the exception of the ozone and fine particulate matter standards, is 40 Code of Federal Regulation Part 81. The reference announcing the determination of this area being in attainment for the 8-hour ozone and fine particulate matter standards is 69 FR23857 (published in the Federal Register on April 30, 2004), respectively.

3.8 Noise

3.8.1 Fundamentals of Sound and Noise

Ambient noise is the noise resulting from natural and mechanical sources, as well as human activity considered to be usually present in a particular area. The purpose of assessing ambient noise levels is to quantify the existing acoustic environment, thus providing a base for assessing the noise impact of the proposed project on residences and other noise-sensitive receptors. Differences in the measured noise levels are attributed to variations in site conditions and traffic volumes.

Traffic noise levels are commonly measured using the A-weighting curve. Expressed as dBA, this curve correlates very well with human response to noise, particularly from annoyances such as traffic and aircraft noise.

Equivalent Sound Levels (Leq) at all occupied facilities in the vicinity of the proposed project were made using the FHWA Highway Traffic Noise Prediction Model. By definition, the Leq is the level of constant sounds which, in a given situation and time period, has the same energy as time-varying sound. In other words, the fluctuating sound levels of traffic noise are represented in terms of a steady noise level with the same energy content.

Typical sound levels for common indoor and outdoor activities are shown in **Table 3-13**. Illustrated sound levels range from the threshold of hearing at up to five dBA to a jet takeoff at 120 dBA. Typical urban sound levels range from 50 to 90 dBA.

Table 3-13 Typical Sound Levels		
Source	Distance	Level (dBA)
Jet takeoff	200 ft.	120
Jet takeoff	2,000 ft.	110
Jet landing	200 ft.	100
Heavy truck	50 ft.	90
Pneumatic drill	50 ft.	80
Freeway traffic	50 ft.	70
Air conditioning unit	20 ft.	60
Normal conversation	12 ft.	50
Light auto traffic	100 ft.	50
Library	----	40
Soft whisper	15 ft.	30
Threshold of hearing	----	0-5

Source: U.S. Noise Pollution, Environmental Protection Agency, 1972.

In the analysis, occupied facilities were defined as any facilities that either have regular human use or typically do so even if they are temporarily vacant. Occupied facilities were identified within 500 feet (measured from roadway centerline) of each alternative alignment. Based on the inventory conducted, 83 occupied facilities are located along the Eastern Alternative, 71 occupied facilities are located along the Central Alternative, and 51 occupied facilities are located along the Western Alternative. In addition, 128 occupied facilities are located along the existing (two-lane) SR 8 corridor.

3.8.2 Noise Impact Criteria

Title 23 of the Code of Federal Regulations Part 772 (23 CFR 772) defines traffic noise impacts as “impacts which occur when the predicted traffic noise levels approach or exceed the Noise Abatement Criteria (NAC), or when the predicted traffic noise levels substantially exceed the existing noise levels.”

A memorandum dated December 1, 1993, from the Director, Office of Environment and Planning, Federal Highway Administration says that, “effective from the date of this memorandum, all State Highway Administrators (SHA) must establish a definition of ‘approach’ that is at least 1 dBA less than the NAC for use in identifying traffic noise impacts in traffic noise

analysis.” Therefore, the MDOT has defined “approach” to be 1 dBA less than the NAC. MDOT also has defined a substantial increase in traffic noise levels to be 15 dBA or more.

The FHWA established noise abatement criteria based on land use or activity category. These noise abatement criteria are listed in **Table 3-14** and are considered to be the absolute levels where abatement must be considered. The Category A criterion applies to tracts of land for which the preservation of serenity and quiet are of paramount importance. The Category B criterion is an exterior condition applied to schools, churches, residences, parks, and in some cases to institutional land uses. The Category C criterion also is an exterior condition applied to commercial and industrial activities. The Category E criterion is an interior condition which applies to noise sensitive activities such as schools, churches, and hospitals.

Table 3-14 Noise Abatement Criteria Hourly A- Weighted Sound Level-Decibels (dBA)		
Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise.

3.8.3 Existing Noise Levels

Field measurements were made at 33 locations (see **Figure 4-1**) using a Norsonic 116 precision integrating impulse sound level meter to determine ambient noise levels at receptors along the project. For the purpose of impact assessment, ambient noise levels were determined for each identified receptor. Ambient noise levels for all receptors were based on the noise levels at the monitored locations and adjusted based on distance from the roadway. A 4.5 dBA decrease in noise with each doubling of distance was assumed. Traffic counts also were taken during the sampling periods at available roadside sites. The noise measurement locations and ambient noise levels are listed in **Table 3-15**.

Table 3-15 Summary of Ambient Noise Levels			
Site¹	County	Location²	Existing Leq (dBA)
01	Tunica	North Central and Western Alternatives	61.0
02	Tunica	North Eastern Alternative	59.4
03	Tunica	North Central and Western Alternative	52.4
04	Tunica	North Central and Western Alternatives	59.9
05	Tunica	North Western Alternative	51.0
06	Tunica	North Central and Eastern Alternatives	56.3
07	Tunica	North Central and Eastern Alternatives	51.5
08	Tunica	North Western Alternative	46.6
09	Tunica	North Western Alternative	48.5
10	Tunica	North Between Western, Central, and Eastern Alternatives	49.6
11	Coahoma	Central Western, Central, and Eastern Alternatives	49.6
12	Coahoma	Central Western, Central, and Eastern Alternatives	52.4
13	Coahoma	Central Western, Central, and Eastern Alternatives	56.6
14	Coahoma	South Central Alternative	53.4
15	Coahoma	South Central Alternative	N/A
16	Bolivar	South Central Alternative	52.9
17	Sunflower	South Eastern Alternative	49.4
18	Bolivar	South Central Alternative	52.7
19	Bolivar	South Western Alternative	45.3
20	Sunflower	South Eastern Alternative	58.9
22	Bolivar	South Central Alternative	56.5
24	Bolivar	South Western Alternative	N/A
25	Bolivar	South Eastern Alternative	58.2
26	Bolivar	South Western and Central Alternative	64.2
29	Bolivar	South Western and Central Alternatives	59.9
30	Bolivar	South Eastern Alternative	48.7
31	Bolivar	South Western Alternative	51.0
32	Bolivar	South Western Alternative	67.3
33	Bolivar	South Central and Eastern Alternative	56.4

¹Some receptors (21, 23, 27, and 28) are not listed as they were associated with a preliminary alternative that has been eliminated.

²**Preferred Alternative is a modification of the Central Alternative with similar ambient noise levels.**

Source: Kimley-Horn and Associates, Inc., 2004.

Field measurements were used to validate the noise model performance and calibration. Existing noise level estimates using the FHWA Traffic Noise Model (TNM 2.1) were developed for six receptors including 01, 04, 11, 30, 32, and 33. Existing noise levels at all six locations were estimated within an acceptable range (i.e., +/- 2 dBA). Therefore, the TNM model calibration was acceptable to be used for this analysis.

Eighty-three occupied facilities are located in the vicinity of the Eastern Alternative of the proposed project. These facilities consist of houses, mobile homes, churches, and businesses.

There are no occupied facilities having existing traffic noise levels approaching or exceeding 23 CFR 772 Noise Abatement Criteria Levels.

Seventy-one occupied facilities are located in the vicinity of the Central Alternative (Preferred Alternative) of the proposed project. These facilities consist of houses, mobile homes, churches, and businesses. There are no occupied facilities having existing traffic noise levels approaching or exceeding 23 CFR 772 Noise Abatement Criteria Levels.

Fifty-one occupied facilities are located in the vicinity of the Western Alternative of the proposed project. These facilities consist of houses, mobile homes, churches, and businesses. Only one (NRECP32) of these occupied facilities (near SR 1) has existing traffic noise levels approaching or exceeding 23 CFR 772 Noise Abatement Criteria Levels.

One hundred and twenty-eight occupied facilities are located in the vicinity of the SR 8 corridor. These facilities consist of houses, mobile homes, churches, and businesses. There are no occupied facilities having existing traffic noise levels approaching or exceeding 23 CFR 772 Noise Abatement Criteria Levels.

3.9 Geological Resources

3.9.1 Geology

The study area is a combination of Pleistocene alluvial terraces and Holocene (modern) floodplain features and depositional patterns which have resulted in valley trains, backswamps, point bars, abandoned channels, abandoned courses, and natural levees. This mosaic of features spans the project corridors. Valley trains are Pleistocene glacial outwash deposits from the Mississippi River with surface features that reflect braided-stream depositional regimes. Many of these features have been eroded away by lateral channel migration or buried by deep sediments during recent times. The buried channel systems on valley trains differ from abandoned channels within the Mississippi River meander belts in that the valley train channels tend to be filled with coarse sediment below the surface veneer of fine-grained material.

Backswamps are flat, poorly drained areas found between the various past and present meander belts of the Mississippi River. Backswamps are underlain by coarse glacial outwash with surface deposits comprised of fine-grained sediments that were slowly deposited in slack-water conditions. Backswamps have substrates of massive clays and are incompletely drained by small, sometimes anastomosing streams. These areas may not fully drain through channel systems but remain ponded well into the growing season.

Point bars are common features within the study area. They consist of relatively coarse-grained materials laid down on the inside (convex) bend of a migrating stream channel. The rate at which point bar deposition occurs and the height and width of individual deposits vary with sediment supply, flood stage, and other factors. The result is topography of low ridges separated by swales. Abandoned channels are the result of cutoff chutes where a stream abandons a channel segment either because flood flows have scoured out a point bar swale and created new main channel (chute cutoff) or because migrating bendways intersect and channel flow moves through the neck (neck cutoff). Chute cutoffs tend to be relatively small and fill rapidly with sediment often persisting as large depressions. Neck cutoffs often create oxbow lakes because the upper and lower ends of the abandoned channel quickly fill with coarse sediments.

An abandoned course is a stream channel segment left behind when a stream diverts flow to a new meander belt. Abandoned channels often become depressions with heavy soils; abandoned courses are more likely to be continuous with the point bar deposits of the original stream or to become part of the meander belt of a smaller stream. Natural levees form where the overbank flows and results in deposition of relatively coarse sediments adjacent to stream channels. The material is deposited as a continuous sheet that thins with distance from the stream resulting in a relatively high ridge along the bank and a gradual backslope that becomes progressively more fine-grained with distance from the channel.

3.9.2 Soils

Parent materials of soils of the Mississippi Alluvial Valley are fluvial sediments. Glacial outwash and subsequent development of multiple Mississippi River meander belts produced complex landforms. The sorting process based on the mode and environment of deposition has produced textural and topographic gradients that result in distinctive soils. Within a meander belt, surface substrates grade from relatively coarse texture well drained, higher elevation soils on natural

levees directly adjacent to river channels through progressively finer textured and less well drained materials on levee backslopes and point bar deposits to very heavy clay in closed basins within large swales and abandoned channels. Backswamp deposits between meander belts are also heavy clays.

Soil associations are classified as a group of defined and named taxonomic soil units occurring together in an individual and characteristic pattern over a general region. The soils within an association generally vary with depth, slope, stoniness, drainage, and other characteristics. Based on information obtained from the Natural Resource Conservation Service, the soils within the project study area are composed of four main associations: Alligator-Sharkey-Tunica-Dowling, Bosket-Dubbs-Dundee-Forestdale, Dexter, and Commerce-Robinsonville-Crevasse. The following is a brief description of each soil association located within the study area.

Alligator-Sharkey-Tunica-Dowling—This association consists of very deep, poorly drained, very slowly permeable soils that formed in clayey to loamy alluvium. They are found in backswamps, sloughs, and ponded oxbow depressions on the floodplains and low terraces of the Mississippi River. Most of the *Alligator* soils are used for growing soybeans, rice cotton, and wheat. Some are in bottomland hardwoods, dominated by bald cypress, ash, tupelo gum, swamp maple, oaks, hickories, sweetgum, and cottonwood. *Sharkey* soils are poorly drained and darker in color than the *Alligator* series. *Sharkey* soils are used mostly for cropland. Minor areas are in Pecan orchards, woodland, and pasture. Areas that are frequently flooded and ponded are mainly in bottomland hardwoods. Most of the *Tunica* soils are used for growing cotton, soybeans, small grains, corn, hay, and pasture. *Dowling* soils are essentially used for growing timber and wildlife habitat. The vegetation is usually dominated by bald cypress, water tupelo, and red maple.

Bosket-Dubbs-Dundee-Forestdale—This association consists of predominantly nearly level, poorly drained to somewhat excessively drained soils on old natural levees. The soils have formed from medium to moderately fine textured sediments that have been in place long enough for some profile development to take place. *Bosket* soils, which make up only a small portion of this association, occur nearest the old streambeds. They are the best-drained soils of the association. The *Bosket* series consists of very deep, well-drained, moderately permeable soils that formed in loamy alluvium. Nearly all of the soil has been cleared and used for growing cotton, corn, small grain, and other row crops. Few areas are used for pasture and hay. The *Dubbs* series occur next to the *Bosket* soils. They have developed from fine textured alluvium

and have well oxidized profiles. The *Dubbs* series consists of very deep, well-drained, moderately permeable soils formed in loamy alluvium. These soils are on nearly level to sloping areas on natural levees or low terraces of the Mississippi River. Most areas are cleared and used for growing cotton, corn, soybeans, and pasture. The *Dundee* series occur between *Dubbs* and *Forestdale* soils. These are somewhat poorly-drained to moderately well-drained and have mottles in the soil profile. The *Dundee* series consists of very deep somewhat poorly drained soils formed in loamy alluvium. These soils are level to gently sloping soils on natural levees and low terraces along the former channels of the Mississippi River. Most areas are cleared and used for growing row crops. The *Forestdale* series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey and silty alluvium. These soils are on low terraces or natural levees bordering former channels of the Mississippi River. They are saturated in the winter and early spring. Water runs off the surface of these soils very slowly. Slopes range from 0 to 8 percent. Most areas are cleared and used for cotton, soybeans, small grains, and pasture.

Commerce-Robinsonville-Crevasse—This association occurs on the eastern side of the Mississippi River levee. The principle soils are *Commerce*, *Robinsonville*, and *Crevasse*; all of which are on recent natural levees. The relief for this association is nearly level with some small gently sloping areas. The soils are neutral to alkaline. The *Commerce* series consists of deep, somewhat poorly drained, moderately permeable soils that formed in loamy alluvial sediments. These soils are on level to undulating alluvial plains of the Mississippi River and its tributaries. The slope is generally less than 1 percent but ranges up to 5 percent. *Commerce* series soils are used mostly for cropland; cotton, soybeans, corn, and wheat are the principal crops. The *Robinsonville* series consists of very deep well-drained soils with moderate to rapid permeability. These are level to gently sloping soils that formed in loamy alluvium on the floodplain of the Mississippi River. Slopes range from 0 to 5 percent. Most areas of the *Robinsonville* soils are cleared and used for growing cotton, corn, soybeans, hay, and pasture. The *Crevasse* series consists of very deep, excessively drained, rapidly permeable soils that formed in sandy alluvium. These levels to gently sloping soils are on splays and recent, sparsely vegetated point bar deposits on the floodplain of the Mississippi River and its tributaries. Slopes range from 0 to 5 percent. Most areas that are protected from flooding are cleared and used for growing pasture and hay.

The *Dexter* series consists of very deep, well drained, moderately permeable soils that formed in thin loess and underlying loamy and sandy sediments on terraces of Late Pleistocene Age. These

soils are on elongated, narrow convex ridges. Slopes range from 0 to 8 percent. Dexter soils are level to gently sloping and have formed in thin loess and underlying alluvium of mixed mineralogy. They occur mostly on low terraces of the Mississippi River or its tributaries.

3.10 Water Resources

3.10.1 Surface Water

The study area contains several major water bodies due to the topography of the lower Mississippi Delta (**Figures 3-10A and 3-10B**). The Mississippi River has shaped the delta until recent times when levees and flood control structures were put in place to control the river. The water bodies in the study area are the result of the river meandering over time across the delta to create bayous and oxbow lakes.



The study area is within the Yazoo River Basin, Mississippi's largest basin, composed of 13,355 square miles which eventually drains into the Mississippi River. Major streams in the basin include the Coldwater, Little Tallahatchie, Tallahatchie, Yocona, Yalobusha, Sunflower, Big Sunflower, Bogue Phalia, and Yazoo Rivers. Streams in the study area are typically sluggish with silt bottoms. Many streams receive large amounts of sediment and other agricultural

contaminants resulting in high turbidity, elevated nutrients, and periodic elevated toxics. This results in fair to poor water quality.

Waters within Bolivar County include Lake Whittington, Lake Beulah, and Lake Bolivar, which are adjacent to the study area along the eastern bank of the Mississippi River. These lakes are “oxbow” lakes, which were formed when the Mississippi River changed course. The Bogue Phalia River also is located in southern Bolivar County and flows south out of Bolivar County into Washington County. The Sunflower River passes through both Bolivar and Sunflower Counties. Numerous tributaries to the various rivers are located throughout the study area. Many of these tributaries have been channelized in conjunction with agricultural activities.

Several small, unnamed water bodies as well as fish ponds are scattered throughout Bolivar County. These fish ponds are artificially created water bodies that are used typically to raise catfish.

Coahoma County contains several oxbow lakes, including De Soto Lake and Moon Lake. Also, other smaller oxbow lakes are located within Coahoma County. These are mainly within the northern portions of the county. The Sunflower River originates within Coahoma County. Tunica County has two major oxbow lakes: Tunica Lake and Flower Lake. Other oxbow lakes are located within the central portion of Tunica County. Furthermore, the Coldwater River runs through the extreme southern and southeastern portions of the county.

In the preliminary data collected for each of the alternatives, streams were identified using USGS topographic quadrangle maps for the study area. Solid blue lines were identified as perennial streams and dashed lines were identified as intermittent streams. Upon selection of the preferred alternative, additional field assessment was conducted to refine the USGS mapping; evaluate the flow regime of the streams; and collect additional qualitative stream data. This information is detailed in Chapter 4 (Section 4.11.1.2).

Segments of Harris Bayou, Hushpuckena River, and Coldwater River are 303(d) listed waters within the study area (**Figures 3-10A** and **3-10B**). A 303(d) listed water body is an impaired water defined in Section 303(d) of the Clean Water Act and the implementing federal regulations at 40 CFR 131. An impaired water body is one that does not meet water quality standards including designated uses, numeric and narrative criteria, and anti-degradation requirements. The

standards violation might be due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment.

3.10.2 Ground Water

The alluvial aquifer of the Lower Mississippi Valley is one of the largest and most exploited sources of shallow, fresh water in the United States. It is largely an uninterrupted mass of coarse-grained substratum deposits that overlies the eroded suballuvial surface and extends across the entire study area. It is an open hydrologic system with relative rapid recharge and discharge. The underlying aquifer is 125 feet thick. Water levels in the aquifer are generally less than 30 feet below the land surface except near wells, and seasonal fluctuations typically are about 20 feet. Wells within the study area average about 150 feet deep.

3.11 Wetlands

Introduction to Wetlands within the Project Study Area

The wetlands located within the project study area were created by the action of the Mississippi River and its tributaries. The historic natural hydrology and natural flooding regimes have been altered by the construction of the levee system along the Mississippi and some of the other rivers draining the Delta. Prior to European settlement, there were vast stands of bottomland hardwood forests. The Native Americans used the natural levees within the region for agriculture. By the 1880's, extensive agricultural fields were located on the natural levees adjacent to the Mississippi River. With improved flood control and farming equipment, the Mississippi Alluvial Valley forests were reduced 50 percent by 1937, and currently, less than 25 percent of the original area remains forested. Today's landscape is characterized by fragmented forest stands except for a few areas.

There are several different types of wetland systems located within the region which include flats, riverine overbank, riverine backwater, isolated depression, connected depression, isolated fringe, and connected fringe. Most of the wetlands in the project study area are flats, isolated and connected depressions, and isolated and connected fringe wetlands. Wetland flats are large shallow depressional areas typically found at point bar deposits. Depressions tend to occur in abandoned channels, abandoned water courses, and large point bar swales. They can sometimes

be found in wet flats. These areas tend to have standing water for extended periods of time. Isolated depressions tend to have overbank or backwater flooding. Hydrology is dominated by direct precipitation inputs. Connected depressions receive some overbank and backwater flooding. Fringe wetlands occur along the perimeter of water bodies that maintain a zone of open water. These areas occur along the shore of oxbow lakes. Isolated fringe wetlands do not have direct connection to a major stream system. The source of isolated fringe wetland hydrology is from groundwater and precipitation. Connected fringe wetlands have a connection to a major stream system.



The wetlands in the study area have several functions which include floodwater and precipitation detention, nutrient cycling, organic carbon export, element and compound removal, and fish and wildlife habitat. The wetlands within the project study have some floodwater detention but provide for more precipitation detention. Most of the wetlands are ecologically isolated or removed from major stream systems and have little to no direct effect on floodwater detention. However, the wetlands provide for slow runoff of rainfall to streams thus slowing the discharge of stormwater into streams. Wetlands also provide for nutrient cycling by converting nutrients from inorganic forms to organic forms and back through a variety of biogeochemical processes such as photosynthesis and microbial decomposition. Wetlands also provide organic carbon export which provides dissolved and particulate organic carbon to aquatic systems. Wetlands also function to remove permanently or temporarily immobilize nutrients, metals, and other elements and compounds thus reducing the amount of nutrients, heavy metals, pesticides and other pollutants in rivers and streams. Wetlands also provide for fish and wildlife habitat.

Wetlands Data Collection

During field reconnaissance, wetland boundaries along the alternatives were located using Global Position System (GPS) survey equipment. GPS points were taken approximately every 100 feet in the field. For comparison purposes, the estimated wetland acreage is equally accurate for each alternative. Upon selection of the preferred alternative, additional qualitative wetland data was gathered and is contained in Chapter 4 (Section 4.11.1.1).

The study area was evaluated for jurisdictional wetlands in accordance with guidelines for wetland delineation as outlined in the *1987 Corps of Engineers Wetland Delineation Manual*. This approach incorporates three criteria in delineating wetlands: (1) the presence of hydrophytic vegetation, (2) the presence of hydric soils, and (3) evidence of wetland hydrology. All three criteria must be present in a given location for an area to be considered a jurisdictional wetland. Corridors along the alternatives were field reviewed for jurisdictional wetlands during March and April 2003. Areas identified as jurisdictional wetlands were located using GPS survey equipment and aerial photography. A total of 140 wetlands were identified in the alternative corridors during the field review. **Figure 3-2** shows current land use, including wetlands, in the study area.

3.12 Floodplains

Executive Order 11988 defines floodplains as the “lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands, including at a minimum, those that are subject to a 1-percent or greater chance of flooding in any given year” (i.e., the area inundated by a 100-year flood). The 100-year flood (1-percent annual chance) has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for floodplain management purposes. FEMA employs the 500-year flood (0.2 percent annual chance) to indicate additional areas of flood risk.

As discussed above, the study area for this section of the I-69 corridor is relatively flat with a levee protecting the land adjacent to the Mississippi River from flooding. The land between the Mississippi River and the levees is in the 100-year floodplain. Several floodplains occur throughout the study area. The most noticeable grouping of floodplains is in southern Bolivar County surrounding the Bogue Phalia River and its tributaries. The other floodplains within the

study area tend to follow the “oxbow” patterns that outline the meanders in the river. **Figure 3-11A** and **3-11B** show the locations of these floodplains.

3.13 Wild and Scenic Rivers

The Wild and Scenic Rivers Act (as amended) provides for the protection of rivers or river segments that are free-flowing and possess “remarkable physical attributes.” The National Park Service (NPS) of the U.S. Department of the Interior is responsible for reviewing the possible impacts of proposed projects on rivers or river segments that are designated components of the National Wild and Scenic Rivers System, are under the study for the inclusion in this system, or are listed on the Nationwide Rivers Inventory (NRI) as potential candidates for inclusion into the national system. This review also includes projects on tributaries to NRI rivers that could significantly impact water quality and flow. Federal agencies are required to avoid or mitigate any adverse impacts to rivers listed on the NRI that would diminish the outstanding remarkable values, or the free-flowing, undeveloped characteristics of the river.

Information obtained from the NPS indicated no rivers are present in the study area that are listed on the National Wild and Scenic Rivers System and no rivers are present on the NRI as a potential candidate for the system.

3.14 Coastal Zones and Coastal Barriers

The Coastal Barriers Resources Act of 1982 prohibits or restricts federal funding of projects within the Coastal Barrier Resources System. This system includes undeveloped coastal barriers along the Atlantic and Gulf Coasts. No coastal barriers are located within the study area.

The proposed study area is not located in a coastal zone area governed by the Coastal Zone Management Act of 1972.

3.15 Vegetation and Wildlife

The study area is located entirely within the lower Mississippi River Alluvial Plain, which is commonly called the “Delta.” The physical and biological environment has been altered by human activity associated with the isolation and stabilization of the Mississippi River which has stopped large-scale channel migration and overbank sediment deposition. Land use practices have affected the distribution and quality of the remaining forest communities. Historically, the area was a contiguous forested complex of bottomland hardwoods of bald cypress and water tupelo swamps (swamp forest) to more mesic area types of bottomland hardwoods. The area today is characterized by isolated bottomland hardwood stands in an agricultural dominated landscape. The dominant species of these forests vary depending on the hydroperiod and past disturbance history. The project alternatives would impact both agricultural land and areas of natural habitat.

3.15.1 Vegetative Communities

Farmland conversion has altered the landscape in the study area. Large tracts of former bottomland hardwoods have been made suitable for cultivation through clearing and intensive drainage. The study area land use classification is forested, water, disturbed, urban, and agricultural (**Figure 3-2**). Land use data was taken from Mississippi Automated Resource Information System. There are four natural vegetative communities in the study area excluding aquatic habitat, disturbed area, urban, and agricultural.

3.15.1.1 Forest Fringe Wetlands

The forested fringe wetlands are located along the shores of bayous and oxbow lakes. These areas are typically inundated year round, but may dry out during parts of the growing season. These forested stands are dominated by bald cypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*) with a sparse understory of buttonbush (*Cephalanthus occidentalis*) and swamp privet (*Forestiera acuminata*).

3.15.1.2 Overcup Oak – Water Hickory Forest

This hardwood community is typically found in depressional areas and shallow bayous that are saturated for shorter periods of time than forested fringe wetlands. Water hickory (*Carya*

aquatica), water tupelo, bald cypress, and overcup oak (*Quercus lyrata*) are common canopy species along with buttonbush and swamp privet.

3.15.1.3 Hackberry – Elm – Ash Forest

This is a lower slope mixed hardwood forest often found associated clay to clay loam soils. This forested community is dominated by hackberry (*Celtis laevigata*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), willow oak (*Quercus phellos*), and scattered persimmon (*Diospyros virginiana*).

3.15.1.4 White Oaks – Red Oaks – Other Hardwoods Forest

This forested community is found on the well-drained sites typically located on low ridges with coarser grained soils. This forest is dominated by cherrybark oak (*Quercus pagoda*), swamp red oak (*Q. shumardii*), swamp chestnut oak (*Q. michauxii*), and nuttall oak (*Q. texana*).

3.15.2 Wildlife and Fisheries

The fauna of the study area has been impacted by the agricultural development of the Delta. The study area is characterized by numerous fragmented forested stands. The largest remaining stand of bottomland hardwood forested wetland in the study area is the Dahomey National Wildlife Refuge. In addition, the aquatic habitat in the study area has been degraded by the removal of riparian zones and the dredging and straightening of natural channels to facilitate drainage. Many streams in the study area receive large amounts of sediment and other agricultural contaminants resulting in high turbidity, elevated nutrients, and periodic elevated toxics.

3.15.3 Terrestrial Habitat

The described forest communities provide food, shelter, and nesting resources for a relatively diverse population of wildlife. These areas may be particularly suited to “edge” wildlife when located adjacent to successional and maintained/disturbed areas, as they provide corridors for movement of wildlife as well as a variety of food and other resources. Canopy species are common in such areas, providing valuable materials for browser forage as well as materials for nesting, shelter, and cover.

Bottomland communities, including forests and shrub/scrub areas, provide prime habitat for wildlife due to their food, cover, and proximity to a water source. Species diversity and wildlife populations are often high in these communities. Mammals such as raccoon (*Procyon lotor*), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*) are known to occur in these habitats. Other mammals typically found in upland forested communities also may use these riparian areas as part of their home range.

Wildlife species typically found in forested habitats include white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginia*), gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), and gray fox (*Urocyon cinereoargenteus*).

Disturbed areas and agricultural fields provide "edges" or "breaks" along forested communities. These open areas may be important feeding grounds for transient and migrant birds and for wildlife in adjoining vegetative communities. The ecotone between the different communities is considered optimum habitat for game species such as white-tailed deer and northern bobwhite (*Colinus virginianus*).



Common reptiles include Eastern ribbon snake (*Thamnophis sauritus*), common kingsnake (*Lampropeltis getulus*), rough green snake (*Opheodryx aestivus*), rat snake (*Elaphe obsoleta*), Southeastern five-lined skink (*Eumeces inexpectatus*), green anole (*Anolis carolinensis*), Eastern fence lizard (*Sceloporus undulates*), Eastern mud turtle (*Kinosternon subrubrum*), snapping turtle

(*Chelydra serpentina*), Eastern box turtle (*Terrapene carolina*), painted turtle (*Chrysemys picta*), slider (*Pseudemys scripta*), and the river cooter (*Pseudemys concinna*).

Common amphibians include the spotted salamander (*Ambystoma maculatum*), marbled salamander (*Ambystoma opacum*), Eastern newt (*Notophthalmus viridescens*), American toad (*Bufo americanus*), Fowler's toad (*Bufo fowleri*), Northern cricket frog (*Acris crepitans*), spring peeper (*Pseudacris crucifer*), green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), and southern leopard frog (*Rana sphenoccephala*).

The agricultural fields in the study area provide foraging areas in the fall and winter for migratory waterfowl. The lower Mississippi Delta is the most important area for mallards in the United States.

3.15.4 Aquatic Habitat

The aquatic habitat in the study area varies consisting of oxbow lakes, bayous, creeks, and ephemeral depressions. No fish or aquatic organism surveys were performed in the study area, but common fish species of the Delta include bowfin (*Amia calva*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), gizzard shad (*Dorosoma cepedianum*), golden shiner (*Notemigonus crysoleucas*), creek chub (*Semotilus atromaculatus*), yellow bullhead (*Ameiurus natalis*), channel catfish (*Ictalurus punctatus*), and western mosquitofish (*Gambusia affinis*).



3.15.5 Threatened and Endangered Species

Federal law under the provisions of Section 7 of the Endangered Species Act (ESA) of 1973 (as amended) requires that any action likely to adversely affect a federally-protected species be subject to review by the U.S. Fish and Wildlife Service (USFWS). Other species may warrant protection under separate state laws.

3.15.5.1 Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the ESA. Federally listed endangered and threatened species for Bolivar, Coahoma, Sunflower, Tallahatchie, and Tunica Counties, based on the November 7, 2005 USFWS internet listing, are shown in **Table 3-16**. Listed species within the study area include the least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*), pondberry (*Lindera melissifolia*), and fat pocketbook (*Potamilus capax*).

Table 3-16 Federally Listed Threatened and Endangered Species in the Study Area			
Common Name	Scientific Name	Federal Status ^a	Location
Least tern	<i>Sterna antillarum</i>	E	Bolivar County Coahoma County Tunica County
Pallid sturgeon ^b	<i>Scaphirhynchus albus</i>	E	Bolivar County Coahoma County Tunica County
Pondberry	<i>Lindera melissifolia</i>	E	Bolivar County Sunflower County Tallahatchie County
Fat pocketbook	<i>Potamilus capax</i>	E	Coahoma County Bolivar County Tunica County Sunflower County Tallahatchie County
^a T = Threatened E = Endangered ^b Historical record and/or possible occurrence in county.			

Source: U.S. Fish and Wildlife Service, 2003.

"Critical habitat," as defined in the Endangered Species Act (ESA), is a term for habitat given special protection for the benefit of a listed species. Critical habitat, as defined by the USFWS, is

not designated for any species listed in Bolivar, Coahoma, Sunflower, Tallahatchie, and Tunica County, Mississippi. In addition, according to Mississippi's Natural Heritage Program (MNHP's) database, no federally threatened, endangered, or species of concern listed by the USFWS have been documented within the proposed project corridors.

Least tern (*Sterna antillarum*)

The least tern was listed as endangered in 1985 in Mississippi (Mississippi River). Least terns are small birds with a wing span of about 20 inches. Sexes are very similar in appearance. Breeding plumage is characterized by a black crown, white forehead, grayish back with dorsal wing surfaces, black wing tips, white under parts, orange legs, and yellow bill with a black tip.

The least tern is a migratory species with inland populations that historically bred along the Mississippi, Missouri, Arkansas, Red, and Rio Grande River systems and rivers of central Texas. The least tern continues to breed on these rivers systems but its distribution is generally restricted to less altered river segments, reservoirs, and refuges. On the Mississippi River, it occurs almost entirely in the lower valley. About one half of all least terns occur along 683 miles of the lower Mississippi.

The least terns nest in colonies on riverine sand and gravel bars and islands near shallow water feeding areas. Despite habitat instability and susceptibility to predators, least terns seem to be long-lived. Meandering rivers on broad flat floodplains offer the most suitable habitat for least terns. These rivers have high sedimentation and slow currents that result in the creation of sandbars and shallow water areas suitable for nesting and feeding. Many of the sandbars chosen for nesting in the Mississippi River basin are not connected to the shore and can be considered islands. Typical riverine nesting habitat consists of unvegetated or sparsely vegetated sand and gravel bars within a wide unobstructed river channel. An important feature of nesting habitat is the presence of large amounts of driftwood. As natural nesting sites become sparse, least terns have used dredge islands, dikefields, fly-ash lagoons, sandpits, and gravel levee roads as nesting sites. Primary foraging sites are considered to be the shallow waters of lakes, ponds, rivers, and streams with an abundance of small fishes.

A major threat to the survival of the least tern is the actual and functional loss of riverine sandbar habitat—specifically permanent inundation or destruction of nesting areas by reservoirs and channelization projects. Alteration of river and lake dynamics can cause unfavorable vegetation

succession on remaining islands. Twenty-five to forty percent of nest failures are due to coyote predation. Essential habitat includes the Mississippi River from Vicksburg, Mississippi, north to Missouri and Illinois.

There is no suitable least tern habitat within the project corridors; therefore, the proposed project should have no effect on this species.

Pallid sturgeon (*Scaphirhynchus albus*)

The pallid sturgeon is one of the largest fish found in the Mississippi River system. The species evolved from a group of fishes that were dominant during the late Cretaceous period 70 million years ago. The pallid sturgeon has a flat shovel shaped snout and bony plates and a long reptile-like tail. This species is a bottom dweller, found in areas of strong current and firm sand bottom in the main channel of large turbid rivers such as the Mississippi River. The pallid sturgeon is a member of a primitive family (*Acipenseridae*) which, like other sturgeon, has lengthwise rows of bony plates covering its body, rather than scales. Pallid sturgeons are slow-growing, late-maturing fish that feed on small fishes and immature aquatic insects. Spawning occurs from June through August. The pallid sturgeon is distributed from the headwaters of the Missouri River (Fort Benton-Great Falls, Montana) through the Mississippi River to New Orleans, Louisiana.

The pallid sturgeon was federally listed as an endangered species in 1990 and is found in the Mississippi, Atchafalaya, and Red Rivers. The pallid sturgeon co-occurs and even hybridizes throughout its distribution with the smaller and more abundant shovelnose sturgeon. Pallid sturgeons were once widely distributed throughout the Mississippi River. In the last 50 years, there has been a drastic decline in pallid sturgeon abundance over much of their former range. This decline has been coincidental with reservoir construction on the Missouri River for flood control and the development of a series of 24 locks and dams on the upper Mississippi River to improve commercial navigation. These construction activities have greatly altered the river by lowering flow velocities and greatly reducing turbidity levels. Virtually the entire range of the pallid sturgeon has been altered in some form. Normal movements have been blocked by dam construction. Populations of the pallid sturgeon are now so small that the big fish are rarely seen or caught by anglers. Historically, sturgeons have been harvested commercially for their flesh, but they are usually sought out for their valuable eggs, from which caviar is made.

There is no suitable pallid sturgeon habitat within the project corridors; therefore, the proposed project should have no effect on this species.

Pondberry (*Lindera melissifolia*)

Pondberry is a deciduous, aromatic shrub that spreads vegetatively by rhizomes and grows to approximately 2 meters. Pondberry has pale yellow flowers that appear in early spring and oval-shaped red fruits that mature in fall. Pondberry is distinguished from the two other, similar North American members of the genus (*Lindera benzoin* and *Lindera subcoriacea*) by its drooping, thin, and ovately to elliptically shaped leaves that have a strong, sassafras-like odor when crushed.

Pondberry is associated with wetland habitats such as bottomland hardwoods in interior areas, as well as the margins of sinks, ponds, and other depressions in the more coastal sites. The plants grow in the shaded understory of mature hardwoods. An essential feature of its habitat is a persistent wetland hydrology resulting from either a high or perched water table or some other source of seasonal flooding. The most significant threats to pondberry are drainage ditching and conversion of its habitat to other uses. Pondberry is a widely scattered species with small populations, making it vulnerable to local extinctions. There are only 37 known populations existing in six southeastern states. Mississippi has one documented population each in Bolivar, Sunflower, and Sharkey Counties.

Potential habitat exists for pondberry in the study area. A survey for pondberry has been conducted for the Preferred Alternative and discussed in Section 4.15.5 (Effects on Threatened and Endangered Species).

Fat pocketbook (*Potamilus capax*)

The fat pocketbook is a federally endangered species that is listed for all counties in Mississippi. It is a mussel with a rounded, greatly inflated shell, thin to moderately thick, s-shaped hinge line, tan or light brown, rayless, and shiny. It is found in large rivers in slow-flowing water (often near the bank). It can be found in a variety of substrata from mud and sand to fine gravel. Potential habitat for this species does not exist within the project corridor. Based on coordination with the USFWS, a survey for the Fat pocketbook mussel was not required.

In addition to the aforementioned federally protected species, the bald eagle (*Haliaeetus leucocephalus*) receives protection under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act. Removal of the Bald Eagle from the Federal List of Endangered and Threatened Wildlife became effective on August 8, 2007. Under provisions of the ESA, bald eagle populations will continue to be monitored at least until 2012. Habitat for the bald eagle primarily consists of mature forest in close proximity to large bodies of open water for foraging. Large, dominant trees are utilized for nesting sites, typically within one mile of open water.

Potential habitat for this species exists within the project corridor. A survey for bald eagles has been conducted for the Preferred Alternative and discussed in Section 4.15.5 (Effects on Threatened and Endangered Species).

3.15.6 Conservation Easements

Conservation easements are legal agreements entered into by a property owner and a qualified conservation organization such as a land trust or a government entity. The use of conservation easements is widely employed throughout the Delta to protect and preserve wildlife, wetlands, and agricultural land. Most conservation easements involve permanent restrictions on the use of the land whereas some are term easements. Terms and restrictions vary greatly for each agency or organization and easement type. Some examples of easements include:

- Wetlands Easements – USFWS
- Grassland Easements – USFWS
- Conservation Easements – USFWS
- Land Trust Conservation Easements – Ducks Unlimited (DU), The Nature Conservancy, et al.
- Wetland Reserve Program (WRP) Easements – United States Department of Agriculture (USDA)
- Farm Service Agency Easements (FMHA Easements) – USDA

Potential impacts to conservation easements are discussed in Chapter 4, Section 4.16.

3.16 Cultural Resources

3.16.1 Historic Background

The I-69 corridor passes through the center of the Lower Mississippi Valley, an area with a long history of archaeological research and a rich heritage of historical resources. In order to minimize the impact of the proposed highway on those resources, information on recorded archaeological sites and historic structures was obtained early in the planning process and used in the selection of alternative routes for the roadway. At that time there were 835 archaeological sites and 432 historic structures recorded in the corridor. Over 29 percent of the archaeological sites are listed on or have been determined eligible for the National Register of Historic Places. Another 24 percent have not been evaluated, and the remaining 47 percent have been determined to be not eligible for the National Register. About 60 percent of the historic structures are listed or eligible, and most of the remainder have not been evaluated.

Despite the long history of archaeological research and the large number of known archaeological sites, only small portions of the corridor have been systematically surveyed. The great majority of the recorded sites are Native American occupations, ranging in size from small campsites to large multiple mound groups. Mound sites make up a substantial portion of this number (20 percent), due in part to their prominence in the flat landscape, but also to the density of late prehistoric settlement in this region. Multiple mound sites, which represent the largest late prehistoric settlements, account for 15 percent of the known mound sites.

The Native American sites range in age from the Paleo-Indian period (ca. 10,000-8,000 B.C.) to the Historic period. Paleo-Indian sites are few in number and restricted to areas where Late Pleistocene braided-stream or valley train deposits are present near the surface. Very little is known about the size of these sites or the length of their occupation since none have been excavated in the Lower Mississippi Valley. However, based on findings elsewhere in North America, they probably represent short-term occupations by small groups of mobile hunter-gatherers.

The following Archaic period (ca. 8,000-1500 B.C.) is characterized by a reduction in group mobility and the beginning of regional differentiation of cultures. Hunting and gathering continued to be the basis of the economy throughout the period, but site size and group size

almost certainly increased during this time. Circular or semi-circular site plans were present by the middle of the period, and mound construction began in other portions of the Lower Mississippi Valley during this time. Archaic sites are only slightly more numerous than those of the previous period, but they are more widespread, occurring not only on Late Pleistocene landforms, but on the earliest Holocene meander belts.

The next period in the sequence, the Poverty Point period (ca. 1500-800 B.C.), witnessed the establishment of a widespread trade in raw materials and the development of a few large sites that appear to have served as centers for this trade network. Large mounds and elaborate earthworks were constructed at some of these sites. The subsistence economy continued to be based on largely on hunting and gathering, although there is some evidence that plant cultivation had begun by this time. Poverty Point period occupations have been identified at only a few sites in the project corridor, but this is probably due in part to the difficulty of distinguishing them from Late Archaic period occupations.

The subsequent Tchula period (ca. 800 B.C.-A.D. 1) was marked by the first extensive use of pottery in the Lower Mississippi Valley. The widespread trade network and large centers that characterized the previous period apparently did not persist into this period. Mound construction continued, but on a reduced scale and now as a repository for the dead. Hunting and gathering remained the basis of the economy, although, as in the previous period, there are suggestions that plant cultivation was going on at this time. Two Tchula period cultures were present in the project corridor, Lake Cormorant in the northern part and Tchefuncte in the southern part. At present, the distinction between these two cultures is based largely on differences in the ceramics.

The next period in the sequence, Marksville (ca. A.D. 1-350), is noted primarily for the elaborate log tombs and exotic grave goods found in conical burial mounds dating to this time. These features have been interpreted as reflecting increasing social status differentiation and the spread of a religious-ceremonial complex known as the Hopewellian ceremonial complex. Hunting and wild plant gathering continued to be the mainstays of the economy, but in some areas they were supplemented by the cultivation of indigenous small seed plants, such as goosefoot and knotweed.

By the succeeding the Baytown period (ca. A.D. 350-800) involvement in the Hopewellian ceremonial complex had ended, as had the construction of conical burial mounds. In their place

one finds small platforms containing larger numbers of burials with little evidence of status differentiation. Some of these platforms also supported structures, the first evidence of mounds being used as bases for structures in this area. The economic base of these societies was apparently a mixture of hunting, wild plant gathering, and cultivation of the native small seed plants. Maize appears in the Lower Mississippi Valley during the early portion of this period, although it seems to have been only a minor element in the diet for some time.

During the Coles Creek period (ca. A.D. 800-1200) there were significant changes in site size and complexity, and presumably in the underlying sociopolitical organization as well. The small platforms built in the previous period increased in size and number. Typical Coles Creek mound groups consisted of two or three platform mounds arranged around a plaza. One of the mounds supported the residence of the village leader or chief, and a second was the location of the charnel house or temple. Larger sites also developed during this time, suggesting that a hierarchy of mound centers, and perhaps their ruling lineages, was also forming. Subsistence data indicate that maize remained a relatively insignificant part of the economy until late in the Coles Creek period.

The final period of prehistoric cultural development, the Mississippi period (ca. A.D. 1200-1720), witnessed the appearance of a new cultural tradition in the Lower Mississippi Valley. Referred to as Mississippian culture, this tradition was characterized by the development of a multi-tiered hierarchy of mound centers ruled over by a hereditary elite. In some regions these mound centers were fortified and had large resident populations, while in others they were surrounded by numerous small, dispersed farmsteads. The basis for this development was intensive maize agriculture. Other characteristics of this culture include the development of a new ceramic technology that allowed larger and more durable vessels to be made and the construction of large, subterranean pits for storage of the grain crop.

Initial European contact in the project corridor occurred in the 1540s when the De Soto expedition passed through the area on its way to the Mississippi River. European diseases such as smallpox and measles spread rapidly through the Native American tribes, resulting in dramatic population declines. As the indigenous groups disappeared the Yazoo Basin became a hunting territory for groups such as the Choctaw and Chickasaw whose main villages lay in the hills east of the valley. The first European settlement in the vicinity of the project corridor, the French *Poste de Arkansas*, was established in 1686; however, this post and the French mission and fort

established at the mouth of the Yazoo River remained the only European settlements in this region until after the French and Indian War. In the 1760s English traders established a small settlement called Concordia in present-day Bolivar County. This settlement lasted only until the American Revolution, and after that time the area remained the territory of the Choctaw and Chickasaw Indians for several decades.

The signing of the Treaty of Doak's Stand with the Choctaw in 1820 opened much of the southern part of the project corridor for settlement. The northern portions of the corridor became available after the Treaty of Dancing Rabbit Creek with the Choctaw in 1830 and the Treaty of Pontotoc Creek with the Chickasaw in 1832. Once these areas had been surveyed by the U.S. Government, large tracts were purchased by cotton planters who possessed the slave labor to clear the land and construct levees for flood protection. Population growth in this area was slow in the 1830s and 1840s, but increased dramatically in the decade prior to the Civil War. The majority of this population consisted of black slaves, often with only a small minority white population. Much of the early settlement occurred along the Mississippi River to take advantage of the relatively high and fertile natural levee and the easy access to river transportation. The communities of Commerce in Tunica County, Friars Point in Coahoma County and Bolivar in Bolivar County were important early riverboat landings for this area.

The Civil War brought a halt to the booming plantation economy. Many of the young men joined the Confederate army and were sent east, the scene of much of the fighting. Most of the military operations in the project corridor focused on Union attempts to take control of the Mississippi River and to find a water route around the Confederate stronghold of Vicksburg. The best known of the latter was the Yazoo Pass Expedition of 1863.

After the war the plantation economy was slow to recover due to the loss of the slaves and many of the mules used to work the fields, the destruction of cotton gins, and the lack of capital. Many planters lost their lands due to their inability to pay their mortgages or taxes. Some tried to use immigrant labor to work their plantations, but in general this was not successful. Eventually most plantations adopted one of the forms of sharecropping or tenant farming.

The arrival of the railroads in the project corridor in 1884 brought about a major shift in transportation routes and ultimately the distribution of population. River traffic declined significantly over the next few decades, and river towns such as Commerce, Friars Point and

Rosedale lost population to newer towns such as Tunica, Clarksdale and Cleveland, all located on the railroad. Along with the railroads came northern timber companies, which were anxious to exploit the extensive stands of cypress and hardwoods in the interior of the Delta. These companies bought large tracts of swampland, and built sawmills in many of the towns along the railroad. Once the timber had been cut from an area the mills generally closed or moved on to another area. The cutover lands were then bought up by planters and put in cultivation.

The arrival of the automobile in the early twentieth century led to further dramatic changes in transportation within the Delta. Beginning in the 1910s roads that had been dirt were covered with gravel. Then in the mid-1920s the first paved roads, sections of U.S. Highway 61, were constructed. Increasing reliance on automobiles throughout the twentieth century led to further expansion and improvement of the road network and to a decline in railroad passenger service.

Cotton remained the mainstay of the Delta economy during the early twentieth century, and it continued to be cultivated largely by hand until World War II. The migration of large numbers of black workers from the Delta during the war and improvements in farm equipment led to an increasing reliance on mechanized agriculture during the 1950s and 60s. Mechanization also resulted in larger farms, termed agribusinesses, which could afford the new equipment, chemicals and field preparation techniques such as land leveling. During the latter part of the twentieth century, agriculture in the Delta became more diversified, with soybeans, rice, corn and catfish becoming important cash crops.

Historic period sites are not well represented in the existing archaeological database for the project corridor. This is due in part to low population densities during the eighteenth and early nineteenth centuries; however, a more important reason is past bias against recording the numerous late nineteenth and early twentieth century sites that are present throughout the area.

The great majority of the recorded historic structures are located in towns rather than rural settings. Three National Register districts, in Cleveland, Rosedale and Friars Point, account for 58 percent of the total, and another 26 percent occur in other small towns throughout the area. The scarcity of rural historic structures is due to a variety of factors, but one important contributor was population flight from the rural areas after World War II and the subsequent loss of older structures to neglect and land clearing for agriculture. Most of the recorded structures are houses dating to the late nineteenth or early twentieth century. Only about one percent were constructed

prior to the Civil War. In addition to houses, the most commonly recorded structures are rural churches, schools and cemeteries. Other types of structures represented include barns, plantation commissaries, stores, cotton gins and bridges.

3.17 Section 4(f) and Section 6(f) Considerations

The inventory of land uses included a review of public parks, recreation areas, wildlife and waterfowl refuges of national, state, or local significance, or land of an historic site of national, state, or local significance. Such areas are protected under Section 4(f) of the Department of Transportation Act of 1966, recodified as 49 USC 303.

There are two wildlife preserves within the study area. The Dahomey National Wildlife Refuge is located in southwestern Bolivar County and the Askew Wildlife Management Area is located within southeastern Tunica County. Land of an historic site of national, state, or local significance is discussed in the Cultural Resources Sections 3.16 and 4.17.

Section 6(f) of the Land and Water Conservation Act (LWCA) prohibits recreational facilities funded under the LWCA from being converted to non-recreational use unless approval is received from the director of the National Park Service. There are no recreational features funded under the LWCA within the study area; therefore, Section 6(f) does not apply.

3.18 Hazardous Materials

3.18.1 Regulatory Agency Review

Latitude and longitude coordinates for a 1,000-foot radius encompassing the proposed alternative corridors were used to search federal, state, and local regulatory agency databases. A review of data available from regulatory agencies can provide useful information regarding the potential for contamination within or near the proposed study area. However, the databases are sometimes incomplete and can contain numerous inaccuracies. Therefore, findings during field reconnaissance are matched with file review information for confirmation. This search utilized the most recent update of each database. A printout of database information was received from

Environmental Data Resources, Inc. (EDR). Listed below are the databases that were reviewed and the number of sites identified within the study area. The report also includes a summary of orphan facilities. These sites were not located by EDR due to inadequate address information. Further research determined that many of the sites identified but not located by EDR were well beyond the area of potential impact and thus they were excluded from further study. Sites that could be impacted by any of the alternatives were further evaluated, as documented in Chapter 4.

3.18.2 Federal Regulatory Review

National Priorities/Superfund List (NPL)

The National Priorities List, also known as the Superfund List, is a USEPA listing of uncontrolled or abandoned hazardous waste sites. These sites are typically targeted for long-term remedial action under the Superfund Act of 1980. The study area reconnaissance and regulatory file searches identified the presence of no such sites within a 1,000-foot search radius of the proposed alternatives.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)

The CERCLIS database is a comprehensive listing of known or suspected, uncontrolled or abandoned hazardous waste sites. These sites have either been investigated or are currently under investigation by the USEPA for the release or threatened release of hazardous substances. The state's hazardous wastes site records are equivalent to CERCLIS. The study area reconnaissance and regulatory file searches identified the presence of no such sites within a 1,000-foot radius of the proposed alternatives.

No Further Remedial Action Planned Sites (NFRAP)

The NFRAP report, also known as the CERCLIS Archive, contains information pertaining to sites which have been removed from the USEPA's CERCLIS database. This report contains sites where, following an initial investigation, either no contamination was found or the contamination was not serious enough to require federal Superfund action. No such facility listed in the NFRAP report was identified within the initial 1,000-foot search radius of the proposed alternatives, although the Texas Gas site, originally shown as an orphan site, was located within this radius.

Resource Conservation and Recovery Act (RCRA) Information System (RCRIS)

Treatment, Storage, and Disposal Facilities

The RCRIS database contains information pertaining to facilities that treat, store, or dispose of USEPA-regulated hazardous waste. The database includes information regarding inspections and evaluations of such facilities by federal and state agencies, as well as reported facility violations or any corrective actions undertaken by the facilities. The study area reconnaissance and regulatory file searches did not identify any such facilities within the 1,000-foot search radius of the proposed alternatives.

Resource Conservation and Recovery Act (RCRA) Information System (RCRIS)

Generators

The RCRIS report contains information pertaining to facilities which either generate USEPA regulated hazardous waste or meet other applicable requirements of RCRA. The report evaluates facilities classified as Large Quantity Generators (generating more than 1,000 kilograms of hazardous waste per month) and Small Quantity Generators (generating between 100 kilograms and 1,000 kilograms of hazardous waste per month.) According to the database report, no Large Quantity Generator facilities—which are regulated under RCRA—were identified within the 1,000-foot search radius of the proposed alternatives and no such facilities were identified as a Small Quantity Generator within the specified search radius.

Emergency Response Notification System (ERNS) (Target Property)

ERNS is a national database system used to store information concerning the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. One such incident was identified within the 1,000-foot search radius of the alternative. The location of this site is included in **Figure 4-5**.

- *659 Highway 61*, approximately 10 miles southeast of Cleveland. These types of incidents are usually site specific and are responded to immediately by emergency response teams. For all I-69 alternatives, this study would provide an interchange in Bolivar County at the crossing of Highway 61, approximately two and a half miles north of the City of Shaw. Since it is approximately 11 miles between the cities of Cleveland and Shaw, there is a possibility that the incident site could be located within the proposed limit of the interchange.

Corrective Action Report (CORRACTS)

CORRACTS is an EPA database that identifies hazardous waste handlers with RCRA corrective action activity. No such facilities were identified within the search radius of the proposed alternatives.

3.18.3 State and Local Regulatory Review

State of Mississippi State Hazardous Waste Site (SHWS)

The State Hazardous Wastes Sites records are the states' equivalent to CERCLIS. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. No such facilities were identified within the 1,000-foot search radius of the proposed alternatives.

State of Mississippi Solid Waste Facilities/Landfill Sites (SWF/Landfill)

The solid waste facilities/landfill sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data comes from the Department of Environmental Quality's Solid Waste Landfill database. One such facility was identified within the 1,000-foot search radius of SR 8. The location of this site is included in **Figure 4-5**.

- *Tire Cutter Services*: This site is located at 45 Morrison Chapel Road in Cleveland. It is approximately 1.5 miles northwest of the Cleveland Municipal Airport. According to the database report it is currently an inactive waste tire processing plant. There are some abandoned trailers in a field to the north of the SR 8 / Cedar Road intersection in Bolivar County. The abandoned trailers are the only apparent signs of the site.

State of Mississippi Underground Storage Tank Report (UST)

The UST database contains information pertaining to all registered active and inactive underground storage tanks located in the State of Mississippi. UST's are regulated under Subtitle 1 of the Resource Conservation and Recovery Act (RCRA). Ten such facilities were identified within the specified search radius of the proposed alternatives. The location of each of these sites is included in **Figure 4-5**. The sites with reported leaking underground contamination are also listed in the following Leaking Underground Storage Tank (LUST) section.

- *Phillips 66* is located at the intersection of Highway 61 and Highway 49 in Coahoma County. This site had five registered USTs that were permanently closed in 1988. This site no longer exists because it was acquired as MDOT right-of-way when the MDOT widened US 61 to four lanes and reconstructed the intersection.

- *Hayes Brothers House Moving, Inc.* is located 1.1 miles north of Route 6 in Coahoma County. All UST's were removed from this facility in 1992. The facility ID # for this location is 9520. The site is located on the east side of the four-lane section of US 61 north of Clarksdale between Lyon and the Clarksdale Airport.
- *Bruno's Food Mart* is located 1 mile south of Clarksdale in Alligator in Bolivar County, approximately two and a half miles south of the Coahoma County Line. This site currently has three 8,000-gallon tanks in use. The facility ID # is 2135.
- *Dunavent Inc.* is located on East Tallahatchie Street, southeast of Clarksdale. All UST's were closed at this facility in 1997. The facility ID # is 9373. Tallahatchie Street parallels Desoto Avenue (Old US 49) to the southwest between the US 61 Clarksdale Bypass and State Street (Old US 61). All I-69 alternatives for this study utilize the US 61 Clarksdale Bypass. At the Desoto Avenue crossing of the Bypass an interchange is provided. Improvements will eventually be needed on Desoto Avenue between the Bypass and State Street, but those improvements are not part of this study.
- *Tradeway, Inc.* is located at 5438 Highway 61, approximately 10 miles north of Cleveland. This site currently has one 8,000-gallon, one 6,000-gallon, and one 4,000-gallon tank in use. The facility ID # is 4963. Since the report was made, the four-lane section of US 61 has been opened to traffic. The Bolivar County site is located on the old two-lane section of US 61 in Mound Bayou.
- *Leo's Market* is located at 1310 South Main Street in Rosedale. This site currently has one 12,000-gallon and one 4,000-gallon tank in use. The facility ID # is 7826. At this Bolivar County site, the southern portion of the business has access to SR 1 directly opposite SR 8.
- *Nightrider Mart* is located at 1328 Highway 8 West in Pace. This site currently has one 10,000-gallon and two 9,700-gallon tanks in use. The facility ID # is 3473. The Nightrider Mart was located in the southeast quadrant of the Bishop Road / Ronaldman Road intersection on SR 8 in Cleveland, slightly east of the eastern terminus for the portion of this study that would widen SR 8 between Rosedale and Cleveland.

Mississippi Leaking Underground Storage Tank Report (LUST)

LUST is a comprehensive listing of all reported leaking underground storage tanks located within the State of Mississippi. Review of the *Mississippi Leaking Underground Storage Tank Report*, which contains a database listing maintained at the Mississippi Department of Environmental Quality, identified three leaking underground storage tank within the specified search radius of the proposed alternatives. All three sites have been issued a "No Further Action" designation and have been closed. The location of the sites is shown on **Figure 4-5**.

- *Bruno's Food Mart* is located one mile south of Clarksdale in Alligator Bolivar County, approximately two and a half miles south of the Coahoma County Line. There was a confirmed release in 1993. The site was properly remediated and a "No Further Action" status was assigned to the facility in 1994.

- *Dunavent Inc.* is located on East Tallahatchie Street, southeast of Clarksdale. There was a confirmed release in 1997. The site was properly remediated and a “No Further Action” status was assigned to the facility in 2000. Tallahatchie Street parallels Desoto Avenue (Old US 49) to the southwest between the US 61 Clarksdale Bypass and State Street (Old US 61). All I-69 alternatives for this study utilize the US 61 Clarksdale Bypass. At the Desoto Avenue crossing of the Bypass, an interchange is provided. Improvements will eventually be needed on Desoto Avenue between the Bypass and State Street, but those improvements are not part of this study.
- *Tradeway, Inc.* is located at 5438 Highway 61, approximately 10 miles north of Cleveland. This incident was closed in 1998. According to the database report, the release was never confirmed and a “No Further Action” status was given. Since the report was made, the four-lane section of US 61 has been opened to traffic. The Bolivar County site is located on the old two-lane section of US 61 in Mound Bayou.

Facility Index System (FINDS)

The Facility Index System contains both facility information and pointers to other sources of information that contain more detail. The source of this database is the U.S. EPA/NTIS. One such facility/incidence was identified within the specified search radius of the proposed alternatives.

The location of the facility/incidence is shown on **Figure 4-5**.

- *Sunflower Food Store/Nightrider Market* located at 1321 Highway 8 West. This site contains two incidences according to the database report. The Sunflower Food Store and the Nightrider Mart were located on SR 8 at Cleveland in the southeast quadrant of the Bishop Road / Ronaldman Road intersection. This is slightly east of the eastern terminus of this study for widening SR 8 between Rosedale and Cleveland.

Federal Insecticide Fungicide Rodenticide Act (FIFRA)/Toxic Substance Control Act (TSCA) Tracking System (FTTS)

The FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to Federal Insecticide Fungicide Rodenticide Act (FIFRA), Toxic Substance Control Act (TSCA), and Emergency Planning and Right-to-Know Act (EPCRA) over the previous five years. One such facility/incidence was identified within the specified search radius of the SR 8 improvements. Some sites have been observed in the field and other unregistered pesticide contamination sites are likely to exist due to the prevalence of agriculture in the study area. These sites may need to be remediated prior to construction. The location of the facility/incidence is shown on **Figure 4-5**.

- *The Presbyterian Day School* located at 1100 Highway 8 West in Cleveland is listed in the database report as being inspected on October, 2001. No one at the school or the FTTS federal office could be contacted regarding this incidence at the time of this report. No violations have been reported regarding this site. The Presbyterian Day School is east of the eastern terminus of this study for widening SR 8 between Rosedale and Cleveland. The school is located on the north side of SR 8 approximately a half mile east of the Bishop Road / Ronaldman Road intersection.

Mississippi Industrial and Municipal National Pollutant Discharge Elimination System (NPDES) Facilities

This supplemental database records water discharge permits. There is one facility listed in the database report as having been issued an NPDES permits. The location of the facility is shown on **Figure 4-5**.

- *Texas Gas Transmission Corporation*, located at 3305 Highway 61 South in southern Clarksdale, is listed as an I Type facility with facility ID # MS0046566. The site is located on the east side of the four-lane section of US 61 between the Bolivar/Coahoma County Line and Clarksdale. It was one of the constraints that were used in the development of the I-69 alternatives.

Orphan Sites

The EDR report also provides a listing of “orphan sites.” Due to poor or inadequate address information, these sites/incidences were not located initially. However, as discussed previously, additional research determined which “orphan” sites were within the area of potential impact and those sites were located. The following sites were identified as being within the study area and are shown on **Figure 4-5**.

- *Jim’s Store*, located on the north side of Highway 8 west of Cleveland. This site is listed as having an underground storage tank (UST). The store no longer has active tanks and is located at one of two locations on the north side of SR 8 between the Bolivar County Correctional Facility and Cleveland. The possible western location is in the northeast quadrant of the Shaw-Skene Road intersection and presently serves as a farm headquarters. The possible eastern location is in the northwest quadrant of the Airport Grocery Road and presently serves as the Airport Grocery restaurant and club.
- *Rosedale Landfill*, located on the north side of SR 8 about four miles east of Rosedale (SWF/LF). The small landfill is inactive and located in the northeast quadrant of a minor side road intersection. For the widening of SR 8 between Rosedale and Cleveland involving the reconstruction of this intersection, it is assumed the landfill can be avoided by: relocating the intersection to the west; or, by leaving the intersection at its present location and installing guardrail on the east SR 8 approach to eliminate having to acquire additional right-of-way from the landfill frontage.

- *Coahoma County Landfill*, located on the east side of US 61 about three miles south of Clarksdale (SWF/LF). The active landfill has access to the east of Palmer Road approximately one mile south of the point where Palmer Road forms a side road intersection with US 61. The Palmer Road / US 61 intersection is between the Bolivar/Coahoma County Line and Clarksdale or slightly northeast of the Texas Gas Transmission Corporation access to US 61. The only I-69 alternative located near the landfill is the Eastern Alternative in the Southern Section.
- *Texas Gas*, located on the east side of US 61 about four miles south of Clarksdale. This site was identified as potential hazardous waste site (CERCLIS), facility ID #MS985980556, with no further remedial action planned. It appears to be the same Texas Gas site identified previously at 3305 Highway 61 south of Clarksdale. The site is located on the east side of the four-lane section of US 61 between the Bolivar/Coahoma County Line and Clarksdale. It was one of the constraints that were used in the development of the I-69 alternatives.

Chapter 4

Environmental Consequences

This chapter describes the potential beneficial and adverse social, economic, and environmental effects for the reasonable and feasible alternatives, including the Preferred Alternative, and describes the measures proposed to minimize and mitigate adverse impacts. The Western, Preferred Alternative (Central Alternative), and Eastern Alternatives are evaluated within the three sections of the study area. In addition, impacts are described for proposed improvements to State Route (SR) 8. Impact calculations include interchanges and spurs, but do not include upgrades. This chapter also includes discussion on measures proposed to avoid, minimize, and mitigate adverse impacts.

4.1 Land Use

4.1.1 Consistency with Plans

Tunica County is the only county in the study area with a comprehensive plan. The construction of this section of I-69 is consistent with the Tunica County Comprehensive Plan. In addition, the proposed project will address economic development goals and will meet the projected traffic demand for the study area.

The Tunica County Comprehensive Plan states that Future Land Use and Transportation Plans already in place by the county are consistent with the proposed project's alternatives, including the Preferred Alternative. The Tunica County Chamber of Commerce has indicated plans to develop a new area for commercial and industrial development between already existing highways in the county and I-69.

A series of interviews were conducted with key public and private economic development officials in four Mississippi Delta counties (Bolivar, Coahoma, Sunflower, and Tunica). In addition, interviews were conducted with the Delta Initiatives officer of the Federal Department of Housing and Urban Development (HUD) and the co-chairman and executive director of the

Delta Regional Authority. Comments from these interviews encouraged convenient access to existing county airports, primary industrial concentrations, and growing retail areas. Most counties voiced concern about alternatives proposed through prime agricultural land. In addition, most counties wanted maximum exposure to the potential economic benefits that the proposed project will provide.

According to the Delta Council Annual Report in 2003, the Delta Council of Transportation has published literature on the positive effects that I-69 will have on the study area. Discussion includes I-69 as a foundation for economic development. The Congressional support placed on I-69 as a “high priority corridor,” and the goal of having every citizen within the state and region having a four-lane highway within a 30-mile drive of their home.

4.2 Farmland

In order to determine farmland impacts, several resources were obtained including Geographic Information System (GIS) data and Natural Resources Conservation Service (NRCS) Soil Survey Maps. Coordination with the NRCS was initiated to determine the approximate extent of prime farmland impacts for each county within the study area. Form NRCS-CPA-106 was distributed for completion to each county’s local NRCS Service Center. A determination of prime farmland impacts has been received from each county. Responses included a county-by-county determination of the relative level of impact on prime farmlands. The Preferred Alternative would most nearly conform to the adopted land use plans and policies, based on serving existing development, minimizing impacts on the agricultural land, and maximizing economic benefit.

For each alternative within the study area, impacts to farmland were calculated using GIS and land use data provided by Mississippi Automated Resource Information System (MARIS). The MARIS data is based on aerial photography, field collection, and other land use data. **Table 4-1** shows approximate acreage of farmland that would be impacted during construction.

Table 4-1 Farmland Impacts	
Alternative	Acres
Southern Section	
Western	4,178
Preferred Alternative – Central	4,133
Eastern	4,117
SR 8	
Alternative B (Widening)	478
Alternative C (Bypass)	492
Alternative D (Preferred Alternative)	463 ¹
Middle Section	
Preferred (Only) Alternative	1,023
Northern Section	
Western	2,603
Preferred Alternative – Central	2,574
Eastern	2,440
Total (Preferred Alternative)	8,193

¹Alternative D is a combination of segments previously studied.

Source: Kimley-Horn and Associates, Inc. 2003 using MARIS GIS land use data for cropland, pasture, and farmed wetland. Updated 2008.

After receiving each county's completed Form NRCS-CPA-106, the total point value for each county ranged from 200 to 216. None of the proposed alternatives exceeded the 260-point threshold; therefore, no additional coordination with the NRCS is required. Included in **Appendix E** are completed Forms NRCS-CPA-106 for all counties.

The proposed project would impact agricultural operations, primarily through loss of agricultural land and displacement of facilities such as sheds and grain storage bins. Complete displacement of farm operations would be avoided by any of the alternatives. The proposed alternative corridors would cut off portions of several farms, which would affect access for equipment and livestock.

While a total of more than 8,000 acres of farmland would be converted by any of the alternatives, this amount represents less than 1.0 percent of either prime farmland or total farmable land in the study area. Mitigation measures will include minor alignment shifts where practicable, trading of uneconomical remnants of land for other adjacent and usable parcels. Farms that are bisected by

the proposed project will be evaluated during the design phase to determine if access between the bisected portions can be provided for livestock and machinery. Input from local farmers has been used in the alternatives development process. In particular, alternatives using portions of US 61 have been located near existing non-agricultural development.

Consistent with MDOT's acquisition and relocation policies (see Section 4.5.2), any purchase of land would be based on fair market value. Relocation assistance such as moving expenses would be available if required. The Eastern Alternative (both northern and southern sections) would have the least amount of farmland impacts. The Western Alternative's northern and southern sections would have the greatest impact on farmland.

4.3 Social and Economic

4.3.1 Economics

Construction of I-69 in northeastern Mississippi would provide a variety of economic benefits to the region, both short-term and longer-term. The short-term benefits are related primarily to highway construction, while the long-term benefits would relate to the economic development opportunities that would result from the highway providing increased accessibility and exposure to the Delta area.

Short-Term Economic Benefits

Construction of I-69 would generate a variety of benefits to the local economy. In terms of short-term benefits, the associated construction would provide employment opportunities at the construction sites as well as among the various suppliers and vendors who serve the construction industry. On-site employment opportunities would be provided for unskilled to skilled positions, including day laborers, heavy equipment operators, surveyors, inspectors, and project managers. Suppliers of construction materials, vehicle rental and maintenance, and food services also would benefit from the construction phase. In addition, there would be an increase in employment among the suppliers as well as added cash circulating through the local economy from payments for supplies and services and the associated payrolls. The increased flow of personal income to the construction workers would create a multiplier effect throughout the local economy as the cash flow is used to purchase food, lodging, and discretionary items.

Long-term Economic Development

Economic studies were performed to assess which potential transportation corridors would best benefit the study area from an economic development perspective. Population, employment, income, and potential environmental constraints were reviewed. Work sessions were held with staff of the Mississippi Development Authority, Mississippi Institutions of Higher Learning, and University Research Center. In addition, public and private economic development officials were interviewed to gain a greater understanding of the factors influencing economic development within the study area. Extensive coordination has been conducted with the smaller communities in the study area regarding local goals and potential benefits from I-69 (see **Appendix I**).

According to the report describing the results of one of the studies (*Stimulating Economic Development: Screening Analysis, I-69 Alternatives in Mississippi* (Neel-Schaffer, June 2002, appended by reference, updated October 2004)), there are many potential benefits relating to development of highways in non-metropolitan areas. Some of the benefits of new highway development include:

- Improved access to services and jobs for rural residents.
- Better access to customers for businesses.
- Reduction in travel time for motorists.
- Lower vehicle operating costs.
- Cost savings for local consumers as goods and services become more competitively priced.
- Growth in the local economic base may produce higher wages for workers and greater income for local businesses.
- Potential economic opportunities near the interchanges.

In addition to these positive benefits, some potential negatives exist as well. New highway investment would divert economic activity from an already existing road network within the region. This economic activity in the form of new development can have impacts on the environment, particularly in a previously undeveloped rural area, as discussed in Section 4.20.1. The additional highway maintenance costs can also be a financial burden on the responsible governmental jurisdictions.

The alternatives were developed to improve proximity to population centers, industrial parks, major employers, tourist development opportunities, airports, and river ports. As discussed in the *Stimulating Economic Development: Screening Analysis, I-69 Alternatives in Mississippi* (Neel-

Schaffer, June 2002, appended by reference, updated 2004), the research of the Delta Regional Authority as well as by others shows that economic development is likely to follow a “clustering” concept that involves concentrating public and private investment in key areas or clusters. This rationale holds that an economy of scale will be generated by concentrating development in a few strategic nodes, as opposed to dispersing scarce resources throughout the area. It is believed that existing development provides a base for additional development to occur in close proximity. The population centers and interchanges along I-69 would be candidate areas for economic clustering.

To best meet the purpose and need of improving economic development within the study area, two key cities and another key project were identified. According to 2000 census populations, Cleveland and Clarksdale are the two largest cities within the study area. Clarksdale has a 2000 census population of 20,645 and Cleveland has a population of 13,841 persons. All alternatives include an improved SR 8 connection between Cleveland and Rosedale, which addresses improved access to the Rosedale-Bolivar County Port from Cleveland and other areas of the Delta. These two key cities and the proposed SR 8 improvement are addressed further below:

Clarksdale (Coahoma County)

Clarksdale is the largest city within the study area. It is a regional center for commerce, medicine, and education. Clarksdale is in the heart of the Delta Blues Country and is home to the Delta Blues Museum. To the northeast of the city, there is a general airport with a 5,400-foot runway, which would be easily accessible from all project alternatives. Clarksdale would benefit from improved access to services and jobs and a potential growth in the local economic base.

Two main industrial parks serve the Clarksdale area: The Leonard Pharr Industrial Park and the Sunbelt Industrial Park. The 160-acre Leonard Pharr Industrial Park, located just west of the city on SR 322, has only two acres of remaining land to be developed. Some existing buildings are available in this park. The larger (285-acre) Sunbelt Industrial Park is located on US 49 near its intersection with US 61 By-Pass. Industry flanks both sides of US 49 adjacent to the Sunbelt Industrial Park. This corridor is the heaviest concentration of manufacturing and distribution businesses observed in the four-county analysis area. The area in the vicinity of Sunbelt Industrial Park will be the focal point of future industrial development. Strohm Manufacturing, Metso, Jim Dandy, a major beer distributor, and an electrical generation plant are all located near Clarksdale.

The major employers in the Clarksdale area include Cooper Tire & Rubber Company, located at the intersection of old US 61 and SR 6, is the county's largest industrial employer with a work force of 250. Other major employers include: Waterfield, Inc. (140 employees), Delta Wire Corporation (108 employees), KBH Corporation (110 employees), Metso (Svedala Industries, 95 employees), Strohm Manufacturing Company (83 employees). In addition, the 194-bed Northwest Mississippi Regional Center with 50 physicians on staff is located in Clarksdale. The Coahoma Community College is situated just northwest of Clarksdale. Its Skill/Tech Center occupies space in the Sunbelt Industrial Park.

Cleveland (Bolivar County)

Cleveland is the second most populated area within the study area, and has an airport, Delta State University, and most of Bolivar County's largest employers. Cleveland was home to many Blues musicians, which provides tourist opportunities. The proposed project alternatives all have the potential to provide better access and potentially higher wages for workers and greater income for local businesses.

The county's primary general aviation airport is located near SR 8 approximately ½ mile northwest of Cleveland. Delta State University, located along SR 8 in western Cleveland, offers degrees in commercial aviation and utilizes the facilities at the airport. Delta State University is the only four-year university in the analysis area. The 4,000-student university is renowned for its school of education, and employs 700 people. Bolivar County operates Voc-Tech Centers in both Cleveland and Rosedale.

Baxter Healthcare is located on the north side of Cleveland and is the county's largest employer, providing approximately 1,100 full time jobs. Bolivar County also has a 165-bed medical center along SR 8 in eastern Cleveland. Duo Fast, Jimmy Sanders, Inc, Needle Specialty Products, Inc, and Quality Steel Corporation are Cleveland area industries with 90 to 345 employees. Primary commercial concentrations in the county are located in the downtown Cleveland, along US 61 north of town, and along SR 8 east of town.

SR 8 Improvements – Connecting Cleveland and Rosedale (Bolivar County)

Within the study area, Bolivar County is the only county with a public port. The Rosedale-Bolivar County Port is the only public port along the Mississippi River between Memphis and

Greenville and provides access to the nation's largest and busiest waterway, the Mississippi River. Furthermore, the Rosedale-Bolivar County Port is the only port in the state of Mississippi located within a federal empowerment zone.

The port features a "T" dock, 150-ton crane, and more than 1,200 acres of developable land in close proximity. Three private companies maintain port facilities on adjacent sites. In Rosedale, Cives Steel Company and Jantran are the largest employers with approximately 165 employees each. A 1,000-acre industrial park is located at the Port. Improving SR 8 between Rosedale and Cleveland from two to four lanes is considered vital to the continued economic development of this port.

Economic Findings for Project Alternatives

An analysis to identify population, employment, and public facilities near the three proposed I-69 alternatives (see **Appendix I**) was undertaken based on the previously discussed methodology and approach. These data led to the conclusion that the Eastern Alternative is somewhat better than the others with respect to the probability of capturing economic development potential. The tables indicate that while the Preferred Alternative is closer to more population centers and public facilities than the other two alternatives, the Eastern Alternative is closer to more existing employment centers than the other two alternatives.

The key factor favoring the Eastern Alternative was the east side of Cleveland along SR 8. This area has the highest number of employees of any alignment within the interchange 2.5-mile radius impact area. This one area made the major difference in the employment data for the three alternatives since all three alternatives follow the same alignment through the Clarksdale area. Based on this factor, the economic study recommended a modified eastern alignment that would connect with existing US 61 at Merigold and basically utilize the Central Alternative from that point to the north. This modified alignment would be able to take advantage of the heaviest concentration of industrial employment in Bolivar County and also utilize all other existing resources to the fullest potential possible along US 61. The modified Eastern Alternative would best satisfy the objective set forth in the economic study, which was to utilize existing infrastructure in order to maximize economic development potential. Using this alternative, 41 percent of the existing reported four-county manufacturing employment would be located within the study boundaries of this corridor.

To further evaluate the potential economic effects of the alternatives and quantify relative long-term benefits, a study was conducted in 2005 on the Western, Central, and Eastern Alternatives and the modified version of the Eastern Alternative described previously in this section (*Evaluating Economic Benefits of I-69 in the Mississippi Delta Region*, Wilbur Smith Associates, 2005). The study included a review of social and economic trends in the region and an analysis of three categories of impacts:

- Savings in travel costs
- Transportation costs for agriculture
- Economic development potential

As shown in **Table 4-2**, the Preferred Alternative (Central Alternative) is estimated to provide the most long-term economic benefit. The travel efficiency category, as described in **Appendix J**, is shown with the Preferred (Central) Alternative as a future baseline and each other alternative as an incremental difference from the baseline. For each category, the economic effects related to income and employment are summarized.

Alternatives	Travel Efficiencies		Agricultural Transportation Impacts		Business Attraction		Total Estimated Impact
	Inc	Emp	Inc	Emp	Inc	Emp	
Preferred – Central Alternative	NA	NA	-\$2,032,564	-78	\$69,448,830	2,757	\$67,416,266
Western	-\$6,200,000	-370	NA	NA	\$30,807,370	1,223	\$24,606,670
Eastern	-\$9,921,170	-585	NA	NA	\$65,871,850	2,615	\$55,950,680
Modified Eastern	-\$17,405,500	-1,030	NA	NA	\$55,166,100	2,190	\$37,760,600

Source: Wilbur Smith Associates, 2005.

While the Eastern Alternative had previously been considered to provide greater economic benefits from a qualitative analysis, the more quantitative study indicates the Preferred (Central) Alternative would have long-range benefits compared to the other alternatives by:

- Providing the greatest savings in vehicle miles traveled as a total throughout the study area, based on the transportation model used to project traffic volumes for the alternatives.
- Offering the most opportunities for attracting business development and diversifying the economy, with few competitive disadvantages.
- Offsetting potential job losses in the agricultural industry with the attraction of new businesses.

Local officials representing the jurisdictions outside the study area, including Indianola and Greenwood, have supported an alternative east of Cleveland so their towns could also benefit from I-69. The economic study suggests that the greatest economic benefits would be realized by locating the corridor and associated interchanges within close proximity (within 2.5 miles) of existing employment. Towns such as Indianola and Greenwood are both over 15 miles away from the Eastern Alternative and thus were not a determining factor in the calculation of direct economic potential for this study. The major economic factors for this study included how close this corridor could be located to existing employment, population, and public facilities. All of these factors, as well as the many other impacts and benefits of each alternative, were considered as part of the decision-making process.

In addition to the above considerations, Tunica County has assembled a mega-site of 2,221 acres south of SR 304 and east of US 61. This site would have good access to the I-69 Preferred Alternative at the planned interchange at Arkabutla Dam Road. The Eastern Alternative would not provide this level of access to the site. The Preferred Alternative thus would provide the benefit of serving planned economic development in Tunica County.

4.3.2 Environmental Justice

As described in Chapter 3, with the exception of two Census tracts, the entire study area has potential environmental justice (EJ) concerns related to either minority population or low-income populations. The EJ analysis included an assessment of how the potential impacts would affect those populations. An EJ outreach plan also was implemented early in the planning process.

4.3.2.1 Environmental Justice Outreach Plan

The outreach plan was coordinated by an EJ Outreach Team and involved the following elements:

- Identifying key community leaders and representatives from each county.
- Conducting initial one-on-one interviews with each identified individual, and use of a brief “questionnaire” or survey form to record some of the interview information.
- Facilitating the formation of a Citizen’s Community Issues Committee in the three-county area, in order to have a local “sounding board” in the study process.
- Attending all public information meetings/hearings, in order to explain the concept and intent of Environmental Justice, as well as to review the Outreach Program.

- Attending special focused meetings on local community concerns as needed.
- Reporting all information which may impact project planning.

Since EJ issues/concerns focus primarily on low-income and minority communities, the targets of the community representation had to be carefully considered. The demographic analysis showed potential for EJ issues was high throughout the Mississippi Delta region. The Mississippi Delta region has substantially high concentrations of both minorities and low-income persons. Initially, individuals in each county were interviewed regarding the proposed project. To make the initial interview list “representative,” a list of “interview types” was developed as shown in **Table 4-3**.

Representative to Contact	Interviews per County		
	Bolivar	Coahoma	Tunica
Agriculture Extension Agents	1	1	1
Minority Farmer/Landowners	2	2	2
CDC Directors/Board Chairmen	2	2	2
Minority County Supervisors	2	2	2
Minority Mayors	4	2	N/A
Leading Church Pastors	2	2	2
Congressional (Local Office) Representatives	1	1	1
Chamber of Commerce Representatives	1	1	1
TOTAL INTERVIEWS: *(Minimum)	15	13	11

Source: Ken Weeden and Associates, 2003.

The list identifies major landowners and farmers (including minority landowners), representatives of human service programs with the low-income populace as their main constituents (such as low-income housing programs and/or anti-poverty programs), minority political/government leaders, leading religious community leaders, and representatives of constituent business and/or other social organizations.

This process began in summer 2001, and culminated in a round of public information meetings held in Bolivar, Coahoma, and Tunica Counties. By early 2001, a significant number of individuals had been identified and interviewed in each county. The initial rounds of interviews are shown in **Table 4-4**.

The meetings were conducted using a brief, six-question survey instrument, which asked basic questions about the proposed I-69 project. Also at each interview, the interviewees were asked to identify additional citizens to be interviewed later. Other individuals were added to the project mailing list. The interviews were conducted approximately two weeks prior to the first round of

public information meetings, which presented preliminary information on the EIS study. During the interviews, each interviewee was given an announcement card, inviting them and whomever they wanted to bring, to the meetings at the location most convenient to them. (The interview/survey instrument is shown in the **Appendix D.**)

The first question on the survey asked whether the interviewee had heard anything about the I-69 project. Although nearly all interviewees had heard about the proposal project, the interview was the first time someone had come to discuss it personally with them. This process helped “spread the word” about the project and the EIS. Also, at each of the initial public information meetings held the week of September 24, 2001, a brief overview of Environmental Justice and how it applied to the EIS study was discussed. At each public information meeting, potential members of a Community Issues Committee, to be formed later, were identified.

Table 4-4 County Official Interviews		
Name	Organization/Representative	Minority / Ethnicity
Benjamin F. Davis Jr.	HUD-Delta Initiative Program Representative	B/M
Don Respass	Bolivar County Agricultural Agent	W/M
Wanda Ray	Bolivar County Administrator	W/F
Richard Coleman	Bolivar Co. Supervisor	B/M
James McBride	Bolivar Co. Supervisor	B/M
Linda Balducci	Exec. Dir. Shelby Housing Authority and Southeast Opportunities, Inc.	W/F
Doretha Miller	Staff-Shelby Housing Authority-Citizen	B/F
Ruby Patton	Staff-Shelby Housing Authority-Citizen	B/F
Kennedy Johnson	Mayor, Mound Bayou	B/M
J.Y. Trice	Former Mayor, Rosedale.	B/M
Katherine Furr	Coahoma Co. Supervisor, Farmer-Landowner	W/F
Bennie Gooden	Businessman-Developer, Property Management-Clarksdale	B/M
Timothy Burrell	Pastor, Middle School Principal, Coahoma Co. Supervisor	B/M
Hugh Jack Stubbs	Administrator Coahoma County	W/M
Andrew Thompson	Coahoma County Sheriff	B/M
Henry Espy	Mayor, Clarksdale, Coahoma Co.	B/M
Ken Murphree	Tunica County Administrator	W/M
Anthony Bland	Tunica Co. Agricultural Agent	B/M
Henry Hargrow	Tunica Co.-Low-Income Housing Repair Program Administrator	B/M
James Dunn	President, Board of Tunica, Co. Supervisors	B/M
Freddie Brandon	Tunica Co. Low-Income Housing Program Staff	B/M
Minnie Carter	Tunica Co. Low-Income Housing Program Staff	B/F
James Colbert	Tunica Co. Low-Income Housing Program Staff	B/M

B= Black W=White M=Male F=Female

Source: Ken Weeden and Associates, 2003.

4.3.2.2 Summary of Survey/Interview Information

The initial survey information was useful to early project planners in several ways. The survey itself, through interviews, helped spread information about the project. Secondly, the information gathered showed that the proposed highway was generally viewed as a favorable, positive prospect for each county and for the entire region. Third, the initially perceived impact for minorities and low-income persons also was favorable and positive, especially if the development of the highway will be accompanied by initiatives to assist historically underutilized businesses take advantage of potential new opportunities. On the other hand, there were some concerns expressed that the proposed routing be carefully laid out so as to not disrupt low-income housing developments, churches and farming operations.

4.3.2.3 Community Issues Committee

Partly as a result of the initial surveys and public information meetings conducted during the summer and autumn of 2001, in early March 2002, a “Four County I-69 Community Issues Committee” was formed. This committee is composed of representatives and citizens of Bolivar, Coahoma, Sunflower, and Tunica Counties who have been asked to address and comment on specific environmental justice and community impact issues. The initial meetings were held to explain the proposed intent of the committees and how the citizens will help to provide insight into environmental justice and community impact issues for this important project. The comments and concerns of the public from initial and follow-up meetings were used in developing the project alternatives.

The EJ outreach team and other project representatives (including staff from the FHWA and MDOT) met with each County group the first week in March 2002. A total of 36 persons attended those meetings, including 15 at the Bolivar-Sunflower County meeting; ten at the Coahoma County meeting; and 11 at the Tunica County meeting. After receiving an update from project officials and a general discussion to explain the purpose of the meeting to the groups, attendees were given a questionnaire that asked them to complete the following statement:

“In our county/community, I think that the following community/social/economic issues need to be addressed during the early planning stages of the proposed route(s) for Interstate-69 in Mississippi:”

Comments from the questionnaires are contained in **Appendix D**.

Later, at other public information meetings, members of the Issues Committee were helpful in identifying special features on the draft corridor maps and additional persons to interview.

4.3.2.4 Follow-Up Meetings

Subsequent to the initial formation of the Community Issues Committee, the EJ outreach team and other project team members kept in touch with them via mail, telephone calls, and face-to-face meetings (see **Table 4-5** for summary). Also, in the summer of 2002, another round of county-by-county public information meetings was conducted, with one each in Bolivar, Coahoma, and Tunica Counties. Prior to each meeting, a meeting of the Community Issues Committees was also conducted. At a public information meeting in Coahoma County in late summer of 2002, it was pointed out that one of the then-proposed alignments in Tunica County could possibly have an adverse impact on two predominantly Black rural communities, as well as a 125-year old Black church and cemetery. It was suggested that a special meeting be held in Tunica County, in the vicinity of both the communities and the church. This special meeting was publicized with project planners and engineers and was well attended by citizens in the Greater New Saint Paul Church in October 2002. Information was provided on the then-proposed alternatives and comments were taken from citizens, both at the meeting and some later through written comments. The end result was a shift in the alignment away from the church. The potential impact upon the two rural communities was determined to be not significantly adverse. A second, follow-up meeting was conducted in Tunica County in January 2003, to review and explain any alignment changes since the first meeting. Announcement flyers, which were disseminated both by mail and a display ad in the local, *Tunica Times* newspaper notified citizens of this meeting. (see **Appendix D**).

In January 2003, another round of meetings was held with the Community Issues Committee in Bolivar and Coahoma Counties. In addition, a special meeting was conducted in Bolivar County with the Mayors of Bolivar County Old Hwy 61 towns (i.e., Merigold, Winstonville, Mound Bayou, Shelby, Alligator, and Duncan). One of the proposed I-69 alternatives would have significant economic impacts on those smaller towns because of the provision, or lack thereof, of direct access to the towns. Project staff and MDOT officials met with the mayors for a luncheon meeting, at which time direct input was provided from these elected officials to the project staff.

The project staff took their concerns into consideration when refining the preliminary alternatives. In reviewing all comments made by interested community officials attending the

meetings, the Central Alternative was favored due to it having less extensive impacts on already existing land use and community facilities.

The third set of public meetings was held the week of April 30, 2003. Locations of the meetings included both Cleveland and Clarksdale. Information was provided on the refined 450-foot-wide alternative corridors recommended for study in the DEIS. Also, steps were taken to explain to the public the process of deciding on a Preferred Alternative for the I-69 project.

Table 4-5 Community Meetings and Workshops Held Within Study Area			
Date	Location and Format	Presented Topic	Outcome
<i>Community Involvement Workshops</i>			
September 24, 2001 through September 27, 2001	Community workshops held in Bolivar, Coahoma, and Tunica Counties.	Possible corridor segments presented and citizen questions addressed by project officials.	Comment sheets and letters reviewed on proposed corridors
July 16, 2002 through July 18, 2002	Community workshops held in Bolivar, Coahoma, and Tunica Counties.	Proposed 1,000-foot-wide alternative corridors presented, along with status, and purpose of I-69 project.	Comment forms given to citizens and the majority of the citizens preferred the Eastern or Central Alternative.
April 30, 2003 through May 1, 2003	Community workshops held in Bolivar, Coahoma, and Tunica Counties	Refined alternative corridors presented, along with project status	Comment sheets and letters reviewed and some changes were made.
December 13-16, 2004	Public Hearing held in Bolivar, Coahoma, and Tunica Counties	Information presented on the refined 450-foot-wide alternatives studied in the DEIS	Comment sheets and letters reviewed. Modifications to the Central Alternative were made and an Eastern Alternative variation in the Southern Section was eliminated.
<i>Special Meetings</i>			
October 2002	Special meeting held in Tunica County at the Greater Paul Church for citizens of the area.	Meeting covered possible impacts to two predominately Black communities, a 125-year old Black church and cemetery by possible I-69 alignments.	Citizen concerns were listened to, and the team received comments on the project and on their concerns.
January 2003	Second follow-up meeting held in Tunica County for citizens concerned about possible impacts to two predominately Black communities, a 125-year old Black church and cemetery.	A review and explanation to alignment changes to avoid two predominately Black communities, a 125-year old Black church and cemetery.	End result was that citizens were assured that the 124-year old Black church and cemetery would be avoided, and that earthen berms will be considered near the crossing of Verner Road and Bonds Road in Tunica County, subject to the feasibility of providing drainage. (see page 4-23)
January 2003	Community Issues Committee held in Bolivar and Coahoma Counties.	An update on project status	Preliminary alternatives were refined to address officials concerns. The Central Alternative was preferred by community officials.
January 2003	Special meeting held in the City of Benoit.	Discussions of possible alignments from SR 1 west to Section of Independent Study (SIU) 12.	Consultant team will review an alternative proposed by farmers that would cross SR 1 between Ray Brooks School and Lake Vista.
January 2003	Bolivar County Mayor's meeting.	An update for the Bolivar County Mayors on the status of I-69 and to obtain input on proposed alternatives.	Comments were provided by participants that favored the Central Alternative.
April 2003	Follow-up Meeting held in Benoit for both the project team and government officials.	Provide an opportunity to ask questions, express concerns, and makes comments prior to the public meeting.	Comment forms were provided and suggestions were made to the consultant team.

**Table 4-5
Community Meetings and Workshops Held Within Study Area**

Date	Location and Format	Presented Topic	Outcome
April 2003	Special Rosedale Meeting with representatives from government agencies, project team, and local citizens.	Due to Rosedale being an important Port to the Delta's economy, a discussion was made to widen SR 8 to improve travel between Rosedale and Cleveland.	Comment forms received were supportive.
May 2003	Luncheon meeting for Tunica County Chamber of Commerce on behalf of several landowners and casino owners in the Robinsville area.	Casino representatives and landowners wanted to make sure that I-69 will provide good access to and from the Memphis area.	Casino representatives were satisfied that SR 304 would be improved west of the interchange for the Western Alternative, as in the same manner for the Eastern and Central Alternative.
May 2003	Aguzzi Family meeting with two MDOT officials in Cleveland, Mississippi.	Aguzzi Family had concerns on how the Central and Western Alternatives divided their farmland.	After the third series of public meetings, the Aguzzi family provided written comments opposing the Western and Central Alternatives crossing SR 8 west of Cleveland. Aguzzi Family does however, support the Eastern Alternative.
June 2003	City of Cleveland and Bolivar County officials requested a meeting. The meeting was held at the MDOT Third District Office in Yazoo City.	The meeting was held to address how to properly respond to complaints made by landowners, who would have impacts to their property by the proposed project.	The Western and Central Alternative were explained in further detail to help provide information for officials to relay to landowners. The possibility of having a future meeting with landowners that might be impacted was discussed as well.
December 2004	Meeting with the Aguzzi Family at the Bolivar County Expo Center Annex. This meeting was held during the afternoon prior to the Public Hearing on December 14, 2004.	The Aguzzi Family owns and farms a large amount of land and presented the project team with a sketch on aerial photography identifying an alternative alignment they wanted the team to consider.	The project team discussed possible advantages and disadvantages of the modified alignment with the Aguzzi Family and the project team agreed to study the suggested medication to the degree necessary to provide the Aguzzis a response to their request.
January 2005	Meeting with the Cleveland-Bolivar County Chamber of Commerce	The purpose of the meeting was to listen to the Chamber's concerns and comments and to brief the Chamber officials on the modifications that were made in the shared portion of the Central and Western alternatives.	The Chamber representatives were satisfied with the modifications the project team had made to lessen farmland impacts, and advised that they wanted to discuss the possibility of reconsidering the previously dropped alternative that would loop around Cleveland to the east and join US 61 at Merigold. It was agreed the project team would study the Chamber's request.
January 2005	Meeting with Mr. and Mrs. Charles Antici. Held in the MDOT Environmental Division Conference Room.	Coahoma-Jonestown Interchange Concept for Central Alternative in Middle Section.	It was agreed that the project team would develop a new concept for presentation to Archives and History and their approval that would minimize the impacts to archaeological sites and align the crossroad at this interchange location. The project team made no promises to the Anticis that Archives and History would approve the modified interchange.
January 2005	Meeting with Mr. Lawrence Murphy at the Neel-Schaffer offices in Jackson.	The purpose of the meeting was to assure Mr. Murphy that the Pace Bypass alternative was no longer an option.	Mr. Murphy was provided a copy of an aerial photography map depicting the Preferred Alternative for widening SR 8 through Pace on existing alignment at the end of the meeting.
March 2005	Meeting with Mr. Ray Smith at Mr. Smith's Farm Headquarters at Mr. Smith's request.	The purpose was a follow-up to Mr. Smith's attendance at the public hearing in Tunica, to discuss his concerns about the Central Alternative's division of his farmland.	Messrs. Walker and Shirley advised Mr. Smith his request appeared to have merit and they advised him the project team would take the same actions to address his request as those that were taken to address the requests made by the landowners in the Cleveland area.

* Meetings Minutes provided in Appendix Sections
Source: Kimley-Horn and Associates, Inc. 2005

4.3.2.5 Analysis of Potential Impacts

Because most of the study area meets the threshold to be considered an EJ area of concern, the potential impacts were reviewed in the context of how they would affect the minority and low-income populations. A review of potential adverse impacts was based on analyses of each relevant impact category in the FEIS. In keeping with the project’s purpose and need, the review of impacts also included the potential for minority communities to gain or lose intended benefits from I-69.

Specific details of impact categories are discussed within each section of Chapter 4. Those categories relevant to the EJ analysis are summarized in **Table 4-6**. Adverse impacts were evaluated with the demographic data in the study area to determine whether they may have the potential to disproportionately affect minority and/or low-income populations within the EJ areas. Two categories were identified for closer review from an EJ perspective: relocations and opportunity for economic benefits.

Table 4-6		
Evaluation of Factors for Potential Disproportionate Impacts		
Factor	Potential for Disproportionately Adverse Impacts	
	No-Action	Build
Air Quality		
Forest/Wildlife Habitat		
Construction Impacts		
Energy Supply/Natural Resources		
Farmlands		
Floodplains		
Hazardous Materials		
Historic/Archaeological Resources		
Land Use		
Noise		
Relocations/Community Cohesion		X
Economic	X	X
Solid Waste		
Surface Transportation		
Threatened and Endangered Species		
Water Quality		
Wetlands		

Source: Kimley-Horn and Associates, Inc. 2004, and Ken Weeden & Associates, 2003.

Relocations and Community Cohesion

Relocation of residences and businesses would be unavoidable with any of the construction alternatives, as discussed in Section 4.5. Within the EJ areas identified in Section 3.4.3, additional analysis was conducted to estimate the potential displacement of minority or low-income residences. The estimated displacements of minority or low-income residents are summarized in **Table 4-7**.

Alternative	Relocations						
	Total	Minority	Percent of Total	Typical Minority Percentage	Low-Income	Percent of Total	Typical Low-Income Percentage
Southern Western	16	7	43.8	47.4-90.0	6	36.7	19.5-46.3
Preferred Alternative – Central	25	18	72.0	47.4-90.0	12	48.0	19.5-46.3
Eastern	16	4	25.0	47.4-64.2	5	30.0	23.0-39.2
SR 8 Alternative B	18	7	38.9	76.2-84.2	14	77.7	76.2-84.2
Alternative C	13	4	30.8	76.2-84.2	5	38.5	76.2-84.2
Alternative D (Preferred Alternative)	18	7	38.9	76.2-84.2	14	77.7	76.2-84.2
Middle Preferred (Only) Alternative	3	2	66.7	64.2	1	33.3	33.9
Northern Western	7	7	100.0	73.5	2	28.5	29.9
Preferred Alternative – Central	8	7	87.5	73.5	3	37.5	29.9
Eastern	20	16	80.0	73.5	6	30.0	29.9
Total Western	44	23	52.3	47.4 – 90.0	23	52.3	19.5 – 46.3
Preferred Alternative – Central	54	34	63.0	47.4 – 90.0	30	55.6	19.5 – 84.2
Eastern	54	29	53.7	47.4 – 84.2	26	48.1	23.0 – 39.2

Note: Relocations are based on revised alignments for the Central Alternative as Preferred Alternative. Percent of Minority and Low-Income Relocations is based on US Census, 2000, Census Tract Data. Some relocations qualify as both minority and low-income. Source: Kimley-Horn and Associates, Inc. and Neel-Schaffer, Inc., October 2005; May 2008.

Within the Southern and Middle Sections, the relocations would affect minority and low-income residences with percentages that are consistent with the surrounding population characteristics. The percentage of minorities relocated would be higher, but the total would be relatively small (5 to 12 relocations). Low-income relocations within the Northern Section also would be consistent with population characteristics in this portion of the study area. Based on observations in the relocation survey and a review of the Census data for the tracts that would be affected, none of the alternatives would disproportionately relocate minority or low-income residents.

While the Preferred Alternative would have minority and low-income relocations (see **Table 4-7**). The relocations impacts would not be disproportionately adverse. As further described in Section 4.5.2, MDOT will provide relocation assistance to all relocatees. The relocation program for the proposed project will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646).

Throughout the development of alternative alignments, the public input process enabled planners to avoid impacts that would dissect neighborhoods or otherwise be disruptive to community services. Therefore, no disproportionately adverse impacts would occur related to community cohesion.

Economic Opportunity for Minority and Low-Income Communities

For centuries agriculture has been the primary source of the region's economy, the richness of the soil in the Delta perfect for crop production. Beginning with the industrial revolution in the early decades of the 1900s and continuing with the trend of larger corporate-owned agribusiness farming, improved technological advances have reduced the need for manual labor and the numbers of smaller family farms. These trends have contributed to the high levels of unemployment in the area, forcing communities to search for new sources of income.

As described in Section 4.3.2.2, an extensive public involvement program has been conducted for the proposed project. Input has been considered from local citizens, elected officials, and economic development representatives. An integral purpose of the I-69 corridor through Mississippi, as described in Chapter 1, is to bring the interstate through the delta region as a means to encourage economic development. Many small communities are located within the study area, typically having a high concentration of minority and lower income residents. The key to enabling the intended economic benefits from I-69 construction will be the degree of access provided through interchanges and connectors to the smaller communities. For example, improvements to SR 8 are included with each alternative; SR 8 will serve minority and low-income populations, particularly those in Rosedale.

Within the Census tracts that exceed the EJ thresholds, the total population in 2000 was 85,395. As a means to estimate the access provided by the proposed alternatives, population clusters located within these EJ areas of concern were identified. Populations of towns and smaller communities located within two miles of I-69 access were estimated and then compared to the

total population. The result, shown in **Table 4-8**, is an indication of how well the proposed alternatives would serve the EJ areas through convenient access and potential for economic development. The number of interchanges provided near the EJ areas is indicated by alternative and section.

Table 4-8 Minority and Low-Income Population Served in Study Area Communities Within 2 Miles of I-69 Interchange			
Alternative By Section	Communities Within EJ Areas	EJ Population Served	Number of Interchanges
Southern Western	Benoit, Shaw, Skene, Cleveland, Shelby, Alligator, Rena Lara	20,923	5
Preferred Alternative – Central	Benoit, Shaw, Skene, Cleveland, Renova, Merigold, Mound Bayou, Winstonville, Shelby, Duncan, Alligator	24,130	10
Eastern	Shaw, Boyle, Cleveland	16,573	2
Middle Preferred (Only) Alternative	Clarksdale, Coahoma, Rich	20,970	2
Northern Western	Lula	370	1
Preferred Alternative – Central	Lula	370	1
Eastern	Lula	370	1
Alternative Totals			
Western Alternative		42,263 (50.2%)	8
Preferred Alternative – Central		45,470 (54.0%)	13
Eastern Alternative		37,913 (44.3%)	5

Source: 2000 Census Data, U.S. Bureau of the Census.

As indicated in **Table 4-8**, any of the build alternatives would serve the same minority and low-income communities in the Middle and Northern Sections of the study area. The Southern Section includes most of the minority and low-income communities that have provided input into the alignment studies for I-69. Based on local input, alignment segments have been modified and the Preferred Alternative was developed to use existing US 61 and bring I-69 access near the established communities. Accordingly, the Preferred Alternative would serve the greatest percentage of minority and low-income population and provide the most interchanges within two miles of these communities.

4.3.2.6 Findings of EJ Analysis

Minority and low-income populations were identified, essentially throughout the study area. The overall impacts of the I-69 alternatives were then reviewed in the context of how they would affect those populations. Based on the potential impacts, proposed mitigation, and level of local support among community leaders, the project would have no disproportionate impacts. This finding is based on the following:

- Disruption to local neighborhoods and community facilities has been minimized through the development of preliminary alignments, incorporating input from citizens.
- Relocations are unavoidable but will be mitigated through payments in accordance with federal policy. Dislocated families will receive assistance with moving expenses and relocation payments in addition to the fair market value of the property. The alignments have been developed to minimize relocations, and they do not concentrate on minority or low-income population groups.
- Farmland and natural resource impacts are unavoidable for any alternative. Appropriate mitigation will be implemented, and the affected resources represent a very small percentage of the total within each county.
- Noise and visual impacts will be unavoidable in some locations. These impacts do not concentrate on minority or low-income population groups. Abatement measures are being incorporated into the design.
- The common message from local community leaders has been that they want to share in the benefits of I-69, especially for the prospect of better economic conditions for future generations in their communities. The project alignments have been developed to provide access to the proposed interstate and offer opportunities for future development. The overall study area is expected to share in those economic benefits from the project.
- The Preferred Alternative provides access to the greatest percentage of the population and uses the highest percentage of the existing US 61 corridor south of Clarksdale. This alternative addresses concerns from local residents and officials that the I-69 corridor and the opportunity for economic growth need to be located near existing communities.

4.3.2.7 Accomplishments of the Environmental Justice Process

The I-69 Environmental Justice Outreach Program has been successful in helping to accomplish the following:

- Disseminated information about the project, through personal interviews, mailings, personal meetings, general public meetings, special community/targeted meetings, to a segment of the public who easily could have been left out otherwise.
- Reduced or eliminated adverse comments. The biggest concern seemingly expressed by the majority of persons, including low-income and minorities, is “Please make sure it comes our way...” There have been very few adverse comments about the project itself.

- Made Environmental Justice a priority concern from the beginning of the study. Based on the level of outreach provided during the study, MDOT has determined that all concerns related to environmental justice have been addressed adequately.

4.4 Public Facilities and Community Cohesion

4.4.1 Schools or Colleges

No schools or colleges would be displaced or adversely impacted by any of the project alternatives.

4.4.2 Churches and Cemeteries

No churches or cemeteries would be displaced or adversely impacted by any of the project alternatives. Two former church buildings currently used for storage would be impacted. A portion of the frontage from one church would be needed for right-of-way (ROW) to connect the south end of the Clarksdale Bypass to the Central and Western Alternatives of the Middle and Southern Sections.

4.4.3 Public Facilities

No government buildings or other public facilities would be displaced or adversely impacted by any of the project alternatives.

4.4.4 Parks and Recreational Facilities

No publicly owned recreational or park facilities would be adversely impacted by any of the project alternatives.

4.4.5 Correctional Facilities

No correctional facilities would be displaced or adversely affected by any of the proposed project alternatives.

4.4.6 Hospitals and Emergency Medical Services

No hospitals or emergency medical facilities would be adversely impacted by any of the proposed project alternatives. Transportation to these medical facilities by emergency response services might be improved by the construction of the proposed project due to a more direct route being available from rural areas.

4.4.7 Neighborhoods

The alternative corridors were located along the outskirts of the built-up areas. This approach provided a means of promoting economic development for the nearby municipality while minimizing the disruptions to nearby homes or businesses.

The only community impacts in Bolivar County are in the vicinity of Cleveland. Prior to the Public Hearing, one neighborhood west of Cleveland and one east of Cleveland would have been impacted by alternatives. Neither of these two developments identified an established community. The neighborhood west of Cleveland is being developed by selling lots adjacent to an existing county road. The Western Alternative in the Southern Section would have impacted several of these residences. One of these residences would have been impacted by the Preferred Alternative. However, adjustments made following the Public Hearing enabled the residences west of Cleveland to be avoided.

The neighborhood east of Cleveland also is new, has one entrance off a county road, and has one home completed and one under construction. New ROW from the western portion of this subdivision would be needed for the East Alternative. At both of these subdivision locations, a grade separation bridge would be provided at a nearby county road for access over the interstate. A vegetated earthen berm was considered through the limits of the subdivision east of Cleveland to lessen the aesthetic concerns and noise impacts; however, since the Eastern Alternative is not the Preferred Alternative, a berm would not be provided at this location.

In the Middle Section of the study area, the alternatives are located within or near the built-up limits of the City of Clarksdale. Because the US 49 – US 61 Clarksdale Bypass is being constructed as a fully controlled access facility, with access only allowed at interchange locations, the Bypass could be easily converted to I-69. Therefore, it is the only alternative undergoing

study around Clarksdale. The Bypass goes around the built-up area of Clarksdale, and there are no community or neighborhoods impacts in this area.

In the Northern Section of the study area, the alternatives bypass the City of Tunica. A neighborhood along Verner Road and Bonds Road north and east of Tunica is impacted by the Western Alternative and Preferred Alternative. At a special meeting held with residents of this community, the study team indicated that improvements would be made to minimize the noise and aesthetic impacts of the corridor. Verner Road would be bridged over the Interstate to reduce truck noise. Subject to the feasibility of providing drainage, a vegetated earthen berm would be provided along the ROW of the corridor through the area of the community in order to minimize the aesthetic and noise impacts.

Several other small communities are located near one or more alternatives:

- Hannah, Lake Vista, Litton, Skene, and Zumbro in Bolivar County
- Bobo, Beverly, and Rich in Coahoma County
- Dubbs, Banks, and Little Texas in Tunica County

The study alternatives have minimized community impacts by passing on the outskirts of Hannah, Beverly, Rich, and Banks. Some impacts would occur at Lake Vista, Litton, Skene, Bobo, Zumbro, Dubbs, and Little Texas. In each of these cases, the route was developed to pass on or near the outer edge of the community, with a grade separation or interchange to maintain the community's access.

4.4.8 *Travel Patterns and Accessibility*

Within the study area, there are numerous isolated communities, scattered pockets of residences, and single-family residences that are mostly located along a highway or county road near farming operations. To maintain access for the people living and working in these locations, the following approach was taken when developing and refining the study alternatives:

- The alternative corridors were generally placed at the fringe of these communities and a grade separation bridge or interchange was placed at a nearby US highway, state highway, or important county road to provide access for the local traffic to cross the interstate.

- To the extent allowed on natural and human environment constraints, alternatives were located near existing roads. This approach maintains existing access patterns, reduces the need for frontage roads, and lessens the impact to farming operations.
- The typical spacing between interchanges or grade separations was kept to no more than two miles when a property owner's access to the other side of the highway was impacted. Farms that are bisected by the proposed project will be evaluated during the design phase to determine if access between the bisected portions can be provided for livestock and machinery. In addition, the locations of changes in property ownership and primary drainage ditches were considered. Following the drainage ditches would limit impacts to existing access points for local use.

Interchanges are proposed near Hannah, Lake Vista, Litton, Skene, Bobo, Rich, Dubbs, Banks, and Little Texas. Therefore, alternatives near any of these communities would increase economic development opportunities for the community. Grade separations are proposed at other locations in order to avoid cutting off access to smaller communities.

4.5 Relocations

4.5.1 Displaced Residences and Businesses

The build alternatives would require the relocation of between 44 and 54 residences, from five to six businesses, and other land uses within their respective ROW limits. Some impacts would occur to storage buildings, trailer yards, equipment lots, and grain bin buildings.

To compare the relative impact of the studied alternatives, an evaluation was made of the number and type of displacements and other demographic data for each alternative. This information is summarized in **Table 4-9A** for the alternatives.

**Table 4-9A
Residential and Business Relocations**

Alternative	House	Mobile Homes	Multi-Family	Businesses	Business Descriptions	Other	Other Descriptions
Southern Western	16	0	0	1	Junkyard	4	Grain storage bins (2), storage buildings, storage shed
Preferred Alternative – Central	17	8	0	1	Junkyard	6	Grain storage bins (12), farm equipment shed, farm lot, storage building
Eastern	12	1	3	2	Furniture Store, 4-Wheeler Sales/Service	8	Grain storage, vacant commercial building, usery supply, mini storage buildings, farm equipment shed, farm equipment shop and shed, abandoned building, partially standing/ vacant buildings
SR 8 Alternative B (Widening)	13	5	0	3	Vehicle Repair Shop, Two Convenience Stores (One Closed)	10	Abandoned partially finished house, fuel tanks, abandoned equipment storage lot, forest service tower, grain storage bins (3), farm equipment repair shop, farm operations building, equipment shop/shed
Alternative C (Bypass)	9	4	0	2	Vehicle Repair Shop, Two Convenience Stores (One Closed)	9	Abandoned partially finished house, fuel tanks, abandoned equipment storage lot, grain storage bins (3), farm equipment repair shop, farm operations building, equipment shop/shed
Alternative D (Preferred Alternative)	13	5	0	3	Vehicle Repair Shop, Two Convenience Stores (One Closed)	10	Abandoned partially finished house, fuel tanks, abandoned equipment storage lot, forest service tower, grain storage bins (3), farm equipment repair shop, farm operations building, equipment shop/shed
Middle Preferred (Only) Alternative	2	1	0	1	Old gas station converted to dance club	2	Storage shed, collapsing equipment shed
Northern Western	1	6	0	0	N/A	2	Large propane tank, abandoned concrete building
Preferred Alternative – Central	2	6	0	0	N/A	4	Storage building sites, barn, partially standing concrete block building; abandoned church building
Eastern	6	14	0	0	N/A	3	Storage building sites, barn, partially standing concrete block building
Total for Project (Preferred Alternative)	26	19	0	5	---	22	---

Note: Relocations for Central Alternative are based on revised alignments for the Preferred Alternative.
Source: Kimley-Horn and Associates, Inc., and Neel-Shaffer, Inc., 2005; May 2008.

To determine the likely availability of comparable and adequate replacement housing, a sample review of real estate listings was conducted in May 2004. As summarized in **Table 4-9B**, it appears that adequate replacement housing is available for relocated and displaced homes within each alternative section. Based on the very small number of residential relocations for a project of this length, historic residential development patterns in the study area, and the assumption that I-69 would be constructed in five projects over a period of eight years or more, it is anticipated that replacement housing will be available during the course of the project as needed.

Table 4-9B Available Housing								
Alternatives	Relocation		Sample of Available Single Family Housing (\$1,000's)					Available Mobile Homes
	SF	MH	\$0-25	\$25-50	\$50-100	\$100- 200	\$200+	MH
Southern	12-17	0-8	35	10	7	2	1	10+
SR 8	5-9	4-5	-	-	-	-	-	10+
Middle	0-2	0-1	3	32	58	22	11	10+
Northern	1-6	6-14	4	12	8	9	5	10+

Source: Kimley-Horn and Associates, Inc., and Neel-Schaffer, Inc., 2005.

In addition, up to four businesses would require relocation. The sample of listed commercial real estate indicated a minimum of 12 available properties. Based on the anticipated economic development objectives in the I-69 Corridor, additional commercial property is expected to be available in the future, far exceeding the number of relocated businesses.

4.5.2 Relocation Assistance

It is the policy of the Mississippi Department of Transportation (MDOT) to ensure that comparable replacement housing will be available prior to construction of state and federally-assisted projects. Furthermore, the MDOT has the following three programs to minimize the inconvenience of relocation:

- Relocation Assistance Advisory Services
- Relocation Moving Payments
- Relocation Replacement Housing Payments or Rent Supplement

With the Relocation Assistance Advisory Services Program, experienced MDOT staff will be available to assist relocatees with information such as availability and prices of homes, apartments, or businesses for sale or rent, as well as financing or other housing programs. The Relocation Moving Payments Program, in general, provides for payment of actual moving expenses encountered in relocation. Where displacement would force an owner or tenant to purchase or rent property of higher cost or to lose a favorable financing arrangement (in cases of ownership), the Relocation Replacement Housing Payments or Rent Supplement Program will compensate owners or tenants who are eligible and qualify.

The relocation program for the proposed project will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646). The program is designed to provide assistance to displaced persons in relocating to a replacement site in which to live or do business. All relocatees will be informed of the name, location, and telephone number of the Relocation Assistance Agent. At least one Relocation Assistance Agent will be assigned to contact relocatees and inform them of their rights and benefits available through the Relocation Assistance Advisory Services Program.

Because this project is expected to be divided into five construction segments that are currently proposed to be implemented over eight years, adequate replacement housing should be available for all relocatees.

Last Resort Housing is a program used when comparable replacement housing is not available, or when it is unavailable within the relocatee's financial means and the replacement payment exceeds the federal/state legal limitation. The purpose of the program is to allow broad latitudes in methods of implementation by the state so that decent, safe, and sanitary replacement housing will be provided. Although adequate opportunities for relocation appear to be available within the area, Last Resort Housing will be used if needed.

The few business structures that will be taken by the alternatives are varied and include a motor vehicle repair shop, one open convenience store, a junkyard, and a nightclub. None of the businesses that will be relocated are critical for overall service and none have more than 50 employees. There will be ample areas to relocate. The overall impact of I-69 for most businesses in the study area will be positive, because of the ability to serve increased traffic and the increased access to the northern Mississippi Delta.

4.6 Transportation and Utilities

4.6.1 Railroads

As described in Chapter 3, active and inactive railroads are located throughout the study area. Several grade-separated rail crossings would occur with any of the alternatives. Details of the crossings would be coordinated with rail line representatives during the course of the planning and design of the selected alternative. No other existing or proposed rail facilities would be impacted by the proposed project alternatives.

4.6.2 Airports

None of the airports located near the study area would be adversely impacted by the proposed project alternatives. The construction at the Tunica County Airport was coordinated with the development of the I-69 alignments, particularly the access interchange at Prichard Road for the Preferred Alternative, as well as the other alternatives in the Northern Section. An interchange near the improved airport would be compatible with the Tunica County Land Use Plan.

4.6.3 Pedestrian and Bicycle Facilities

No existing or planned pedestrian or bicycle facilities would be adversely impacted by the proposed alternatives. While no designated pedestrian or bicycle facilities are proposed along I-69 due to access restrictions, a 6-foot shoulder is proposed on each side of the frontage roads for the East and West Alternatives, as illustrated in **Figure 2-10A**. Intersections and interchanges will be designed to accommodate pedestrian or bicycle travel on intersecting streets in locations where such activity is anticipated.

The proposed alternatives for I-69 do not directly impact the Mississippi River Trail (MRT), which is designated along SR 1 in the project area. However, the widening of SR 8 has a western terminus on the MRT at the SR 1 intersection in Rosedale. Over the approximate 35 miles between the City of Greenville in Washington County and the SR 8 intersection at Rosedale in Bolivar County, the MRT uses SR 1. The MRT also uses SR 1 over the approximate 54 miles between the SR 8 intersection at Rosedale and the US 49 intersection in Coahoma County near the Mississippi River Bridge, where the MRT crosses into the State of Arkansas. The two feet of

shoulder adjacent to the existing outside travel lane on SR 1 is paved, and signs are installed designating this section of SR 1 as part of the MRT. These two features are the primary provisions for bicyclists on the portion of the MRT along SR 1 between Greenville and the US 49 Mississippi River Bridge. Since the widening of SR 8 proposed under this study has a western terminus at the SR 1 intersection in Rosedale, this study would have minimal impact on the MRT.

Each I-69 alternative would provide an interchange in a rural environment at the crossing of SR 1 between Greenville and Rosedale. Therefore, traffic flow and safety along SR 1 should be improved. There also is little pedestrian activity that would take place on any proposed alternative in the study area.

4.6.4 Utilities

The proposed project alternatives would cross both transmission and gas lines. All transmission lines within the study area are owned by the Entergy Corporation. Gas pipelines are owned by several different companies. Two pipelines in the study are owned by the Texas Gas Transmission Company. These pipelines run the length of the entire study area in a southwest to northeast direction. The ANR Pipeline Company owns one gas pipeline in the study area. Two other pipelines, owned by the Tennessee Gas Transmission Company, also run west through Ruleville and then southwest before leaving the study area approximately five miles east of Shaw. Transmission and gas line crossings are shown in **Table 4-10** and on **Figure 3-9**. The costs of crossing these facilities have been included in the cost estimates for each of the alternatives. As shown in the table, the Western Alternative in the Southern Section would have the least impacts on transmission lines, while the Preferred Alternative would have the least impact on gas lines in that section. In the Northern Section, the Western Alternative would have the least impacts to both gas and electric transmission lines.

Table 4-10 Transmission and Gas Line Crossings		
Alternative	Transmission Line Crossings (Feet)	Gas Line Crossings (Feet)
Southern Section Western	2 (955)	8 (19,030)
Preferred Alternative – Central	2 (1,470)	8 (13,050)
Eastern	6 (3,140)	10 (16,595)
SR 8		
Alternative B (Widening)	1 (300)	3 (3,330)
Alternative C (Bypass)	1 (300)	3 (3,330)
Alternative D (Preferred Alternative)	1 (300)	3 (3,300)
Middle Section Preferred (Only) Alternative	2 (310)	3 (16,860)
Northern Section Western	4 (1,115)	12 (38,825)
Preferred Alternative – Central	4 (1,130)	11 (61,985)
Eastern	4 (1,450)	8 (44,090)
Total for Project (Preferred Alternative)	9 (3,210)	25 (95,225)

Note: The length shown above for the electric transmission lines is length of a single transmission line located in the estimated right of way corridor for I-69 and the connecting roads. Any needed relocation would be accomplished by adjusting pole locations supporting these lines. The length for the natural gas pipeline shown above is the length of pipe that would require adjusting for I-69 and its connecting roads. There are normally several lines of various size pipes at each of these crossing locations, which are included in the lengths shown above.

Source: Neel-Schaffer, Inc., 2004. Kimley-Horn and Associates, Inc., 2004; 2008.

4.7 Air Quality

The purpose of this section is to address future air quality conditions for the project alternatives, to identify potential regional and local air quality impacts and mitigations, and to address conformity with regional air quality implementation plans.

This project is located in a region designated as being in attainment for all criteria pollutants; therefore, the State Implementation Plan (SIP) to achieve and maintain the air quality standards does not contain any transportation control measures and the conformity procedures of 23 CFR 770 do not apply. All proposed alternatives within the I-69 study area are in conformance with the SIP and would not cause violations of the air quality standards and would not interfere with any transportation control measures. In addition, no localized violations of any air quality standards, including carbon monoxide, are anticipated for the project alternatives. Based on MDOT air quality analysis guidelines, no microscale analysis is required.

4.8 Noise

To address FHWA requirements for assessing noise impacts of transportation projects, a noise study was conducted for the proposed project. The objectives of the study were to:

- Predict the effects of the proposed project related to noise.
- Point out sites where noise impact is likely to occur.
- Determine if there are any feasible noise abatement measures which would eliminate or reduce expected noise impact.
- Satisfy the requirements of Title 23 of the Code of Federal Regulations Part 772 (23 CFR 772).

4.8.1 Future Noise Level Estimates

4.8.1.1 Design Year (2030) No-Build Alternative Noise Environment

Based on discussions with MDOT Planning Division, the Leq noise levels at the occupied facilities located along the route of the Eastern, Central, and Western Alternatives are expected to be an average of 3 dBA higher than the existing noise levels in the year 2030 if the proposed project is not constructed. This is mainly due to expected marginal growth within the study area. As a result, highway traffic noise impact is not expected to occur at occupied facilities for the No-Build Alternative.

4.8.1.2 Design Year (2030) Build Alternative Noise Environment

Year 2030 noise levels were projected for 291 occupied facilities or *receptor locations*, including residences and businesses. This total number of receptors analyzed in the 2030 design year excludes buildings within the proposed ROW and abandoned buildings which would be displaced due to construction of the highway. No buildings would be relocated because of noise impacts. Assumptions for the proposed alternatives included the following:

- Projected 2030 peak-hour volumes
- All traffic on center-line of lanes for each direction
- High traffic volume on receptor side
- Seven percent heavy trucks, three percent medium trucks (in the peak-hour)
- 65 mph operating speed (free-flow) and 70 mph design speed
- Topography/terrain area assumed relatively flat

The peak-hour or one-hour equivalent (Leq) noise level is used for highway noise analysis.

Table 4-11 below compares the existing measured noise levels and modeled 2030 noise levels at specific locations along the proposed I-69 alternatives. Only four receptor locations are shown because others either were taken along alternatives that are no longer being considered or are not within 500 feet of the project centerline. Most of the sites at which noise levels were monitored were for the purpose of establishing ambient noise levels in general areas crossed by the alternatives, specifically along cross streets, where traffic and noise would be similar for more than one alternative.

Table 4-11 Existing Measured and Future (2030) Modeled Receptors				
Alternatives	Site	County	Measured Leq (dBA)	Future (2030) Modeled Leq (dBA)
Middle Western, Central, and Eastern	NRECP11	Coahoma	49.6	62.4
Middle Western, Central, and Eastern	NRECP12	Coahoma	52.4	60.6
Middle Western, Central, and Eastern	NRECP13	Coahoma	56.6	59.6
South Central	NRECP15	Coahoma	41.5	54.2

Source: Kimley-Horn and Associates, Inc. 2004.

Appendix F identifies the receptor location (by alignment) and facility type. Projected noise levels at these receptors are also shown in **Appendix F**. Locations with substantial increase included all receptors with an increase over the ambient noise level of 15 dBA. **Table 4-12** summarizes the receptors that would either approach the NAC or experience a substantial increase.

The Eastern Alternative (Southern Section) would have two receptor locations with a substantial noise increase (i.e., 15 dBA or more). With the Western Alternative (Southern Section), one receptor location would exceed NAC thresholds and one would exceed the substantial noise increase criterion.

Table 4-12			
Number of Receptors That Approached/Exceeded FHWA NAC			
Alternative		NAC	Substantial Increase
Southern Section	Western	1	1
Preferred Alternative – Central		4	1
Eastern		0	2
SR 8	Alternative B (Widening)	0	0
Alternative C (Bypass)		0	0
Alternative D (Preferred Alternative)		0	0
Middle Section	Preferred (Only) Alternative	0	0
Northern Section	Western	0	0
Preferred Alternative – Central		0	0
Eastern		0	0
Total for Project (Preferred Alternative)		4	1

Source: Kimley-Horn and Associates, Inc., 2004; 2008.

In the Southern Section, the Preferred Alternative would have five receptor locations that would exceed specified threshold criteria. Four of these locations would exceed NAC thresholds and one would exceed the substantial noise increase criterion. Thus, while all of the alternatives studied have little noise impact considering the length of the project, the Preferred Alternative would have the greatest impact. For all alternatives, no structures would be relocated based on noise impacts.

4.8.2 Noise Abatement Measures

4.8.2.1 Barrier Evaluation

Noise barriers reduce noise levels by blocking the sound path between roadways and noise-sensitive areas. This measure is typically used on high-speed, limited-access facilities where noise levels are high and adequate space for barriers is available. Noise barriers may be constructed from a variety of materials, including concrete, wood, metal, earth, and vegetation. Noise reduction criteria outlined in the *MDOT Highway Traffic Noise Policy* (June 18, 1996) were used for the barrier evaluation. For a barrier to be recommended, it must be feasible and reasonable. The following applicable criteria were considered in order to determine feasibility:

- Each barrier should reduce the noise level by at least 5 dBA at four or more residences that are expected to receive noise impact.
- The residences were constructed or the building permits were issued before the date of public knowledge of the proposed highway project.
- The abatement measure must be cost effective. Cost effectiveness is defined as \$20,000 per effectively protected (5 dBA or more reduction) residence.

Based on the preceding criteria and due to the low population density of the study area, further barrier analysis is unnecessary. The nine receptor locations — those exceeding the noise abatement criteria — are in isolated locations. Barriers of suitable height and length providing substantial noise reduction are cost-prohibitive due to a high cost per dwelling unit and are therefore not reasonable.

4.8.2.2 Other Noise Abatement Measures

When the noise levels of a proposed roadway approach or exceed Noise Abatement Criteria, the FHWA requires that various noise abatement measures be considered. The following discussion addresses the applicability of measures other than noise barriers for the proposed project.

Transportation system management (TSM) measures which speed limit, vehicle type, volume, and time of operations are not considered appropriate for noise abatement due to their effect on the capacity and level-of-service on the proposed roadway. A reduction in speed limit of 10 MPH would result in a noise level reduction of approximately 1 to 2 dBA — barely perceptible to the human ear while increasing travel time and user cost. Therefore, TSM is not considered a viable noise abatement measure.

The use of *vegetation* for noise barriers is not considered to be reasonable or feasible for reducing noise levels for this project due to the substantial amount of ROW necessary to make vegetative barriers effective. FHWA research has shown that vegetative barriers should be composed of closely-spaced, densely foliated trees and shrubs approximately 100 feet wide to provide a 3-dBA reduction in noise levels. The cost to acquire the ROW and to plant that amount of vegetation is estimated to exceed the \$20,000/unit cost-effectiveness requirement. However, a narrower vegetative barrier is often desirable from a visual perspective.

The *acquisition of property* as buffer zones to minimize noise impacts is not considered a feasible abatement measure for this project. The cost to acquire impacted residences for buffer zones would exceed the MDOT's abatement threshold of \$20,000 per residential unit. The use of buffer zones to minimize impacts to future sensitive areas is not recommended because this could be accomplished through land use controls.

One of the most effective noise abatement measures is *land use controls* to minimize future impacts. Local jurisdictions with zoning control could use the information contained in the final noise evaluation to develop policies limiting the growth of noise-sensitive land uses adjacent to the freeway. These policies could include setback requirements, building codes, and zoning.

Earthen berms may be effective in some locations, especially where parallel barriers could be used to protect impacted areas on both sides of the proposed freeway. While earthen berms generally provide more cost-effective noise attenuation than other barrier materials, they are limited by ROW and other engineering considerations (e.g., drainage, access, and future development).

While most of the above measures have been considered and dismissed as not practical noise abatement for this project, an earthen berm would be provided in one location in Tunica County, subject to the feasibility of providing drainage (see Section 4.4.7). This berm would mitigate community impacts and provide context-sensitive design, while mitigating noise impacts to some degree.

4.8.2.3 Land Use Development and Future Noise Abatement

The Federal Highway Administration will not normally participate in noise abatement measures unless there is construction or reconstruction of a highway section (or portion thereof). However, the Federal Highway Administration may participate in noise abatement measures on an existing highway where land development or substantial construction predated the existence of any highway. The granting of a building permit, filing of a plat plan, or a similar action must have occurred prior to ROW acquisition or construction approval for the original highway.

4.8.2.4 Impending Development

Four residential developments are approved and being developed near one or more alternatives: two in Tunica County and two in Bolivar County. The first development in Tunica County is located in the Verner Road/Bonds Road area, just north of Prichard Road in the vicinity of the Northern Section. Several homes would be taken in this section, and other existing homes or lots that have not yet been developed would be impacted by noise. These homes are all being built on acre lots on existing Verner Road or Bonds Road, with no new subdivision streets planned. A second subdivision is located in southern Tunica County on Dubbs Road. This development also consists of brick and modular houses on 1-acre lots. Some undeveloped lots remain that may be impacted by noise from the Eastern Alternative in the Northern Section.

There are two ongoing residential developments in Bolivar County. The first development is located in the Township Road area north of SR 8 and west of Cleveland in the Southern Section. This development also is being built on large lots using existing roads. The second development, located east of Cleveland along White Street south of SR 8, is the only true subdivision with new streets built or planned. This development would be impacted by the Eastern Alternative in the Southern Section. A golf-course community is planned to the north of it. An extensive effort has been conducted to inform county and local officials of the alternative corridors through meetings and newsletters.

4.9 Geological Resources

The Geotechnical Branch of the Mississippi Department of Transportation (MDOT) prepared a summary report concerning potential geotechnical problem sites along the three alternatives for proposed I-69 SIU 11 corridor. The report investigated potential settlement and stability problems along the proposed alignments and at proposed structure locations such as bridges and overpasses. The investigation was completed using a general review of historical data in the areas of interest. It is important to note that no borings or soil samples were recovered from any site and that a complete subsurface survey along the alignment will be completed during the design of the alignment. The Western Alternative was found to cross numerous meanders that

could result in settlement and stability problems. The Preferred Alternative and Eastern Alternative were essentially the same concerning potential subsurface problems. MDOT found that the Eastern alignment encountered smaller meanders between Dubbs Road Interchange and S.R. 3; therefore it is less likely to have settlement problems in the future. **Table 4-13** summarizes the MDOT’s investigation findings and recommendations.

Table 4-13 Potential Subsurface Problem Areas	
Alignment	Problem Areas
Southern West	East of S.R. 1 Interchange and West of S.R. 448
	North of S.R. 32 to U.S. 61 South Clarksdale Interchange
Preferred Alternative – Central	Potential problem at S.R. 1 Interchange
	North of Duncan Interchange and South of U.S. 61 S. Clarksdale Interchange
East	North of Merigold Interchange to North of Parchman Interchange
	Potential problem at S.R. 1 Interchange
Middle Preferred (Only) Alternative	Between S.R. 6 and Coahoma/Tunica Co. Line
Northern West	North of Dubbs Road Interchange
Preferred Alternative – Central East	North of Dubbs Road Interchange
	Between Dubbs Road Interchange and S.R. 3

Source: MDOT Geotechnical Report, 2004.

4.10 Water Resources

The majority of the streams located within the project area are first and second order tributaries to the Coldwater, Little Tallahatchie, Tallahatchie, Yocona, Yalobusha, Big Sunflower, and Yazoo Rivers. These rivers have been classified by the Mississippi Department of Environmental Quality as “use streams”, which include recreation and fish and wildlife. Recreation waters are suitable for recreational purposes. Fish and wildlife waters are intended for fishing and for propagation of fish, aquatic life, and wildlife. Because of these designations, construction measures will be incorporated into the design of the selected alternative to minimize water quality impacts to the streams and their tributaries. Such measures include minimizing the number of stream crossings, length of impact, and amount of fill, limiting segments where roads lie close to streams, maximizing the distance from roads to streams using appropriate soil erosion and sediment control measures during construction, and controlling storm water associated with road runoff.

4.10.1 Surface Water

Each proposed alternative would have some degree of impact on water quality because of the large amount of surface water including ponds, lakes, streams, and tributaries in the study area. The alternative that minimizes stream crossings and other surface water impacts would result in the least potential impact to water resources in the project area. Project impacts are described as either short-term construction related impacts or long-term operational impacts.

Water quality impacts related to construction activities could include increased sediment loads and subsequent higher turbidity levels in surface waters. These increased loads could result from runoff from ROW areas undergoing clearing and earth moving and from construction activities at stream crossings. Disturbance of stream sediments at crossings could cause short-term decreases in oxygen levels in the immediate area from suspension of oxygen demanding organic material. This may result in increased impact to sensitive, less mobile organisms such as arthropods, mollusks, and other benthic organisms. In addition, fish species may be temporarily displaced in an avoidance response to the increased turbidity. Also, spillage and dispersion of fuels, lubricants, and other toxic materials during construction can impact water quality.

These impacts will be minimized by adherence to applicable federal and state construction guidelines and proper erosion control techniques during design. A detailed sediment and erosion control plan will be developed for the selected alternative. In addition, construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies.

This sediment and erosion control plan will be subject to approval by the appropriate state agencies prior to construction. The plan will include measures to minimize construction impacts and will be implemented during highway construction. Sedimentation and erosion will be controlled and reduced by use of erosion control measures such as retention/detention basins, discharging storm water over vegetated areas, hay bales or straw dams, turbidity curtains, water flow diversion, and rip/rap. Cut and fill areas should be appropriately and promptly graded and vegetated. Stockpiling and staging sites will be re-vegetated with herbaceous cover after construction to reduce runoff and lessen sediment loadings.

Long-term operational impacts involve storm water discharge from the highway. The most common contaminants in highway runoff are heavy metals, inorganic salts, aromatic hydrocarbons, and suspended solids that accumulate on the road surface as a result of regular highway operation and maintenance activities. Ordinary operations and the wear and tear of vehicles also result in the dropping of oil, grease, rust, hydrocarbons, rubber particles, and other solid materials on the highway surface. These materials are often washed off the highway during precipitation events. Receiving surface and ground waters are susceptible to contamination from all these sources.

Proper design of the highway drainage systems, include vegetated retention and setting ponds, elimination of curbing, velocity reduction devices, and proper placement of outfalls can minimize potential water quality impacts from surface runoff. Additional measures to minimize impacts to surface water quality include phasing construction, shifting alignments to avoid streams, and locating drainageway crossings as far upstream as practical, or at narrow crossing points. Bridge construction, as opposed to culverts or fill of streams and associated wetlands, can also be employed to reduce impacts to the streams.

4.10.2 Section 303 (d)

Section 303(d) of the Federal Clean Water Act requires that states identify impaired water bodies. Excess sediments, nutrients, and harmful microorganisms are leading reasons for impairment. In an effort to restore the water bodies, total maximum daily loads (TMDLs) for all impaired 303(d) listed water bodies are developed by the states. TMDL reports present the maximum amount of pollutant that can enter a water body so that the water body will meet or continue to meet state water quality standards. TMDLs serve as a planning tool for developing specific controls needed to meet water quality standards.

Every two years, the Mississippi Department of Environmental Quality (MDEQ) prepares a Section 303(d) List of Impaired Water Bodies report. The report identifies impaired water bodies and establishes a priority ranking for such waters, taking into account the severity of the pollution and the uses made of the water bodies. For water bodies identified as impaired in the report, a TMDL due date is established. The report also lists water bodies with developed TMDLs that have not been finalized. These waters have TMDLs that were either proposed by the EPA Region 4 that have not yet been finalized or were developed by the MDEQ and have not been

through the public notice process for approval by the EPA. TMDLs that have been finalized are not contained in the report.

The historical water body identification number for each water body listed in the Section 303(d) List of Impaired Water Bodies report contains a reference to the watershed of its location. The USGS hydrologic unit code 8-digit (HUC) is also given for segments identified as having impaired water bodies in the report. Mississippi's nine river basins contain 482 watersheds. The entire study area for this section of I-69 is located in the Yazoo River and Upper Mississippi River Basin. The MDEQ document NRCS State Watershed and Tables (MDEQ, 2006) contains the historical map showing the 482 watersheds. The 2006 MDEQ document also lists the names and HUCs sorted alphabetically and numerically for all of the historical watersheds.

In 2001, the USGS, in cooperation with the MDEQ, NRCS, the U.S. Department of Agriculture-Forest Service (USFS), and the Mississippi Automated Resource Information System (MARIS) began a project to develop a statewide hydrologic unit map known as the Watershed Boundary Dataset (WBD), including 10-digit watershed and 12-digit subwatershed boundaries, codes, names, and areas. The project would provide information on Mississippi's water resources in the form of USGS hydrologic unit boundaries for 2-digit regions, 4-digit subregions, 6-digit basins (formerly called accounting units), 8-digit subbasins (formerly called cataloging units), 10-digit watersheds, and 12-digit subwatersheds.

In the 2002 and 2004 Section 303(d) List of Impaired Water Bodies reports, MDEQ used a numbering system based on identification of the river basin and the USGS HUC system. The project area for this I-69 study includes segments of the Harris Bayou, Hushpuckena River and Coldwater River, which are 303(d) listed waters according to Mississippi 2004 Section 303(d) List of Impaired Water Bodies Report. Using that report, **Table 4-14** shows the total number of streams that are listed as 303(d) within alternative corridors by section.

Table 4-14		
303(d) Listed Waters within the Alternatives		
Alternatives		Number of Streams
Southern Section	Western	7
	Preferred Alternative – Central	10
	Eastern	11
SR 8		
	Alternative B (Widening)	0
	Alternative C (Bypass)	0
	Alternative D (Preferred Alternative)	0
Middle Section		
	Preferred (Only) Alternative	1
Northern Section	Western	11
	Preferred Alternative – Central	11
	Eastern	12
Total for Project	(Preferred Alternative)	22

Source: Kimley-Horn and Associates, Inc., 2004. 2008.

During 2003-2004, the USGS subdivided the 8-digit subbasins in the Delta containing the Yazoo Basin into 10-digit watersheds. The Delta was further subdivided into 12-digit subwatersheds when part of a watershed was located in the Hills or Coastal Plains Uplands. In 2004, the USGS, in cooperation with the MDOT continued work on the WBD project as part of the existing cooperative program between these two agencies. MDEQ and USGS completed work on the new 12-digit delineation of Mississippi watersheds in 2005. The new delineated 1,294 watersheds and subwatersheds are smaller in size than the 482 watersheds formerly used. All of the data, including the watershed and subwatershed boundaries, hydrologic unit codes and names, and drainage-area information are stored in a GIS database which is available at <http://www.ncgc.nrcs.usda.gov/products/datasets/watershed>.

For the project study area, **Figures 4-2A** and **4-2B** depict the Preferred Alternative, the 16 watersheds or subwatersheds, the names of the 16 watersheds or subwatersheds, the boundaries of the 16 watersheds or subwatersheds, and the HUCs. Each HUC depicted on **Figures 4-2A** and **4-2B** has 12 digits. It is common practice in Mississippi for the 10-digit HUC watersheds to be shown in 12 digits with the last two digits being two zeros (00). **Figures 4-2A** and **4-2B** depict the HUC watersheds and subwatersheds in 12 digits. Each of the 16 watersheds or subwatersheds within the study area of the Preferred Alternative has one or more impaired water bodies for which TMDLs of at least one pollutant type have been finalized or pending.

Table 4-15 was developed based on **Figures 4-2A** and **4-2B** to provide a summary of the watersheds, subwatersheds and their HUCs for the Preferred Alternative. During the design phase, the MDOT will contact the MDEQ and determine what pollution control measures would be adopted to advance the state's non-point source management plans in the project area. Construction measures that will be incorporated into the design will also be determined for minimizing water quality impacts at locations with impaired or monitored water bodies. The status of development of TMDLs for any waterways in the study area will be identified and an evaluation will be made to determine how the proposed project could affect implementation of restoration efforts in these watersheds.

Section 230(c) prohibits discharges that cause or contribute to significant degradation of waters of the United States. Significant degradation can include individual or cumulative impacts to human health and welfare; fish and wildlife; ecosystem diversity, productivity and stability; and recreational, aesthetic or economic values. Non-point source pollution associated with project construction can often cause erosion or sedimentation problems downstream. Consequently, appropriate steps should be taken to address potential impacts to water quality within streams and wetlands and to not adversely impact the continued existence of critical habitat for endangered or threatened species in accordance with 40 Code of Federal Regulations (CFR) Section 230.10(b).

MDOT is working to reduce the impact of highway construction on water quality in a variety of ways. It is an active participant in the MDEQ statewide basin study of impaired waters. MDOT is currently reviewing and updating its Stormwater Pollution Prevention Plan (SWPPP). Construction inspectors are being trained in the proper implementation and maintenance of Best Management Practices (BMPs) in effort to prevent further degradation of the watersheds and to address TMDL concerns.

**Table 4-15
Preferred Alternative Impacted Watersheds/SubWatersheds**

SUBBASIN	WATERSHED	SUBWATERSHED	USGS HYDROLOGIC UNIT CODE (HUC)					
			REGION	SUBREGION	BASIN	SUBBASIN	WATERSHED	UBWATERSHED
COLDWATER RIVER			08	03	02	04		
	Lake Cormorant Bayou-Coldwater River		08	03	02	04	07	00
		Upper Lake Cormorant Bayou	08	03	02	04	07	03
		Buck Island Bayou	08	03	02	04	07	04
		Lower Lake Cormorant Bayou-Coldwater River	08	03	02	04	07	05
	White Oak Bayou-Coldwater River		08	03	02	04	08	00
	Phillips Bayou-Yazoo Pass		08	03	02	04	09	00
	Muddy Bayou-Coldwater River		08	03	02	04	10	00
TALLAHATCHIE RIVER			08	03	02	02		
	Cassidy Bayou		08	03	02	02	05	00

**Table 4-15
Preferred Alternative Impacted Watersheds/SubWatersheds**

SUBBASIN	WATERSHED	SUBWATERSHED	USGS HYDROLOGIC UNIT CODE (HUC)					
			REGION	SUBREGION	BASIN	SUBBASIN	WATERSHED	UBWATERSHED
BIG SUNFLOWER RIVER			08	03	02	07		
	Lake Bayou-Big Sunflower River		08	03	02	07	01	00
	Hushpuckena River		08	03	02	07	02	00
	Harris Bayou-Big Sunflower River		08	03	02	07	03	00
	Mound Bayou-Big Sunflower River		08	03	02	07	04	00
	Porter Bayou-Big Sunflower River		08	03	02	07	05	00
	Snake Creek-Bogue Phalia		08	03	02	07	11	00
	Shell Lake-Clear Creek		08	03	02	07	12	00
	Bogue Hasty-Bogue Phalia		08	03	02	07	13	00
	Rolling Fork Creek-Upper Deer Creek		08	03	02	07	18	00

Source: Mississippi Department of Transportation, 2010

4.10.3 Groundwater

Historically, contamination of the alluvial aquifer has not been a significant problem. Recently groundwater contamination has been localized to areas near industrial complexes. Some herbicides and pesticides that are present in the surface water may enter the aquifer in areas of recharge. It also is possible for contaminants to enter the aquifer from improperly plugged wells or abandon wells.

Shallow aquifer systems may be disturbed by excavation within the construction limits of the project or be damaged by the weight of the construction materials and equipment. Private wells within the project area could be impacted in the short-term during road construction. However, long-term impacts to groundwater are not anticipated within the study area. Precautions will be taken so that groundwater may not be contaminated. All fuel and chemicals will be contained and properly handled as intended.

4.11 Wetlands and Streams

Section 404 of the Clean Water Act requires regulation of discharges into “Waters of the United States.” The U.S. Environmental Protection Agency (EPA) is the principle administrative agency of the Clean Water Act; however, the U.S. Army Corps of Engineers (USACE) has the responsibility for implementation, permitting, and enforcement of the provisions of the Act. The USACE regulatory program is defined in 33 CFR 320-330.

Wetlands, streams, and open waters are regulated by the USACE pursuant to Section 404 of the Clean Water Act. Wetlands, defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Any action that proposes to place fill into these areas falls under the jurisdictional of the USACE under Section 404 of the Clean Water Act (33 USC 1344).

Wetlands provide many important functions including controlling floodwater, replenishing groundwater, filtering contaminants and excess nutrients, protecting municipal water supplies, and providing habitat for a variety of plant and animal species. Highway construction would

have a degree of impact on wetlands and their function. Construction impacts consist of both temporary impacts during the construction phase, and long-term and permanent impacts caused by construction or through operation of the roadway.

Temporary impacts include potential water quality degradation during land clearing activities and access or encroachment into wetland areas. Staking the construction limits prior to construction and developing a plan for access will help minimize encroachment into the wetland area through avoidance of the wetlands. When avoidance is not possible, best management practices (BMPs) for bridge and road construction will be employed. During land clearing activities, turbidity and sedimentation from surface water runoff and erosion will be minimized by the use of beams, sediment basins, traps, or revegetation with plant species indigenous to the area. An erosion control plan consisting of BMPs will be developed for the Preferred Alternative during design.

Long-term impacts include partial clearing of riparian vegetation associated with stream crossings and the loss of habitat where streams are crossed on fill. The degree of impact depends largely on the highway structures and construction techniques employed. Box culverts will be used to minimize filling the wetlands, while maintaining original surface flow patterns. An additional technique for minimizing the amount of fill is the use of bridges for crossing streams. Following the initial avoidance and minimization measures, a compensatory mitigation plan for unavoidable wetlands impacts will be developed for the Preferred Alternative during permitting. The proposed alternatives have been developed to minimize construction within wetland areas to the extent possible. Aside from the wetland habitat directly affected by construction, the proposed improvements should not severely impact the stability or quality of the wetland resources in the study area.

4.11.1 *Determination of Wetland and Stream Impacts*

During the development of the 17 preliminary one-mile-wide alternative corridors, initial wetland areas were determined with the aid of USGS topographic maps, National Wetland Inventory (NWI) maps, and aerial photography. Field reconnaissance was conducted in the winter of 2002 to verify the wetland areas and to identify any additional wetlands crossings that may occur within the study area. This field information was used to assist in further refining the corridors to nine 1,000-foot corridors and ultimately for the development of the alternatives carried forward for detailed study. Wetland scientists conducted additional field investigation of each wetland

area in April and May 2003 in order to better assess the wetland impacts for each study alternative and identify opportunities for preliminary design modifications to further minimize encroachment into the wetlands. Each wetland area identified within the alternative corridors was evaluated to confirm the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. Global Positioning System (GPS) survey points were taken at key locations along the outer limits of the wetland areas.

4.11.1.1 Wetlands

Impacts to wetlands, for each proposed alternative, were calculated electronically using ESRI ArcView software by overlaying the GPS wetland delineations with the preliminary design plans showing ROW limits. The wetland encroachment/impact acreage was calculated for each site based upon the portion of the site location within the proposed corridors of the alternatives. A total of 108 wetlands were identified in the alternative corridors during the field review. This number was reduced from the 140 wetlands identified by shifting the alignment to avoid wetlands. **Table 4-16** shows the total number of wetland acres identified within the ROW of each alternative. **Figures 4-3A** and **4-3B** show the wetland locations within each alternative.

Alternatives	Wetland Acres
Southern Section Western	122
Preferred Alternative – Central	18
Eastern	63
SR 8 Alternative B (Widening)	2
Alternative C (Bypass)	1
Alternative D (Preferred Alternative)	2
Middle Section Preferred (Only) Alternative	20
Northern Section Western	61
Preferred Alternative – Central	28
Eastern	32
Total for Project (Preferred Alternative)	68

Note: Wetland impacts in this table are based on the original Central Alternative prior to alignment shifts

Source: Kimley-Horn and Associates, Inc. 2004; 2008.

Temporary impacts to wetland resources may occur as a result of construction access within the project corridor. Methods of access to each wetland will be determined on an individual basis during the final design and construction phases. Impacts to wetlands will be avoided to the greatest extent possible by using BMPs for road and bridge construction.

Wetland Assessment of the Preferred Alternative

Additional field assessment of the wetland impacts within the ROW limits of the Preferred Alternative was conducted in September and October 2005. This assessment included verification of the initial wetland work completed in 2003 as well as gathering additional data regarding wetland quality. Some minor shifts of the Preferred Alternative had occurred since the previous wetland delineation in April and May 2003 which changed the impact numbers given in **Table 4-16** for the Preferred Alternative.

The total number of wetlands and impact acreages were revised based on the additional field work in the fall of 2005. There are fifty-two wetlands totaling 107.11 acres located within the ROW limits of the Preferred Alternative. Wetlands were characterized as jurisdictional or isolated. Jurisdictional wetlands are wetlands that are hydrologically connected or adjacent to waters of the U.S. The USACE will make the final determination of jurisdictional status of each wetland during permitting. A jurisdictional determination by the USACE has not been completed for the Preferred Alternative. Isolated wetlands are wetlands that are not hydrologically connected to Waters of the U.S. and therefore, the USACE does not have jurisdiction. Forty-eight wetlands totaling 105.89 acres are jurisdictional with four wetlands totaling 1.12 acres being isolated. Wetland quality was also evaluated on the wetlands located in the Preferred Alternative. **Table 4-17** shows the total wetland acres impacted along with the quality of the wetland habitat.

Table 4-17 Wetland Impacts for the Preferred Alternative				
Wetland Quality	Number of Wetlands	Jurisdictional Acres	Isolated Acres	Total Acres¹
High	30	84.27 (30)	0 (0)	84.27
Medium	18	20.50 (15)	0.93 (3)	21.43
Low	4	1.12 (3)	0.19 (1)	1.31
Total	52	105.89 (48)	1.12 (4)	107.11

¹Estimate does not distinguish potential differences between SR 8 Widening (Alternative B) and Preferred Alternative (Alternative D); relative values are anticipated to be similar based on analyses previously conducted. Source: Kimley-Horn and Associates, Inc. 2005; 2008.

Wetland quality was assessed based on a number of factors which included overall wetland size, vegetation type, landscape position, hydrology source, wildlife habitat (including connectivity to adjacent habitat), and the extent of wetland alteration. Wetlands that were small in size and not part of a larger system were considered lower quality while higher quality wetlands were large and/or part of a larger system. Wetland vegetation that provided for a diversity of habitat and food source were considered higher quality than wetlands that contained little vegetation/habitat diversity. Wetland landscape position was also considered from a water quality benefit as well as a habitat benefit. Wetland areas that receive agricultural runoff and contribute to pollutant removal were considered higher quality than wetland systems that did not provide high water quality benefits. In addition, wetlands that were part of a riparian area were considered higher value. Hydrology source was also assessed due to potential flood attenuation and water quality benefits. Potential wildlife habitat including connectivity to terrestrial as well as aquatic communities was also considered. Wetland areas that provided transition zones between terrestrial and aquatic communities were considered to have a higher value.

Due to the “extensive” wetland/landscape alterations that have occurred in the delta, all wetland areas within the Preferred Alternative have been altered or affected by human activity. The type of human alteration includes ditches, clear cutting, and habitat alternations. Wetlands with little evidence of alteration were considered higher quality. A technical memorandum summarizing the wetland assessment of the Preferred Alternative, including a qualitative assessment data form of each wetland area, is available from MDOT upon request.

4.11.1.2 Streams

Land clearing activities during construction may result in temporary impacts to the water quality of streams, open waters, and wetland habitats. These activities may increase surface water runoff and erosion, causing short-term increases in turbidity and sedimentation. To minimize these impacts, a sediment and erosion control plan consisting of BMPs will be developed for the Preferred Alternative. Methods to limit erosion and water quality impacts will include the use of berms, mats, silt screens, hay bales, sediment basins, and revegetation.

Table 4-18 shows the numbers of perennial stream crossings and impact lengths within the ROW of each alternative. Stream impacts were approximated using ArcView and MARIS data.

Table 4-18 Perennial Stream Crossings within the Alternatives		
Alternatives	Number Perennial Stream Crossings	Linear Feet
Southern Section Western	12	7,300
Preferred Alternative – Central	10	5,165
Eastern	14	9,880
SR 8		
Alternative B (Widening)	5	570
Alternative C (Bypass)	5	570
Alternative D (Preferred Alternative)	5	570
Middle Section		
Preferred (Only) Alternative	4	3,240
Northern Section Western	13	3,775
Preferred Alternative – Central	13	3,970
Eastern	8	3,585
Total for Project (Preferred Alternative)	27-36	12,560-17,660

Source: Kimley-Horn and Associates, Inc. 2004; 2008.
Neel-Schaffer, Inc., 2004.

Intermittent stream crossings would also occur with any of the build alternatives. Impacts to intermittent streams by the Preferred Alternative have been determined based on more detailed studies and field verification conducted in October 2005.

Stream Assessment of the Preferred Alternative

A detailed stream assessment of the Preferred Alternative was conducted during September and October 2005 of all potential jurisdictional drainage features. Potential features were located on aerial photography in conjunction with MARIS data. Each identified feature was assessed in the field and channel characteristics were recorded. Data for 90 channels was recorded during the field assessment. **Table 4-19** shows a total of 93 channel features due to three channels crossing the alignment in two different locations.

Data collected during the field assessment included channel dimensions, geomorphic characteristics, riparian buffer characteristics, wildlife use, and overall quality. Channel dimension data included channel width, channel depth, water depth, wetted width, water clarity, and flow presence. Geomorphic characteristics included presence of a continuous bed and bank, persistent pools, and the presence of riffle-pool/ ripple-pool complexes. Riparian buffer characteristics included presence of a vegetative buffer, species composition of the buffer, and

buffer width. Wildlife use included the presence of fish and evidence of wildlife use. Overall quality was a subjective classification determined by best professional judgment based on overall condition and functionality of the channel. A technical memorandum summarizing the channel assessment for the Preferred Alternative, including qualitative data forms for each channel, is available from MDOT upon request. **Table 4-19** summarizes the results of the channel assessments along the Preferred Alternative.

Table 4-19 Channel Impacts for the Preferred Alternative			
Channel Quality	Number of Channels	Mitigatable Channel Length (Linear Feet)	Total Linear Feet of Jurisdictional Channel
High	22	6,405	9,929
Medium	42	7,103	24,408
Low	29	7,211	23,402
Total	93 (90)	20,719	57,739
* The Vicksburg District USACE currently requires mitigation for perennial stream channels as indicated on USGS topographic mapping.			

Source: Neel-Schaffer, Inc., 2007.

Channels crossing the Preferred Alternative have been impacted by human activity. It appears that most of the channel impacts were made to facilitate drainage for agriculture. The majority of the channels only had a narrow, fringe of herbaceous riparian vegetation. Smaller channels appeared to have been channelized and straightened. These smaller channels contained minimal aquatic habitat. The larger channels tended to have a floodplain along with riparian vegetation and contained better aquatic habitat. The larger drainage features will likely be bridged due their size and associated floodplain.

Proposed stream crossings include pipes, box culverts, and bridges. Adherence to design and construction techniques and implementation of temporary erosion control methods will aid in reducing potential stream impacts.

4.11.2 Wetland and Stream Mitigation

In accordance with Executive Order 11990, this project has been designed to avoid new construction in wetlands and open waters (streams) to the extent possible and use all practical measures to minimize impacts to wetlands and open waters. Measures were taken in the initial planning of this highway project to minimize probable impacts through route location

(avoidance), design (such as the use of bridge crossings instead of fill embankment), and construction practices.

Construction activities that minimize impacts to wetlands and open water (stream) habitat include minimizing the clearing of the construction area, reducing the amount of fill placement, implementing Best Management Practices (BMPs,) and establishing an erosion and sedimentation control plan. Protective measures will be used to minimize the impacts to public water supplies, wetlands, and high quality aquatic habitats by minimizing the number of stream crossings, wetland impacts, and where roads lie close to streams and wetlands and maximizing the distance from roads to streams and wetlands.

The USACE has adopted, through the Council on Environmental Quality (CEQ), a mitigation policy which embraces the concepts of “no net loss of wetlands” and project sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of “Waters of the United States,” specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoidance of impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these aspects (avoidance, minimization, and compensatory mitigation) must be considered in sequential order.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to “Waters of the United States.” According to a 1990 Memorandum of Agreement (MOA) between the EPA and the USACE, in determining “appropriate and practicable” measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. Some unavoidable impacts to wetlands and surface waters may result from project construction.

Wetlands were avoided during the initial selection process by avoiding areas with large wetlands. After the initial corridors were located, the alternatives were further refined to avoid wetlands within the corridors. In areas where wetlands are unavoidable, measures were taken to lessen the impact, including shifting the alignment to take the edges of wetland areas rather than the main portion and to impact smaller rather than larger wetlands.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to “Waters of the United States.” Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, ROW widths, fill slopes, and/or road shoulder widths. The following methods are suggested to minimize adverse impacts to “Waters of the United States”:

- Strictly enforce Best Management Practices (BMPs) to control sedimentation during project construction.
- Clearing and grubbing activity should be minimized.
- Reestablishment of vegetation on exposed areas with judicious pesticides and herbicide management.
- Minimization of “in-stream” activity.
- Minimization of roadway footprint width.
- Bridge lengthening in environmentally sensitive areas.

Compensatory mitigation is not normally considered until anticipated impacts to “Waters of United States” have been avoided and minimized to the maximum extent possible. It is recognized that “no net loss of wetlands” functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation, and enhancement of “Waters of the United States,” specifically wetlands. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Mitigation will be required for unavoidable impacts within the Preferred Alternative. The USACE requires compensatory mitigation for the replacement of aquatic resource functions unavoidably lost or adversely affected by the project (USACE, RGL 02-2). Watershed and ecosystem approaches are recommended when determining compensatory mitigation requirements, which often include a mix of habitats such as open water, wetlands, and adjacent uplands which often provide a greater variety of ecological functions. The determination of the level of mitigation deemed “appropriate” to offset environmental losses resulting from authorized activities is based on the aquatic functions lost or adversely affected. Mitigation strategies that focus on the replacement of the functions provided by wetlands, rather than only calculations of acreage impacted or restored, often provide a more accurate and effective method of

environmental function. The USACE may require on-site, off-site, or a combination of both on-site and off-site mitigation to maintain wetland functional levels within watersheds depending on which options provide greater watershed benefit and ecological importance to the region of impact.

MDOT has conducted mitigation site searches for potential wetland restoration and enhancement areas. As recommended by the National Research Council, mitigation site selection should consider sites that are and will continue to be resistant to disturbances from the surrounding landscape, such as preserving large buffers with connectivity to other wetlands. It is also recommended, when possible, to locate mitigation sites to take advantage of refuges, buffers, green spaces, and other preserved elements of the landscape (National Research Council, June 2001). The areas adjacent to Dahomey National Wildlife Refuge (NWR) have been reviewed to determine their potential as mitigation sites. Currently, the 9,548-acre area, managed by the U.S. Fish and Wildlife Service (USFWS), consists of bottomland hardwoods, agricultural fields, fallow fields, and shrub swamps. Dahomey NWR is the only remaining significant tract of woodland in the Mississippi Delta north of U.S. Highway 82. The USFWS goal is to expand Dahomey NWR in Bolivar County by the acquisition of 12,000 acres west of the existing refuge. This expansion would link Dahomey NWR to the Mississippi River batture woodlands located within the floodplain of the Mississippi River. The linkage would provide expanded habitat and protection for the black bear (*Ursus americanus*) which are currently facing high mortality rates along roads between the refuge and the river. In addition, the expanded refuge would provide and increased woodland block size critical for interior sensitive species such as neotropical birds.

As part of the evaluation of potential mitigation sites, GIS layers were obtained from the MARIS, the USFWS, the EPA, and Ducks Unlimited (DU). Layers obtained during this evaluation included the following:

- USGS digital maps (MARIS)
- Aerial photography (MARIS)
- 10-meter Digital Elevation Model (DEM) (MARIS)
- Hydrologic layers (streams and lakes) (MARIS)
- Refuge and wildlife management area boundaries (MARIS, UFSWS)
- Land use/land cover (EPA)
- EPA Delta Framework (EPA)
- Parcel boundaries (Digital estimation of 2001 paper boundaries)
- Existing conservation easements (DU, USFWS)

GIS data layers were evaluated in order to select areas likely to contain potential wetlands or stream restoration sites. Field site selection was based on the following criteria:

- Links identified in the EPA Delta Framework
- Large parcels of land (greater than 50 acres) located in topographically low areas
- Parcels adjacent to a topographic low area exhibiting relict topography
- Potential stream sites identified on USGS digital maps

Field evaluations of the Dahomey expansion area took place the week of March 18th and 25th, 2002. Existing wetlands identified during the GIS analysis were visited for a comparison of vegetation and soils types since a majority of the Dahomey expansion area has been converted to farmland. Based upon an evaluation of hydrology and soils, seven sites were identified as having wetland mitigation potential. A site evaluation report for each site detailing the mitigation potential of each tract was provided to MDOT (*Preliminary I-69 Wetland/Stream Mitigation Assessment and Site Search, Dahomey NWR Expansion Area*, July 2002). Each site or combination of sites presents opportunities for wetland restoration, enhancement, and possibly preservation, as well as upland buffers which could add to the protection and management of the area as well as refuge expansion. MDOT has prioritized the seven potential mitigation sites and is in the process of contacting the identified property owners to determine their willingness to negotiate either selling their land to MDOT or have MDOT purchase a permanent conservation easement on their property.

Another mitigation option MDOT is evaluating for mitigation potential for the I-69 project are two existing wetland mitigation bank sites comprising 280 acres located in Quitman County within and immediately adjacent to the O'Keefe Wildlife Management Area (WMA). The O'Keefe WMA covers approximately 5,919 acres and consists of bottomland hardwoods, agricultural fields, and fallow fields. In 2002, MDOT developed a wetland mitigation plan consisting of 1) the reforestation of 100 acres of agricultural land, 2) creation of 47 acres of moist soil units, and 3) creation of 25 acres of wildlife openings (*Preliminary I-69 Wetland/Stream Mitigation Assessment and Site Search, O'Keefe WMA*, July 2002).

In addition, MDOT established a wetland mitigation bank in 1997 in Tallahatchie County. The mitigation bank originally had 1,656 wetland mitigation credits and has up to 1,000 credits remaining. MDOT is also actively negotiating with property owners, state and federal regulatory

and resource agencies, and private conservation groups to acquire three or more stream restoration banks in Panola, Lowndes, Jackson, George, and Hancock Counties. MDOT's ultimate goal is to acquire stream restoration banks within each watershed of the state.

Once wetland and stream impacts and specific mitigation requirements are determined, MDOT, with guidance from the regulatory agencies, will pursue the acquisition of one or more of the Dahomey NWR expansion parcels and develop a mitigation plan which will replace the aquatic functions impacted by the I-69 project, or will fulfill mitigation requirements utilizing the existing O'Keefe Wildlife Management Area or the Tallahatchie Wildlife Refuge.

4.11.3 Permitting

Impacts to "Waters of the United States" come under the jurisdiction of the USACE. Permits will be required for highway encroachment into jurisdictional wetlands and streams. A final permitting strategy cannot be developed until a final design alternative is completed. Final determination of permit applicability lies with USACE. MDOT will coordinate with the USACE after the completion of final design to obtain the necessary permits. Impacted streams will be mitigated as part of the 404/401 permit process.

4.12 Floodplains

As discussed in Chapter 3, the study area is relatively flat with a levee protecting the land adjacent to the Mississippi River from flooding. Most of the land between the Mississippi River and the levees is in the 100-year floodplain. Other floodplain areas within the study area are primarily in southern Bolivar County and along streams and existing or former oxbow lakes.

All alternatives would encroach on a portion of the 100-year floodplain. GIS was used to calculate acres of impact to the 100-year floodplain. Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency were digitized for portions of the study area that did not have Q3 digital floodplain data available. Impacts were then quantified by comparing the areas of floodplain and the areas of proposed ROW for the alternatives. The Southern Section of the study area would have the most floodplain impacts. During development of the alternatives,

perpendicular crossings of the streams were located where practicable. **Table 4-20** documents floodplain impacts by section within the study area.

Table 4-20 Floodplain Impacts		
Alternative	Acres	Linear Feet
Southern Section		
Western	1,103	112,786
Preferred Alternative – Central	1,002	105,428
Eastern	847	89,119
SR 8		
Alternative B (Widening)	25	6,406
Alternative C (Bypass)	22	3,194
Alternative D (Preferred Alternative) ²	25	6,406
Middle Section		
Preferred (Only) Alternative	88	8,998
Northern Section		
Western	162	16,565
Preferred Alternative – Central	567	57,978
Eastern	334	34,153
Total for Project (Preferred Alternative)	1,682	178,810

¹ The 100-year floodplain consists of area in Zone A on the Flood Insurance Rate Maps and Q3 data.

² Alternative D (Preferred Alternative) impacts estimated based on previous analysis.

Source: Kimley-Horn and Associates, Inc. 2005, 2006; 2008.

Construction of new roadway embankments across floodplains may increase the flood elevation and the potential for property damage upstream of the roadway if not properly designed. To minimize potential flooding, the design of drainage structures will consider upstream/ headwater elevations and flood studies will be performed as required. Flood studies will be utilized for the design of bridges, pipes, and box culverts in accordance with FHWA floodplain impact requirements.

Floodplain crossings will be as close to 90 degrees as practical to minimize floodplain encroachments. The dimensions of the drainage structures and the roadway grades will be adjusted and designed to limit increases to the flood hazards in the project area. In addition, methods to minimize harm will include minimizing fill and grading requirements, preserving the free natural drainage wherever possible, maintaining vegetation buffers, controlling urban runoff, and minimizing erosion and sedimentation during construction.

The greatest impact to floodplains would be in the Southern Section. The Western Alternative would impact the greatest amount (1,103 acres) of floodplain, whereas the Eastern Alternative in

the Southern Section would only impact 847 acres of floodplain, while the Preferred Alternative would impact 1,002 acres. In the Northern Section, the Western Alternative has fewer floodplain impacts (162 acres) than the Eastern Alternative (334 acres) or the Preferred Alternative (567 acres).

4.13 Wild and Scenic Rivers

There are no rivers in the study area that are listed on the Nationwide Rivers Inventory. There are no rivers that are potential candidates for inclusion in the National Wild and Scenic Rivers System. Based on information obtained from the National Park Service, none of the proposed alternatives including the Preferred Alternative would impact a Wild and Scenic River.

4.14 Coastal Barriers and Coastal Zones

There are no coastal barriers or coastal zones in the study area. Therefore, none of the proposed alternatives including the Preferred Alternative would impact any coastal barrier or coastal zone resources. No further analysis or mitigation is necessary.

4.15 Vegetation and Wildlife

Portions of the project that would involve construction on new ROW and would impact terrestrial and aquatic natural communities directly through ROW acquisition and indirectly through habitat fragmentation and habitat modification. Indirect impacts relate to the reduction in size of residual blocks and the resulting modification of habitat caused by this fragmentation. Species with narrowly defined habitat requirements are often displaced, while other species adapt and continue to maintain breeding populations.

4.15.1 Effects on Vegetative Communities

Vegetative (plant) communities and their associated wildlife in the project area are described in Section 3.15.1 of this report. The plant communities within the project area include bottomland

hardwood forest communities, agricultural lands, urban/disturbed lands, and open water. Impacts to plant communities would consist largely of community modification resulting from clearing, filling, paving, and creation of borrow area. **Figure 3-2** shows the general distribution of plant communities. Forested areas shown include deciduous, mixed pine/hardwood, evergreen, and riparian forest communities/land use cover. **Table 4-21** shows the various land uses within each of the alternatives.

Agricultural areas comprise the largest portion of the project area. In general, forest communities, including deciduous, mixed pine/hardwood, evergreen, and riparian forests, have been the least disturbed and provide important foraging and nesting habitat for a variety of wildlife species. Therefore, greater biological diversity may be expected to occur in these areas.

The degree of impact on vegetation is dependent on the extent of the construction area. While the complete removal of vegetation within these limits may not be necessary, the limits of construction will be posted and enforced to minimize impacts. Long-term impacts to vegetation from highway runoff will be minimized by using retention/detention basins and grassed swales in the construction design. Detention and retention ponds for stormwater run-off will be considered for locations where they would achieve a measurable difference in water quality, function without mechanical components, and require reasonable maintenance. Additionally, for existing bridges that require modifications, considerations will be given for eliminating the use of scuppers. Scuppers will not be used in new bridges except where they are the only practical way to safely handle the drainage.

The natural vegetation would be impacted primarily by activities involved in preparing the ROW for construction. The vegetation is often windrowed and disposed of on site. Natural vegetation may be further impacted by loss of topsoil and soil compaction from construction equipment. Construction limits will be posted and enforced to minimize impacts to vegetation and wildlife. Exposed surfaces will be promptly re-vegetated during construction.

**Table 4-21
Land Use Cover (Acres)**

Alternative	High Density Urban	Low Density Urban	Transportation	Cropland	Pasture/ Grassland	Upland Scrub/ Shrub	Freshwater	Aqua-Culture	Farmed Wetland	Freshwater Scrub/ Shrub	Riverine Swamp	Bottom Hard-Wood Forest
Southern Section												
Western	0	0	25	4,052	124	20	30	16	2	8	9	182
Preferred Alternative – Central	0	3	32	4,000	116	2	43	8	17	1	16	101
Eastern	0	0	25	3,949	155	7	27	19	13	2	1	109
SR 8												
Alternative B (Widening)	6	1	0	411	67	23	1	0	0	2	0	31
Alternative C (Bypass)	6	1	0	420	70	19	1	0	2	3	0	34
Alternative D (Preferred Alternative) ¹	3	1	0	405	62	16	1	0	0	2	0	31
Middle Section												
Preferred (Only) Alternative	0	0	223	988	35	4	2	0	0	0	0	1
Northern Section												
Western	0	0	0	2,571	32	0	4	0	0	2	0	29
Preferred Alternative – Central	0	0	0	2,499	75	0	4	0	0	2	0	15
Eastern	0	0	0	2,356	74	0	4	0	10	1	2	15
Total for Project (Preferred Alternative)	3	4	255	7,892	288	29	50	8	17	5	16	148

¹Alternative D impacts estimated based on previous analysis.

Source: Mississippi Automated Resource Information System (MARIS) GIS data. Kimley-Horn and Associates, Inc. 2003-2008.

4.15.2 Habitat Fragmentation

Habitat fragmentation occurs when parcels of otherwise suitable habitat are isolated and rendered less suitable for wildlife, adversely affecting faunal diversity and richness. The degree of impact on wildlife and species diversity depends on the size and isolation of the parcels being fragmented and sensitivity of the species.

The construction of large transportation projects typically result in habitat fragmentation. Habitat fragmentation reduces the amount of habitat available to wildlife in the landscape and thereby diminishes population sizes and the number of species that can live in the landscape. There is a reduced quantity of the original habitat and an increase in “edge” habitat. The remaining small patches may cause increased predation, increased vulnerability, increased insularity (separation from other populations), and decreased dispersal success.

Neotropical birds are a wildlife group that is particularly vulnerable to habitat fragmentation. Neotropical migratory birds winter in southern climates and either migrate or nest in the temperate mid-latitudes. These birds include such species groups as swallows, cuckoos, flycatchers, thrushes, orioles, and warblers. Migratory species use forested areas for feeding and nesting. Habitat requirements for nesting birds vary from upland deciduous forest tracts to riparian areas. In addition, these species require contiguous forest ranges up to twice the size of their nesting habitat. Some species require as much as 500 acres in which to forage. Several neotropical migratory birds are known to visit the project area including the prothonotary warbler (*Pronotaria citrea*), wood thrush (*Hylocichla mustelina*), red-eyed vireo (*Vireo olivaceus*), and northern oriole (*Icterus galbula*).

Alternatives that do not follow existing roadways have the greatest potential for habitat fragmentation because the proposed roadway divides the deciduous forest between the existing road and the proposed road. The greatest fragmentation areas are in the bottomland forested communities. Impacts to habitat fragmentation would, therefore, be the same as impacts to forested communities as identified in Section 4.15.1. The Western Alternative would have the greatest impact on habitat fragmentation for both the Southern and Northern Sections of the project. The Preferred Alternative and Eastern Alternative would have similar impacts within the Southern and Northern Sections.

Mitigation for habitat fragmentation is best accomplished by avoiding suitable habitat areas. Where practical, avoidance was included in the alternative development strategy. In areas where habitat fragmentation is unavoidable, measures to reduce the impact of the loss contiguity may be employed. These measures could include, but not be limited to:

- Purchasing additional ROW within forested areas.
- Purchasing adjacent forested upland habitat in conjunction with land selected for wetland mitigation to be managed for conservation.
- Establishing a nonvegetated clear zone which isolates the edge of the highway from the habitat area. This zone, if established within the highway influence zone, will not lead to any further reduction of available habitat.
- Purchasing additional forested land in areas for habitat where access to a property will be lost.
- Purchasing land for habitat conservation.

4.15.3 Effects on Wildlife

Loss of wildlife is an unavoidable aspect of development. Habitat modification would occur with any of the proposed alternatives and would result in the displacement or loss of wildlife in these areas due to clearing of vegetation within the ROW. Temporary fluctuations in populations of animal species that utilize these natural communities are anticipated during the course of construction. Slow-moving, burrowing, and/or subterranean organisms would be directly impacted by construction activities, while mobile organisms would be displaced to adjacent communities. Competitive forces in the adapted communities would result in a redefinition of population equilibrium. Human activities and elevated noise levels during construction also may disturb breeding or other activities of nearby species. However, impacts from construction activity would be temporary and only within the immediate vicinity of the project construction area.

Direct loss of wildlife and further habitat destruction outside the immediate construction may occur. This could result from equipment and construction crew trafficking, erosion, siltation, spillage and dispersion of fuels, lubricants, and other toxicants and wildlife disturbance through generation of noise, dust, and air pollutions. Destruction of habitat also could occur at borrow, fill, and other areas peripheral to the project.

During design and construction, BMPs will be incorporated to reduce impacts to the vegetation and associated wildlife. Oil, grease, fugitive dust, and other pollutants will be minimized by such measures as watering of haul roads, ramps, and pits during dry periods; application of asphalt emulsion to road surfaces; traffic control; and timely re-vegetation and stabilization of disturbed areas. In addition, segmentation of large forested tracts will be avoided to the extent possible.

In general, forested communities that are less disturbed provide greater habitat value for wildlife than highly altered or maintained areas. The Preferred Alternative traverses an area characterized by fragmented, altered forested stands. Wildlife crossings were considered in the initial analysis of the alternatives and would have been beneficial in areas near the batture woodlands including the Dahomey National Wildlife Refuge. These wildlife crossings would have provided a forested connection to the batture woodlands with large forested tracts like Dahomey. Because the alignment avoids large forested tracts, the Preferred Alternative does not have large connected forested areas that allow for a travel corridor to direct wildlife crossing. The landscape along the Preferred Alternative contains forested islands with no direct connection. Potential wildlife crossing will exist along the Preferred Alternative where bridges will be constructed over riparian areas associated with large drainage ways which will provide some means of passage for wildlife. In particular, the Preferred Alternative crosses through three areas identified by NRCS as priorities for black bear conservation. In the vicinity of the conservation zones, the Preferred Alternative already is planned to include extended bridge crossings that would maintain adequate access for black bears and other wildlife along the drainage ways. If feasible, other wildlife crossings will be incorporated during final design, in coordination with USFWS and state agencies.

4.15.4 Effects on Fisheries/Aquatic Habitats

Aquatic habitat is important to the maintenance of diverse macro benthic invertebrate populations. They contribute to secondary production and maintain complex trophic interactions. These invertebrate populations support game fisheries which include largemouth bass (*Micropterus salmonides*), bream (*Lepomis* spp.), and catfish (*Ameiurus* spp. and *Ictalurus* spp.).

The primary sources of water-quality degradation in rural areas are non-point-source discharges and stormwater runoff. Precautions should be taken to minimize impacts to water sources in the project vicinity. Aquatic organisms are very sensitive to discharges and inputs from construction.

Appropriate measures must be taken to avoid petroleum spillage and control runoff. Potential impacts associated with construction of the proposed project include the following: increased sedimentation resulting from the clearing of streams and in-stream construction activities, soil compaction, loss of shading due to vegetation removal, and fertilizers and pesticides used in revegetation. Measures to minimize these potential impacts include formulation of an erosion and sedimentation control plan, provision for waste material and storage, stormwater management measures, and appropriate road-maintenance measures. BMPs and Sedimentation Control guidelines should be strictly enforced during the construction stages of the project. Limiting in-stream activities and revegetating stream banks immediately following the completion of grading would further reduce impacts.

Aquatic organisms are acutely sensitive to changes in their environment and environmental impacts from construction activities may result in long-term or irreversible effects. Impacts typically associated with in-stream construction activities include alterations to the substrate and impacts to adjacent streamside vegetation. Such disturbances within the substrate lead to increased siltation, which can clog the gills and/or feeding mechanisms of benthic organisms, fish, and amphibian species. Siltation may also cover benthic macroinvertebrates with excessive amounts of sediment that inhibit their ability to obtain oxygen. In order to facilitate wildlife movement and migration that might otherwise be potentially impacted by the project, installation of culverts will include inverted designs.

The removal of streamside vegetation and placement of fill material during construction enhances erosion and possible sedimentation. Quick revegetation of these areas helps to reduce the impacts by supporting the underlying soils. Erosion and sedimentation may carry soils, toxic compounds, trash, and other materials into the aquatic communities at the construction site. As a result, bars may form at and downstream of the site. Increased light penetration from the removal of streamside vegetation may increase water temperatures. Warmer water contains less oxygen, thus reducing aquatic life that depends on high oxygen concentrations. These impacts will be minimized through the use of approved erosion and sedimentation control structures, phasing construction activities, and the prompt revegetation of exposed surfaces.

4.15.5 Effects on Threatened or Endangered Species

Federally listed threatened and endangered species were compiled from information provided by the U.S. Fish and Wildlife Service. The protected species that were determined to potentially exist in the study area include the pondberry and bald eagle. As discussed in Chapter 3, the Bald Eagle is no longer considered endangered but receives protection under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act. Under provisions of the ESA, bald eagle populations will continue to be monitored at least until 2012. Qualified biologists conducted field surveys for pondberry and bald eagle in September and October 2005 within and adjacent to the ROW of the Preferred Alternative.

Two reference populations of pondberry which are located in the Delta National Forest were observed to confirm the condition of the plants in the field prior to the survey for pondberry along the Preferred Alternative. The leaves of the pondberry were beginning to change color. One population of pondberry was located along the Preferred Alternative in Coahoma County south of the Tunica County line and west of the town of Rich (**Figure 4-4**). A shift in the Preferred Alternative alignment was made to avoid the population of pondberry. The new shifted location was also surveyed for pondberry. No additional pondberry populations were found within the ROW of the shift of the Preferred Alternative. For the protection of all Federally Listed Species, consultation with the USFWS and the Mississippi Natural Heritage Program will occur prior to construction.

Suitable foraging and limited nesting habitat for the bald eagle exists within a portion of the Preferred Alternative. No eagle nests or individual eagles were observed during field surveys. Eagles are more likely to utilize the larger water bodies near the Mississippi and oxbow lakes for nesting habitat. Eagles could potentially use areas along the Preferred Alternative for foraging habitat. A biological conclusion of no effect for the bald eagle is appropriate due to the limited amount of suitable nesting habitat and the large areas adjacent to the Preferred Alternative for foraging habitat.

"Critical habitat," as defined in the Endangered Species Act (ESA), is a term for habitat given special protection for the benefit of a listed species. Critical habitat, as defined by the USFWS, is not designated for any species listed in Tunica, Bolivar, Coahoma, and Sunflower Counties. In addition, according to Mississippi's Natural Heritage Program database, no federally listed

threatened, endangered, or species of concern listed by the USFWS have been documented within a 1-mile radius of the proposed alternatives.

MDOT has been conducting informal discussions with USFWS throughout the development of this project. Based on these informal discussions, formal Section 7 consultation with USFWS is not anticipated. A “No Effect” determination for all Federally protected species within the project study area has been determined.

4.16 Conservation Easements

Mapping information for conservation easement types was obtained from the Lower Mississippi Valley Joint Venture (LMVJV) in May 2002. The LMVJV, located in Vicksburg, Mississippi, is a private, state, and federal bird conservation partnership conceived in 1988 in response to the North American Waterfowl Management Plan (NAWMP). The LMVJV was established as a voluntary, non-regulatory partnership focused on increasing coordination of waterfowl and wetland habitat conservation in the Mississippi Alluvial Valley (MAV). Part of its mission has included the development of Geographical Information System (GIS) decision support models and mapping.

In addition to the Conservation Easements, Conservation Agreements are used to aid in the preservation of wildlife. These agreements, which unlike easements are not permanent contracts, include various tax benefits, last typically 10 to 15 years, and usually provide habitat for wildlife.

GIS mapping information obtained from the LMVJV in May 2002 was used to identify available Conservation Easements and Agreements relative to the alignments. Alignments were adjusted throughout the development of alternatives to avoid the permanent easements and to minimize impacts to other easement and agreement areas through perimeter contact only. The number of individual sites impacted is included in **Table 4-22** from information obtained from the LMVJV.

Based upon discussion with USFWS personnel regarding the potential ROW acquisition within conservation easements, there seem to be few precedents. However, the purchase of easements will likely involve payment to the landowner based on a percentage of the Fair Market Value (FMV). The future FMV will likely be reduced due to the placement of restrictions from the

easement (e.g., no farming, grazing, haying, etc.) and the mitigation for the lost value, function, and restoration. Conservation Agreements are short-term, “at the table” deals that involve annual payments to the property owner and may be dissolved under a ROW acquisition. Agreements will involve payment to the landowner based on the FMV, which will not be affected due to the temporary conditions.

Alternate/Easement	Wetland Reserve Program Easement	Farm Service Agency Easement	Ducks Unlimited Easement	Conservation Agreements
Southern Section				
Western	1	2	0	8
Preferred Alternative – Central	0	0	0	6
Eastern	1	0	0	10
SR 8				
Alternative B (Widening)	0	0	0	5
Alternative C (Bypass)	0	0	0	5
Alternative D (Preferred Alternative)				5
Middle Section				
Preferred (Only) Alternative	0	0	0	0
Northern Section				
Western	0	0	0	4
Preferred Alternative – Central	0	0	0	6
Eastern	0	0	0	11
Total for Project (Preferred Alternative)	0	0	0	17

Conservation Agreements – Include private water management units associated with DU or USFWS agreements.

Source: Neel-Schaffer, Inc., 2004.

Additional coordination and research were conducted to further confirm potential impacts of the Preferred Alternative on conservation areas. As detailed in **Appendix B**, coordination efforts in 2007 and 2008 included the Lower Mississippi Valley Joint Venture (LMVJV), USFWS, and USDA’s Farm Service Agency (FSA). No additional WRPs or DU easements were identified. While no known FSA easements were identified, easements under the Conservation Reserve Program (CRP) do occur within Bolivar, Coahoma, and Tunica Counties. The FSA was unable to provide data or personnel to confirm specific locations. However, the FSA did confirm that involuntary loss of the property through project acquisition or eminent domain would enable termination of the CRP contract with no penalties to the participants.

The research also determined that a total of 18 conservation agreements were located within the proposed I-69 and SR 8 Widening ROW, updating the previous estimate of 17 shown in **Table 4-22**. Of those locations, 14 were private Water Management Units (WMUs) through Ducks Unlimited and four were WMUs approved in 1991 and 2000 by USFWS. The USFWS program for WMUs is no longer in existence, and the 10- to 15-year contracts all have expired or would expire before construction of SIU 11 would be complete.

4.17 Cultural Resources

The initial phase of this study involved the collection of the available data on archaeological sites and historic structures in the study corridor from the Mississippi Department of Archives and History. These data were added to the project GIS and used by project planners to avoid as many of these resources as possible. Once alternative alignments for the highway had been selected, Phase I cultural resources surveys were conducted within each of these alignments. Due to the length of the alternatives it was not possible to survey each in its entirety. Instead a sampling strategy was proposed and submitted to the Mississippi State Historic Preservation Officer for approval. This strategy involved conducting sample surveys of high probability areas for cultural resources that accounted for approximately 33 percent of each alternative. Once approved, this strategy was implemented, and the data presented here are derived from those surveys. The cultural resource surveys (Coastal Environment, Incorporated, 2004-2007) are appended by reference and remain on file at MDOT and the Department of Archives and History.

4.17.1 Archaeological Sites

4.17.1.1 Methodology

The archaeological survey examined high probability areas that were defined on the basis of landforms and known site distributions in the project corridor. Landforms were identified using the existing geomorphic mapping for the area, USGS topographic maps, and aerial photography. The survey methodology followed the recommendations of the Mississippi Department of Archives and History and the Mississippi Department of Transportation. On new alignments the survey examined a 450-foot-wide ROW. Where the alignment followed an existing road, a new ROW, 200 feet wide, was surveyed. The ROW required for proposed interchanges was also

examined. Crew members walked transects spaced 30 meters apart down the length of the ROW carefully searching all areas of exposed ground. Shovel or auger tests were excavated in areas where the ground surface was obscured by vegetation or where there was a potential for deeply buried sites.

When a site was located, its limits were defined on the basis of surface examination and the excavation of a series of closely spaced shovel tests. Generally these shovel tests were spaced 10 to 20 meters apart along two perpendicular lines that bisected the site; however, this varied somewhat depending on site size and shape. All sites were recorded using Mississippi Department of Archives and History site cards, sketch maps and photographs.

4.17.1.2 Impacts

The 2004 sample surveys located 217 archaeological sites. After analysis of the survey data, sites that were considered potentially eligible for the National Register of Historic Places were identified. Whenever possible, project planners then made an effort to shift the proposed alignments in order to avoid as many of those sites as possible. In total 68 sites were avoided in this manner. It must be kept in mind that these data are derived from sample surveys, and therefore, the total number of National Register eligible sites in each alternative will almost certainly be higher. However, it should not be assumed that because the surveys examined 33 percent of the alternatives, only 33 percent of the sites have been located. The surveys concentrated on high probability areas, and therefore have probably recorded the majority of the sites.

After selection of the Preferred Alternative, the remaining portions of that alternative were surveyed, resulting in the location of 66 additional archaeological sites. After analysis of the survey data, 21 of those sites were considered potentially eligible for the National Register of Historic Places. By shifting alignments where practical, all of the 21 sites have been avoided except for Site 22CO852. Including this site and the sites identified previously during the sample surveys, the Preferred Alternative would affect a total of 9 sites. Based on the sample surveys, the Eastern Alternative would affect 9 sites, and the Western Alternative would affect 13.

Table 4-23 provides information on those sites that are listed on or potentially eligible for the National Register of Historic Places and could not be avoided by one of the alternative segments. Some sites are listed more than once as they occur in more than one alternative.

**Table 4-23
Listed or Eligible Archaeological Sites Within Right-of-Way**

Alternative	Site No.	Size (ha)	Nature of Deposits	Age of Occupations
Southern				
West	22BO507	19.6	Mound, surface scatter, possible midden	Middle-late Woodland, late 19 th -early 20 th c.
	22CO795	0.8	Surface scatter	Late Woodland
	22CO839	3.2	Surface scatter	Woodland, Mississippi
	22BO915	16.0	Mound, surface scatter	Late Woodland, Mississippi, late 19 th -early 20 th c.
Preferred Alternative – Central	22BO584	1.9	Surface scatter, possible midden	Unknown prehistoric
	22BO808	0.3	Surface scatter	Late 19 th -early 20 th c.
	22BO814	0.1	Surface scatter, possible midden	Early Archaic, 19 th , 20 th c.
	22BO825	0.9	Surface scatter, possible midden	Woodland, late 19 th -early 20 th c.
	22CO795	0.8	Surface scatter	Late Woodland
	22CO821	22.3	Surface scatter	Late Archaic, Woodland, Mississippi
East	22CO691	2.0	Surface scatter	Archaic
	22CO826	1.0	Surface scatter	Woodland, Mississippi
SR8 Alternative B (Widening)	22BO669	2.1	Surface scatter, possible midden	Late Woodland, Mississippi, late 19 th -early 20 th c.
Alternative C (Bypass)	22BO669	2.1	Surface scatter, possible midden	Late Woodland, Mississippi, late 19 th -early 20 th c.
Alternative D (Preferred Alternative)	22BO669	2.1	Surface scatter, possible midden	Late Woodland, Mississippi, late 19 th -early 20 th c.
Middle Preferred (Only) Alternative	22CO852	2.4	Surface scatter and artifacts below plow zone	Late Woodland.
	22CO731	4.0	Surface scatter, midden	Woodland, Mississippi, late 19 th -early 20 th c.
Northern				
West	22CO510	Unknown	Mound, surface scatter, cemetery	Woodland, Mississippi, 19 th -20 th c.
	22CO560	2.9	Surface scatter, midden	Woodland, Mississippi, late 19 th -early 20 th c.
	22CO683/727	5.4	Surface scatter, possible midden	Woodland, late 19 th -early 20 th c.
	22CO800	6.0	Surface scatter, possible midden	Woodland, 20 th c.
	22TU548	2.0	Surface scatter	Unknown prehistoric
	22TU625	1.3	Surface scatter	Archaic
Preferred Alternative – Central	--	--	--	--
East	22TU561	12.2	Surface scatter	Early-middle Woodland
	22TU653	1.0	Surface scatter, midden	Late Woodland, Mississippi, late 19 th -early 20 th c.
	22CO832	0.6	Surface scatter	Woodland, mid-late 19 th -early 20 th c.
	22CO827	1.3	Surface scatter, possible midden	Woodland, Mississippi

Source: Coastal Environments, Incorporated, 2005.

Most of the sites in the Eastern Alternative, like those in the other two alternatives, exhibit evidence of multiple occupations. By far the most common are Woodland tradition occupations, which occur at 8 of the 9 sites. Mississippi period occupations are present at 5 of these sites, and an Archaic period occupation is found at one. Most of these sites are less than 2.5 hectares in area, suggesting that they were occupied by relatively small groups of people. Only one, 22TU561, covers more than 10 hectares. None of the sites within the Eastern Alternative is considered significant enough to warrant preservation in place.

Woodland tradition occupations are also the most numerous in the Preferred Alternative, occurring at 6 of the 9 sites. Three of these sites also exhibit evidence of Mississippi period occupations, and Archaic period occupations are present at two. Four of the prehistoric sites are small, less than 1 hectare in area. Whether these represent small habitation sites, such as hamlets or farmsteads, or some type of limited activity site is not clear from the available data. One historic period house site dating to the late nineteenth or early twentieth century is also represented. None of the sites within the Preferred Alternative is considered significant enough to warrant preservation in place.

Eleven of the 13 sites in the Western Alternative have Woodland tradition occupations, 6 have Mississippi period occupations, and one has an Archaic period occupation. These sites are generally larger than those of the other alternatives. Only two are less than 1 hectare in area, and two cover more than 15 hectares. Three of these sites have mounds and probably represent small villages. Two of the sites, 22BO507 and 22CO510, also have historic period cemeteries on them. The three mound sites should be considered for preservation in place, and the cemeteries on two of them afford them protection under state law. Those three sites may qualify as Section 4(f) properties.

4.17.1.3 Mitigation

Mitigation of the adverse effects of the proposed highway on those archaeological sites that are listed on or eligible for the National Register of Historic Places can in most cases be carried out through data recovery excavations. One of the tools that will be available during the future data recovery is a research project underway by the University of Alabama, titled *Time's River: Archaeological Syntheses in the Yazoo Basin and Lower Mississippi River Valley*. The published report will include inventory and guidelines for addressing gaps in the environmental and

archeological knowledge in the region. Consultation has been carried out with the SHPO and the various THPOs concerning the specific mitigation measures appropriate for each site.

A Memorandum of Agreement (MOA) has been prepared to cover the mitigation requirements for adverse effects on the archaeological sites by the Preferred Alternative. The MOA was signed by MDOT, SHPO, and FHWA in 2007 (see copy in **Appendix B**). The process involved consultation with the Mississippi Band of Choctaw Indians, the Choctaw Nation of Oklahoma, the Chickasaw Nation, the Jena Band of Choctaw Indians, the Quapaw Tribe of Oklahoma, and the Tunica-Biloxi Tribe of Louisiana. Stipulations include data recovery, reporting, milestones, and continued consultation regarding Sites 22BO584, 22BO669, 22BO808, 22BO814, 22BO825, 22CO731, 22CO795, 22CO821, and 22CO852. In addition, a Data Recovery Plan (DRP) identifies the protocol for the survey and discovery of artifacts. Completion of the data recovery, documentation, and review process will fulfill the mitigation requirements in accordance with Section 106.

Should cultural resources be discovered during construction, all construction activity will cease, and MDOT's Environmental Division will be notified so that the site can be evaluated for the proper action.

4.17.2 Historic Structures

4.17.2.1 Methodology

The standing structure survey focused on areas that on the basis of historic and modern maps appeared to have a high potential for historic structures. In this case the area of potential effects was defined as a corridor that extended one half mile either side of the alignment or one half mile beyond the maximum extent of an interchange. All structures located within that corridor were examined and those that appeared to be greater than 50 years old were documented using Mississippi Department of Archives and History Historic Resources Inventory forms and photographs.

4.17.2.2 Impacts

Table 4-24 provides information on historic structures that are listed on or eligible for the National Register of Historic Places and located in the area of potential effects (APE) of one of the alternative segments. The Eastern Alternative APE contains no structures considered eligible

for the National Register of Historic Places, the Western Alternative APE contains a single structure listed on the National Register, and the Preferred Alternative APE contains five structures recommended eligible for the National Register.

Table 4-24 Historic Structures					
Alternative	County	Town	Structure No.	Name/Location	Potential Effects
Southern					
West	Bolivar	Benoit	2001	Burrus House (Hollywood Plantation)	Adverse visual effect
Preferred Alternative – Central	Bolivar	rural	4001	Hushpuckena River Bridge	No adverse effect
	Bolivar	Merigold	0001	J.C. Jones House	No adverse effect
		Merigold	0004	Residence	No adverse effect
		Merigold	0005	Methodist Church	No adverse effect
		rural	CEI-57	R.A. Butler Residence on Alligator Lake	No adverse effect
East				None	
SR 8				None	
Middle				None	
Northern				None	

Source: Coastal Environments, Incorporated, 2004.

Three of the five structures located in the Preferred Alternative APE are situated in the town of Merigold in Bolivar County. Two are residences and one is a church, all dating ca. 1920. These structures are located a sufficient distance from the proposed alignment of the Preferred Alternative that they would not be adversely affected physically, audibly or visually by the highway. The fourth structure located along the Preferred Alternative, the R.A. Butler Residence, is a residence dating to ca. 1920 that is situated on Alligator Lake in Coahoma County approximately 1,900 feet from the centerline of existing US 61 (proposed I-69). This structure would not be physically impacted by the proposed highway construction; however, the highway would have a visual effect on it. The proposed interchange is approximately 4,000 feet away from the structure and would not be visible from the front of the house. Therefore, the effect was determined to be not adverse. This residence was not included in the original noise analysis because of its distance from the proposed improvements; however, considering its surrounding development and location, it would be expected that an existing sound level at this location would be approximately 50 dBA. The potential noise contribution from the proposed improvements was

then added (using acoustic addition) to the estimated existing sound level. It was determined that an increase of approximately 1.5 dBA may be expected due to the proposed improvements. This increase would not be detectable to the human ear and is not expected to adversely impact this site.

The fifth structure was identified during a standing structure survey that was conducted within the portion of the APE along the alignment shifts for the Preferred Alternative. That survey examined 31 standing structures, including two previously recorded structures. Only one of the 31 structures, the Hushpuckena River Bridge (011-DUN-4101) was found to be potentially eligible for the NRHP. It is located at the very limit of the APE of the Preferred Alternative and would not be adversely affected.

The Western Alternative APE contains only one historic structure, the Burrus House or Hollywood Plantation, an antebellum residence that is located in Bolivar County and currently listed on the National Register. The proposed alignment of the Western Alternative would have an adverse visual effect on this structure.

4.17.2.3 Mitigation

Some of the listed or eligible structures may be affected visually. These effects may be mitigated through some type of screening, such as plantings. Consultation will be carried out as needed with SHPO and other interested parties concerning the specific mitigation measures appropriate for each structure.

4.18 Section 4(f) of the Department of Transportation Act of 1966

In accordance with Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303) and 23 CFR 774, the FHWA “may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that: (i) there is no feasible and prudent alternative to the use of land from the property; and (ii) the action includes all possible planning to minimize harm to the property resulting from such use.”

A Section 4(f) use may occur when there is a permanent incorporation of land into a transportation facility, an adverse temporary occupancy, or a “constructive use.”

Constructive use is defined in 23 CFR Section 774.15, as follows:

“Constructive use occurs when the transportation project does not incorporate land from a Section 4(f) resource but the project’s impacts due to proximity are so severe that the activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment would only occur when the utility of the resource in terms of its prior significance is substantially diminished or destroyed, amounting to an indirect taking of such activities, features or attributes.”

No land from public parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance would be used by the proposed project alternatives. In addition, no constructive use would occur.

As identified in **Table 4-24**, there are two historic structures of national, state, or local significance within the study area that could result in a visual effect. Both resources are located in the Southern Section; one is located within the APE for the Preferred Alternative and the other is within the APE for the Western Alternative. As discussed in Section 4.17.2.3 above, it may be possible to mitigate visual effects.

As identified in Section 4.17, due to the length of the alternatives, it was not possible to perform an intensive archeological survey for each alternative in its entirety. Therefore, a sample survey of high probability areas was conducted.

After selection of the Preferred Alternative the remaining portions of that alternative were surveyed, resulting in the location of 66 additional archaeological sites. Twenty-one of those sites were considered potentially eligible for the National Register of Historic Places, and wherever possible project planners shifted the alignment in an effort to avoid those sites. All but one of those 21 sites have now been avoided. The one site that could not be avoided is 22CO852 (**Table 4-23**). When combined with the eight sites located on the Preferred Alternative in the sample survey, a total of nine sites will be impacted by that alternative. Impacts to these sites will be mitigated through data recovery excavations.

4.19 Hazardous Materials

A preliminary investigation was conducted to determine the impact of the proposed project on potential contamination sites within a 1,000-foot search radius to the proposed alternatives. The purpose of this preliminary investigation was to identify sites that may have a potential adverse effect on the local environment posed by hazardous materials or petroleum contamination that could be transmitted by earth-moving activities during construction of the project. Because of the potentially high cost and complicated procedures required to mitigate impacts when constructing a highway over or through potential contamination sites, avoidance of these areas is the most prudent and feasible alternative.

Figure 4-5 shows the approximate location of mapped sites that were found during EDR's search of reasonably ascertainable records. The findings listed below are based on visual observations, available research data, and regulatory file reviews.

- Available information on the alternative corridor alignment history did reveal indications of past operations or occurrences that will facilitate the presence of recognized environmental conditions within some of the proposed alternative corridors. Due to the high use of fertilizers and pesticides for farming use in the area the alternatives, there is a high probability of residual elements that will be left in the soil or that might have migrated into the groundwater in the lower elevation areas. Soil testing may be warranted to assess any possibility of exceeding state action levels.
- The database report indicated that there are seven locations within the specified radii for registered Underground Storage Tanks (UST). These are noted just for planning information.
- The database report indicated three incidences for Leaking Underground Storage Tanks (LUST) within the specified radii. All three of the incidences have been closed out. Since the sites have been closed, it is our opinion that there are no environmental concerns associated with the listed LUST sites.
- The database report indicated incidences with FINDS, FTTS, and ERNS. After review of the information, it is our opinion that there are no concerns with the FINDS, FTTS, ERNS, State Landfill, or the MS NPDES sites indicated in the database report.

In total 15 sites were identified by the EDR Report for the study area. **Table 4-25** identifies the database in which the site was located. The sites initially shown as orphan sites are also included in this table.

This preliminary hazardous materials investigation did not include sampling and analysis of materials, soils, or groundwater at the site; therefore, *absolute* statements concerning the presence or absence of contamination cannot be made. Further, professional judgments regarding risks to the site are subject to information available at the time of the assessment. Professional judgments and findings are based on known conditions as they existed at the time of the assessment.

Federal Database	Search Radius	Identified Sites
NPL	1,000 feet	0
CERCLIS	1,000 feet	0
NFRAP	1,000 feet	1
RCRA/RCRIS – TSD facilities	1,000 feet	0
RCRA/RCRIS – Generators	1,000 feet	0
ERNS	Target Property	1
CORRACTS	1,000 feet	0
Total		2
State Database	Search Radius	Identified Sites
STATE HWS	1,000 feet	0
UST	1,000 feet	8
LUST	1,000 feet	3
INDIAN UST	1,000 feet	0
STATE LANDFILL	1,000 feet	3
Total		14
Federal and State Supplemental	Search Radius	Identified Sites
FINDS	1,000 feet	1
FTTS	1,000 feet	1
MS NPDES	1,000 feet	1
Total		3

Source: Kimley-Horn and Associates, Inc. 2004.

The EDR report also provided a list of orphan sites. All of those sites were studied in further detail and any sites that could potentially be impacted were located and shown in **Figure 4-5**. **Table 4-26** provides a summary of the 14 site addresses that are located within or adjacent to the corridor for each alternative. This table includes the orphan sites that have been identified as potentially impacted. As shown, the I-69 alternatives could impact one hazardous site at the US 61 interchange location between Shaw and Cleveland in Bolivar County. For the SR 8 widening, the Alternative B, Alternative C, and Preferred Alternative D have the same impacts on potential hazardous sites.

Table 4-26 Hazardous Material Sites			
Alternative	Sites Located (Figure ID)	Regulatory Database	Impacted
Southern Section			
Western	Tradeway (8)*- 5438 HWY 61 North	LUST	No
Preferred Alternative – Central	Texas Gas (9)- 3305 Highway 61 South – east side of US 61 about four miles south of Clarksdale	NPDES, NFRAP ERNS	No
	659 Hwy 61 (14)	ERNS	No
	Coahoma County Landfill (10) – located on the east side of Highway 8 west of Cleveland	SWF/Landfill	No
Eastern	Texas Gas (9)- 3305 Highway 61 South – east side of US 61 about four miles south of Clarksdale	NPDES, NFRAP ERNS	No
SR 8			
Alternatives B, C, and D	Leo’s Market (1)- 1310 South Main Street/ HWY 1 South	UST	Yes
	Tire Cutter Services (7)- 45 Morrison Chapel Road, Cleveland	SWF/Landfill	No
	Presb. Day School (3)- 1100 HWY 8 West – north side of SR 8 one half mile east of the Bishop Road / Ronaldman Road intersection	FTTS	No
	NightRider Market (5)- 1325 HWY 8	UST	No
	Rosedale Landfill (2) – located on the north side of SR 8, approximately 4 miles east of Rosedale	SWF/Landfill	Possible**
	Jim’s Store (6) – located on the north side of Highway 8, west of Cleveland.	UST	Possible**
	Sunflower Food Store (4)- 1321 HWY 8 West	FINDS	No
Middle Section			
Preferred (Only) Alternative	Hayes Brothers (13)- HWY 61 North	UST	No
	Bruno’s (12)- Highway 61, Alligator	LUST	No
	Dunavent (11)- East Tallahatchie St.	LUST	No
Northern Section			
Western	None		No
Preferred Alternative – Central	None		No
Eastern	None		No

*Refers to number reference on Figure 4-5

**Impact may be avoided based on final roadway design.

Source: Kimley-Horn and Associates, Inc., 2004. Neel-Schaffer, Inc., 2008.

Based on the information included in the EDR report, none of the above sites appears to warrant remediation or additional investigation at this time. The, Hayes Brothers, and Dunavent have either been removed, or have at least have had tanks removed. Tradeway, Bruno’s, Dunavent, and Texas Gas have been noted as no further action required.

The Preferred Alternative may potentially impact three sites depending on final roadway design. The first site, Leo’s Market, is located at 1310 Main Street/Hwy 1 South in Rosedale, Bolivar County. The site is on the west side of SR 1 at the intersection with SR 8. The road providing access to the Great River Road State Park is located on the south side of Leo’s Market. At SR 1,

the Preferred Alternative would relocate SR 8 to the south and create a crossroad intersection with the road providing access to the State Park. The Preferred Alternative will likely impact this site due to the additional ROW required.

The second site, Rosedale Landfill, is an abandoned landfill located on the north side of SR 8, approximately four miles east of Rosedale, Bolivar County. The Preferred Alternative proposes a four-lane divided section on SR 8 at the road intersection with two new lanes added to the south of the existing two lanes. A small amount of additional right of way may be needed to widen the shoulders, flatten the foreslope, and ditch backslope to upgrade the existing lanes of SR 8 to the required standards for a four-lane divided section unless a guardrail is used. To avoid impacting this landfill, a guardrail could be used along SR 8 adjacent to the landfill with the intersection relocated west of its current location.

The third site, Jim's Grocery, is no longer in business and appeared to exist at one of two locations on SR 8 west of Cleveland. Both possible locations are at county road intersections with SR 8. One of the locations is presently a farm headquarters. The other location is a grocery/restaurant/night club called the Airport Grocery. Neither location has active gas pumps for dispensing fuel. The farm headquarters is in the northeast quadrant of the Shaw-Skene Road and would be avoided if the intersection is realigned as currently proposed under this study. The Airport Grocery is in the northwest quadrant of the Airport Grocery Road side road intersection with SR 8. Whether or not the Airport Grocery is impacted depends upon the design treatment that is used for reconstructing the intersection under the SR 8 widening project. If the intersection is reconstructed by relocating it slightly to the east, the Airport Grocery would not be impacted. If the intersection is reconstructed under its current alignment, the Airport Grocery would be impacted because the MDOT would need additional right-of-way from the business.

4.20 Indirect and Cumulative Impacts

4.20.1 Indirect Impacts

Indirect, or secondary, effects are defined by the Council on Environmental Quality (CEQ) as “caused by an action and are later in time or farther removed in distance but are still reasonable foreseeable” (40 CFR 1508.8). In the context of this project, they are the indirect consequences

of the proposed I-69 SIU 11 corridor. They can either be positive or negative, and can affect changes in environmental quality, economic vitality, employment opportunities, land values, population density, and general quality of life issues. Secondary impacts are distinguished from primary impacts in that they are not the immediate result of the I-69 project, but rather may occur due to alterations in the social, economic, environmental, or man-made conditions resulting from the proposed road construction. Analysis of indirect impacts is required by several regulations, including the National Environmental Policy Act (NEPA) of 1969, CEQ regulations, and Federal Highway Administration (FHWA) regulations and guidance.

Of the four counties in the study area, only Tunica County has developed comprehensive and land use plans. The Tunica County Land Use Plan discusses the proposed I-69 corridor through Mississippi, focusing on how it relates to the airport east of Tunica.

The Delta Regional Authority was created in 1988 by the governors of Mississippi, Arkansas, and Louisiana as a part of a plan to rejuvenate the economy of the Delta region. The Authority's focus is on economic development, health care, housing, education, transportation, and tax incentives in the eight participating states. One concept that is being explored by the Authority is "clustering," where public and private facilities are grouped together to concentrate development and resources. It is anticipated that once development is in place, additional development would be induced in close proximity to the initial development.

For this project, indirect impacts would be the result of induced development—development that would be encouraged by the construction of I-69 in Mississippi. Induced development includes development that would not take place if not for the proposed action, or development that would take place at a different location, a smaller scale, or at a later time. For a limited access highway road project such as I-69, induced development is typically concentrated in the vicinity of interchanges.

4.20.1.1 Existing and Induced Development

The potential for induced development depends on existing conditions in an area. The following sections analyze the existing conditions along the proposed alternatives.

Southern Section

The Preferred Alternative and Western Alternative in the Southern Section are contained within Bolivar County, and the Eastern Alternative is located in Bolivar and Sunflower Counties. Bolivar County is the only county in the project study area with a public port, located in Rosedale. The county's primary general aviation airport is west of Cleveland. Major commercial concentrations in the county are located in the downtown Cleveland, along US 61, and along SR 8 west of town. Cleveland, the second largest city in the four-county region (13,841 persons in 2000), also boasts the only four-year college in the analysis area, Delta State University, and a number of health centers. There are four industrial parks in Bolivar County: two in Rosedale, one just off US 61 northeast of Cleveland, and the smallest (currently unoccupied) in Shelby. A short-line railroad connects the port and the three largest industrial parks to the C&G railroad in Greenville. Major employers are located in the Cleveland and Rosedale areas.

Middle Section

The Middle Section for all three alternatives is identical, and follows US 61 in north and central Coahoma County. Clarksdale, at the south end of the Middle Section, is the largest city in the project study area, with a 2000 census population of 20,645. It is a small regional center for commerce, medicine, and education, with limited retail development. The county's general aviation airport is located just northeast of Clarksdale, and a tourist welcome center was recently opened on US 49 slightly west of US 61 in north Coahoma County. There are two major industrial parks in the county: one west of Clarksdale and the other near the intersection of US 61 bypass and US 49 southeast of Clarksdale. The industrial park west of the city is almost built out. The second industrial park contains the heaviest concentration of manufacturing and distribution observed in the four-county analysis area, with five major employers currently located in this corridor. This area will be the focal point of future industrial development. Several other major industrial employers are situated along US 61 and the US 61 Bypass. All three alternatives essentially follow US 61 and US 61 Bypass through Coahoma County, with adjustments as necessary to reduce impacts to the community.

This route would provide convenient access to the county's airport, primary industrial concentration, and growing retail node. Since it uses an existing bypass around Clarksdale (the Southern Section is currently under construction), the new I-69 route is not expected to negatively impact existing local business.

Northern Section

In Tunica County, the majority of commercial and industrial activity is located along US 61. Public water is available throughout the county, and sewer is provided in Tunica and west of US 61 near the casinos. The airport is also located between US 61 and Tunica/North Tunica. The existing industrial park in Tunica County is along US 61 south of the city, and plans call for a second industrial park to be constructed just east of the airport. A rail spur is to be installed to this area from the main line of the Illinois Central Railroad on the far eastern side of the county. A third industrial concentration may be developed in the vicinity of the intersection of SR 3 and the new SR 304 in northern Tunica County. The Preferred Alternative and Western Alternative in the Northern Section would facilitate new and existing development in areas that are currently more built-up, including linking the new airport, the industrial areas, the planned mega-site in the southwest quadrant of US 61 at SR 304 (see Section 4.3.1), and the rail spur. Due to the location of existing sewer, utilities, and businesses, it is more likely that the proposed project would encourage induced development in Tunica County with Preferred Alternative.

The project study area also includes the northwestern edge of Sunflower County. There are no cities or towns located within the Sunflower County portion of the study area. The majority of the development in the county is centered in the city of Indianola, outside the study area, which encompasses nearly one-third of the total county population. Sewer service is limited to incorporated areas, while public water is generally available throughout the county. The county's airport, two industrial parks, the main hospital, and major retail center are also located near Indianola. Ruleville, which is located approximately three miles east of the study area and eight miles from the Eastern Alternative, is the second largest municipality in Sunflower County with 2,000 persons. A hospital is located in Ruleville. An industrial park is proposed between Ruleville and Drew, and the Parchman State Prison (the county's largest employer) is located north of Drew.

The three alternatives begin at the proposed site of the Great River Bridge (SIU 12) south of Benoit and run south of the Dahomey National Wildlife Refuge. The Preferred Alternative completely bypasses Cleveland to the west before joining, and generally following, US 61 through Bolivar County bypassing the towns of Merigold, Mound Bayou, Winstonville, and Shelby until south Coahoma County. The Western Alternative breaks away from the Preferred Alternative around Cleveland to run parallel to US 61. The Eastern Alternative bypasses Cleveland to the east and enters Coahoma County from Sunflower County. The Western and

Eastern Alternatives are located along agricultural lands, with few existing sewer and utilities. The Preferred Alternative would encourage the most induced development in the Southern Section due to its location along existing development. This alternative would be near the airport around which new industry would likely develop, and would best serve Cleveland and Bolivar County. However, the Eastern Alternative would benefit both Bolivar and Sunflower Counties. Although this route would be further from the Port of Rosedale and would be located in rural areas, possibly resulting in less induced development, Bolivar County and Sunflower County would share any economic benefits such as from induced development or increased traffic volumes through the region.

4.20.1.2 Summary of Indirect Impacts

Indirect impacts may be categorized as social/cultural, physical, natural, or economic. In this project, induced development is most likely along the Preferred Alternative, the Southern Section, the common alternative in the Middle Section, and the Preferred Alternative in the Northern Section. Currently, development is located primarily along US 61, adjacent to the cities of Clarksdale and Cleveland, and nearby the new Tunica airport. Due to the limited nature of sewer and utilities in the rural areas of the four-county region, as well as the low population, it is anticipated that future development will primarily build on existing development rather than expand into the rural areas along the new interstate. Some new development along the corridor is likely for all alternatives, including rest areas, gas stations, and restaurants. According to traffic projections prepared for this project, an additional 5,000 trips due to induced development are anticipated in both the Clarksdale and Cleveland areas (10,000 total trips). This demand reflects employees for new (induced) businesses, which would lead to a demand for housing, shopping, and recreational activities. Impacts resulting from induced development are described below.

Social/Cultural

Social/cultural indirect impacts relate primarily to positive impacts provided to residents as a result of increased development, such as cultural or recreational opportunities, shopping opportunities with increased variety and/or lower prices, availability of community facilities, and changes in land use and community characteristics caused by the highway construction. Social/cultural indirect impacts, particularly community cohesion, could be negative if the proposed action would separate neighborhoods or defer development. Induced development from the proposed alternatives is anticipated to have a slight positive impact on social and cultural aspects of life in the four-county region. The majority of the cultural resources, shopping areas,

and community facilities are located in the larger cities and towns, such as Clarksdale and Cleveland. Enhanced transportation infrastructure for commercial uses is likely to lead to an increase in business, especially industrial and manufacturing companies. Employment for these businesses would lead to population growth in the study area and also would result in an increased demand for shopping, recreational, and social activities in those areas, thus providing additional economic benefits.

Physical

Indirect physical impacts relate to impacts along the roadway corridor, such as visual enhancement due to induced development, integration of transportation modes due to highway improvements, and other impacts related to use of the roadway. Since induced development is most likely in areas with existing development, the visual impacts to currently rural areas would generally be limited to the highway itself (a direct impact), billboards advertising businesses in nearby towns (an indirect impact), and support facilities such as gas stations, restaurants, and other travel-related businesses (indirect impacts).

Natural

Indirect impacts on natural resources are similar to the impacts caused by the proposed action, but result from induced development. These impacts are generally negative, such as impacts to wetland and other natural habitats, including fragmentation impacts, but can sometimes be positive, as when a highway induces development to occur in less environmentally sensitive areas than it would have occurred without the highway. In the four-county region included in the study area, the land is primarily agricultural, with forest dominating only the western edge along the Mississippi River, on the west side of levee. Almost all induced development would occur in either existing urban areas or would convert farmland to developed uses. Although the highway construction alternatives would impact wetlands and other natural resources, the great majority of the induced development is expected to occur around existing development, away from wetlands. This development also would need to comply with state and federal regulations protecting wetlands. Therefore, no substantial indirect impacts to natural resource are anticipated.

Economic

Indirect economic impacts include the impact on the local and regional economy due to induced development. These impacts are generally positive, such as increased tax revenue from developed land, increased income and employment opportunities from new industrial and

commercial development, reduced costs due to reduced accident rates on an improved roadway, and increased income from construction of new development. Negative economic impacts may result from bypasses diverting traffic from existing highway-oriented businesses. It is anticipated that the four rural counties in Mississippi impacted by this project, being in proximity to metropolitan areas and with some degree of urbanization, would benefit economically, at least in the short-term, from a new Interstate highway. Highway construction expenditures would benefit rural employment in the manufacturing and retail sectors with effects strongest in the short-term (during construction). Long-term employment opportunities would be increased as the industrial parks along US 61 grow following improvements in road and rail transportation. Population growth would follow employment growth, and would create additional demand for more housing and services. As a part of the national I-69 corridor, SIU 11 would allow local and interstate traffic better access to the cities and towns in rural Mississippi, especially along the Preferred Alternative.

4.20.1.3 Mitigation

Interchange locations were selected with consideration of minimizing natural resource impacts not only the interchange footprints but also to minimize future indirect impacts resulting from development in the vicinity of the interchanges. The extent and magnitude of indirect impacts are largely unknown, and therefore no detailed impact mitigation measures can be established at this time. Any development activity that occurs as a secondary impact will have to meet state and local regulations, which may include mitigating certain impacts. MDOT will provide plans and coordinate with local governments, so that local officials can use the information to guide future land use decisions. Due to the rural nature of the I-69 corridor in this section of Mississippi, no local zoning exists.

4.20.2 Cumulative Impacts

Cumulative impact is defined by CEQ regulations as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from minor but collectively significant actions taking place over a long period of time” (40 CFR 1508.7). The cumulative effects of an action may be undetectable when viewed in the individual context of direct and even

indirect impacts, but nonetheless can add to other disturbances and eventually lead to a measurable environmental change.

One potential for cumulative impact will be the indirect impact from induced development that could occur with the proposed I-69 SIU 11 corridor. Induced development includes any facilities developed in response to the highway corridor, increased traffic and access, or increased activity as a result of the roadway's economic stimulus. To some extent, the Tunica County Land Use Plan has taken into account the impacts of I-69 through the discussions in their approved plan. Also, the Delta Regional Authority has considered the effects of clustered and induced development, and has put those concepts forward as potentially effective methods of improving the economy of the Delta region.

The I-69 SIU 11 project through Mississippi is one part of the national I-69 corridor. The cumulative impacts of this project in conjunction with the overall interstate are generally positive. The national corridor will facilitate travel within each region as well as between regions, benefiting a variety of sectors including industry, tourism, and local business. The Mississippi Delta region has undergone significant changes in the past decades, as large expanses of wooded areas have been cleared for use as farmland, primarily cotton fields. The I-69 corridor is a part of this man-made evolution, as the land use and infrastructure in the Delta have changed to better facilitate the growing agricultural and manufacturing industries.

4.21 Energy Impacts

Building this segment of I-69 would require expending additional energy resources during construction; however, this energy would be more than recovered over the life of the project by the more energy efficient transportation system compared with the No-Build alternative. The increased energy efficiency would be realized through the controlled access highway and the overall decrease in delays, more efficient vehicle operating speeds, and diversion of traffic from less efficient roadways. Therefore, a savings in energy would be realized each year the highway is open and would more than compensate for the additional energy needed to construct the project, and would result in an overall net savings of energy. Based on projected traffic volumes, the Preferred Alternative would have slightly more positive energy impact in that it would attract more traffic from other facilities.

4.22 Visual Impacts

The majority of the study area is flat and used for agriculture, with few distinguishing visual characteristics in the landscape. However, this flat cultivated topography means that any visual landmark is often visible for several miles. The most prominent natural features are the remaining wooded areas, which occur around streams, oxbow lakes, and other water features. The lakes and streams, and particularly the cypress swamps, are the outstanding natural visual features in the study area. Other visual features are largely manmade, including several high-rise hotels in the Tunica area, electric transmission line structures, telecommunication towers, water towers, and grain storage structures. The electric power generation plant north of Cleveland is another manmade feature visible for several miles.

Because avoiding wetlands and natural areas was a priority in developing the alternatives, very few scenic natural areas would be impacted. The wetlands impacts of the alternatives provide a good measure of the degree of impact on natural visual resources. Likewise, by avoiding towns and developed areas and minimizing utility crossings, the build alternatives would minimize impact on manmade visual features.

The highway would be visible for a long distance where it crosses cultivated fields and other areas with little vegetation. The highway surface would be approximate six feet above the surrounding grade, and up to 20 feet above highways at interchanges and grade separations, and up to 24 feet above railroads. These crossings would have the greatest visual impact in terms of distance. The length of the highway, where it is on new location, would change the view of rural areas to include a modern highway with fencing and in some areas with frontage roads. Areas where I-69 follows the existing US 61 alignment would substantially change the view of the highway by restricting access and eliminating driveways and having existing businesses and residences near the highway served by frontage roads. In general, the alternatives on a new location (Western and Eastern) would have the greatest visual impact.

4.23 Construction Impacts

The construction activities associated with building a new roadway along any of the three alternative corridors would create environmental impacts. These impacts, generally short-term in

nature, will be controlled, minimized, or mitigated through conformance with established construction methods. Temporary impacts resulting from construction include traffic disruption; increases in noise and air pollution, erosion, and sedimentation; and wildlife habitat encroachment. Physical alteration to local aquatic and terrestrial habitats would occur.

Construction will be performed to comply with all applicable federal, state, and local laws governing safety, health, and sanitation. Procedures will apply all safeguards, safety devices, protective equipment, and any other needed action reasonably necessary to protect the life and health of employees on the job, the safety of the public, and property in connection with the performance of the work.

Traffic

Alternatives utilizing existing roadways (the common alternative in the Middle Section, and the Preferred Alternative in the Southern Section) will be developed to maximize the use of existing ROW, and will have greater potential for traffic disruption. Alternatives on new location will minimize disruption of traffic. During construction, all local and through traffic will be adequately and safely accommodated. All construction operations will be scheduled to keep traffic delay minimized, and the contractor will conform to standard construction practices.

Noise

The major construction elements of this project are expected to be earth moving, hauling, grading, and paving. General construction noise impacts, such as temporary speech interference for passersby and those individuals living or working near the project, will be expected, particularly from paving operations and from earth moving equipment. Overall, construction noise impacts are expected to be minimal since the construction noise is relatively short in duration and is generally restricted to daytime hours. Also, noise impacts from construction on alternative segments that are in rural areas would affect a smaller population than on alternatives along existing roadways.

Air Quality

During construction of the proposed project, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project site and burned or otherwise disposed of by the contractor. Any burning will be accomplished in accordance with applicable laws, local ordinance, and state regulations for air quality in compliance. Care will be taken to

ensure that burning will occur under constant supervision, at the greatest practical distance from dwellings, and not when atmospheric conditions will create hazards for the public.

Water Quality and Drainage

Erosion of soils is typically the most critical water quality impact resulting from construction activities. The amount of erosion can vary greatly, depending on the size, location, and grade of exposed or disturbed areas, and the effectiveness of erosion control measures and devices.

Erosion and sediment control is an important element of construction plans and specifications for the project. An erosion and sedimentation control plan will be prepared as part of the construction documents. The objectives addressed in the plan will include identification of critical areas subject to severe erosion, limiting of exposed areas, limiting the exposure duration, controlling sedimentation, and managing storm water runoff. The plan will be prepared in accordance with the MDOT standards. Measures typically used to minimize erosion and sedimentation includes uses of temporary vegetation, mulching, sodding, sediment catch basins, silt fences, and diversion berms. Construction activities also will be scheduled to minimize the extent and duration of erosion hazards. Erosion control measures will be retained as permanent design features of the facility.

Handling and use of various construction materials also can affect water quality. Improper disposal and storage of materials, wastes, and accidental spills of fuels or other chemicals can adversely affect water quality. Contractors will be required to exercise every reasonable precaution to prevent the introduction of construction materials and chemicals into surface waters. The specifications require that potential pollutants such as fuels, lubricants, bitumens, raw sewage, and other hazardous wastes are not to be discharged into or alongside streams, rivers, and impoundments.

Excavated materials will not be stockpiled or disposed of adjacent to or in areas where storm water runoff may cause erosion of the material into surface waters. If material storage adjacent to surface water is unavoidable, the contractor must take measures to prevent runoff from the storage site into the water body. Contractors are also required to provide sanitary facilities for employees during project construction.

MDOT Standard Specifications also require that special precautions be taken during construction to ensure that groundwater is not contaminated by fuel, lubricants, or chemical spills. If

necessary, localized portions of the groundwater table will be temporarily lowered during pier construction to avoid contamination, and then returned to normal level when construction is complete.

Biotic Communities

Construction, staging, and stockpiling operations will result in the disruption of the resident wildlife population. The clearing of habitats, human activity, and noise from construction operations would result in the displacement of mobile wildlife species. Non-mobile species would be lost as habitat is converted to construction areas.

Maximum disruption of wildlife communities would occur when project construction begins as displaced animals are forced to compete for space with other nearby resident wildlife populations. These impacts would be minimized as much as possible by restricting land clearing and construction operations to within the project ROW. Off-site staging and stockpiling areas will be located to impact the least amount of natural habitat as possible. Stockpiling and staging areas will be re-vegetated after construction, which will provide replacement habitat for some species.

Construction Waste

All construction waste material generated during clearing, grubbing, and other construction phases will be removed from the project site and burned or disposed of by the contractor in accordance with state and local regulations. Litter and other general trash will be collected and disposed of at local landfill locations. Construction waste deposition in and borrow from jurisdictional wetlands will not be allowed unless permitted by USACE.

Utility Service

Construction of any build alternative will require some adjustment, relocation, or modification to existing public utilities. The impacts to these utilities are described in Section 4.6.3. Any disruptions to utility service during construction will be minimized by phased adjustments to the utility lines. All modifications, adjustments, or relocations will be coordinated with the affected utility companies.

Borrow Pits and Spoil Sites

Borrow is material, such as sand and gravel, which is extracted from an excavation or pit area that can be used to fill another site. Spoil is defined as material composed of a variety of rocks and

minerals having differing chemicals and physical characteristics and in varying proportions and sizes. Approved borrow material is taken from sites in conformance with federal, state, and local regulations. MDOT has recently worked closely with US Fish & Wildlife Service, SHPO, and various THPOs to develop better procedures for evaluating and selecting borrow pits and spoil sites. All required permits (i.e., utility protection, erosion control, etc.) are obtained before gathering the borrow material and the pit sites are satisfactory from an archaeological standpoint. Any material excavated will be disposed of in accordance with federal, state, and local regulations. Proper planning and scheduling of pit operations is essential to prevent pollution. Excavated materials will not be disposed of in wetlands and after completion of pit operations, water is not allowed to pond. Furthermore, work on sites containing hazardous or toxic waste must be discontinued until wetlands or ground-water sources are protected. Noise and sound levels must conform to all state and local rules, regulations, and ordinances.

4.24 Irreversible and Irretrievable Commitments of Resources

As with any new roadway project, construction of any of the proposed build alternatives will require certain irreversible and irretrievable commitment of natural resources, manpower, materials, and fiscal resources. Lands within the ROW will be converted from their present use to transportation use. Use of these lands is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land, or if the highway facility is no longer needed, the land will be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

The fiscal commitment will extend well beyond the initial costs for construction and ROW acquisition, which will total \$1,247.9 million (year 2010 dollars) for the Preferred Alternative (see costs in **Table 4-28**). An important long-term cost to consider for a highway investment is maintenance cost. Maintenance cost includes major items such as resurfacing as well as routine maintenance, which includes restriping, mowing, cleaning drainage structures, patching potholes, repairing signs and guardrail, and bridge maintenance. Over time, maintenance cost can be a major expense. The approach in estimating maintenance cost for the I-69 alternatives used historical data to develop unit cost estimates for major and routine maintenance and calculated

annual costs over the 20-year period between 2010 and 2030, assuming resurfacing is needed every 10 years.

To establish a baseline, the routine maintenance budgets for the Second and Third Districts of the MDOT were reviewed for the Fiscal Years 1998 through 2003. The Fiscal Year 2003 routine maintenance budget for the two districts averaged \$2170.59 per lane-mile, with the annual increase for the two districts averaging 2.7% per year. Based on those data and discussions with MDOT maintenance engineers, a 3% per year estimated increase in routine maintenance was used for the 20-year time frame from 2010 to 2030.

Fiscal Year 2003 resurfacing costs in the Delta portion of the two districts are approximately \$160,000 per mile of two-lane road (\$80,000 per lane-mile). A 3% annual increase between 2003 and 2010 yields a figure of \$2,670 per lane-mile for routine maintenance for 2010. The \$80,000.00 per lane-mile resurfacing cost in 2003 increases to \$98,400 in 2010.

The total annual maintenance cost per lane-mile between 2010 and 2030 is based on the annual routine maintenance cost of \$2,670 increased by 3% annually plus the annual cost of an overlay after ten and twenty years. The two overlays in the 20-year study period have a 2010 cost of \$196,800 per lane-mile. The total maintenance cost over the 20 years between 2010 and 2030 would become \$13,400 per lane-mile per year.

The following assumptions and procedures were used in estimating maintenance:

- The cost of maintaining the mainline (freeway section) for each alternative combination was \$13,400 times mainline length in miles times the number of lanes.
- The cost of maintaining the frontage roads was \$13,400 times the length of the frontage road in miles times the number of lanes on the frontage road.
- The cost of maintaining the interchanges for each alternative combination was the number of access ramps or loops at the interchanges multiplied by \$1,320 times their length and width. The maintenance cost of each interchange ramp was estimated to be \$10,050, based on one-half mile length and 1.5 lanes per ramp. Interchange loops were estimated to be one-quarter mile long, with an equivalent lane width of one and three-quarters lanes. Based on those assumptions, the estimated cost of maintaining each interchange loop was \$5,850.
- New roads at interchange locations (spurs) would also require routine maintenance and resurfacing maintenance at a cost of \$13,400 per lane-mile.

- For alternatives containing interchanges on new location, existing access roads would be upgraded to accommodate the posting of an 80,000 pound weight limit. While the upgraded roads are currently maintained by either the MDOT or the local jurisdiction, the cost of routine maintenance as well as the frequency of resurfacing projects will probably increase if a road is used as an access to I-69. For upgraded county roads or highway providing access to the new location alternatives, the annual increase in maintenance costs per lane-mile was calculated at 50% of \$13,400 per lane-mile or \$6,700 per lane-mile.

The maintenance costs for alternatives that utilize existing sections of US 61 and US49-US 61 for I-69 are included in the mainline and frontage road calculations under the first two items.

However, if portions US 61 are not used for I-69, the four-lane sections must still be maintained by the MDOT. Therefore, the maintenance costs for those sections of US 61 not used for I-69 was added to the maintenance costs of the new location alternatives. The sections of US 61 and US 49-US 61 included in the annual maintenance cost for the new location alternatives include:

- US 61 in Bolivar County from near Merigold extending north to near Shelby and from Hushpuckena extending north to the Bolivar/Coahoma County Line;
- US 49-US 61 in Coahoma County from near Coahoma extending north to the split in these two highways;
- US 61 in Coahoma County from its split with US 49 extending north to the Tunica County Line; and
- US 61 from the Coahoma/Tunica County Line extending north to near Dundee.

For these four sections the maintenance costs added to the new location alternatives was the mileage multiplied by 4 lanes multiplied by \$13,400.

The estimated maintenance costs are shown by alternative in **Table 4-27**.

Table 4-27		
Annual Maintenance Cost		
Alternative		Cost (in Millions)
Southern Section	Western	\$6.6
Preferred Alternative – Central		\$5.9
Eastern		\$6.3
Middle Section		
Preferred (Only) Alternative		\$1.7
Northern Section	Western	\$3.5
Preferred Alternative – Central		\$3.7
Eastern		\$3.8

Source: Neel Schaffer, May 2004.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material will be expended to complete the project. Additionally, large amounts of labor and natural resources will be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect on the availability of these resources. Any construction will also require a substantial one-time expenditure of state and federal funds which is not retrievable.

The commitment of these resources will benefit local residents and the state by improving transportation options through the four-county region. Construction of the proposed I-69 SIU 11 project will add a critical link to the national I-69 corridor, and will benefit travelers and businesses by enhancing the transportation infrastructure between Mississippi and its neighboring states. The benefits of improved accessibility, savings in time, and greater availability of quality services are anticipated to outweigh the necessary commitment of resources.

4.25 Relationship Between Short-Term Impacts and Long-Term Benefits

The most disruptive local short-term impacts associated with the proposed project will occur during project construction. Existing homes, farms, and businesses within the alternative ROW will be displaced. However, adequate replacement housing, land, and space are available for homeowners, tenants, and business owners within the study area. Improved mobility and access to and from the detailed study corridors will stimulate economic and business growth and viability as well as long-term residential interest.

Construction activities will create short-term air quality, noise, and visual impacts for nearby residents and businesses. Normal traffic patterns also will be disrupted. Implementation of MDOT standard construction procedures will help minimize these impacts.

Localized water quality could be temporarily affected, specifically by increased turbidity levels in creeks and streams adjacent to construction activities. Use of Best Management Practices will minimize potential water quality impacts. In addition, MDOT will consult with the appropriate federal and state resource and regulatory agencies to identify measures to minimize these impacts.

The local short-term impacts and use of resources by the proposed action will be consistent with the maintenance and enhancement of long-term productivity. Completion of the proposed project will, over the long-term, be consistent with local, county, regional, and state transportation plans. The purpose of the I-69 SIU 11 project include improving international and interstate trade in accordance with national and state goals; facilitating economic development in accordance with state, regional, and local policies and plans; and improving surface transportation consistent with national, state, regional and local needs and with the congressional designation of the corridor. Building this project will help to achieve these long-term goals.

4.26 Summary of Impacts

Direct and indirect impacts have been assessed for SIU 11 of the proposed I-69 Corridor in Mississippi. The impacts are summarized in ranges by section in **Table 4-28**. The project has been divided into Southern, Middle, and Northern Sections with three alternatives in the Southern and Northern Sections and a common alternative in the Middle Section. Analyses have been conducted to compare alternatives and their potential impacts within each section. **Table 4-29** provides a summary comparison by alternative, based on the possible combinations of alternatives within each section. Public and agency comment and additional analyses provided input into the decision on the Preferred Alternative, which includes minor shifts to further minimize impacts.

**Table 4-28
Summary of Impacts**

Impact Category	Southern Section			SR 8			Middle Section	Northern Section			Total for Preferred Alternative ⁶	Change in Preferred Alternative Impacts Since Public Hearing ⁷
	Western	Central	Eastern	Alt B	Alt C	Alt D	Common	Western	Central	Eastern		
<i>Human Environment</i>												
Farmland (acres)	4,178	4,133	4,117	478	492	463	1,023	2,603	2,574	2,440	8,193	-29
Residential Relocations	16	25	16	18	13	18	3	7	8	20	54	+1
Business Relocations	1	1	2	3	2	3	1	0	0	0	5	+2
Noise Receptors	2	5	2	0	0	0	0	0	0	0	5	+1
Historic Sites (Adverse Effect)	1	0	0	0	0	0	0	0	0	0	0	-1
Archaeological Sites (Potential Impact)	4	6	2	1	1	1	2	6	0	4	9	-3
Hazardous Material Sites	0	0	0	3	3	3	0	0	0	0	3	-10
Minority and Low-Income Population Served by I-69 Within 2 mile radius of Interchange	20,293	24,130	16,573	N/A	N/A	N/A	20,970	370	370	370	45,470	-611
<i>Natural Environment</i>												
Perennial Streams – Number Crossed (Total Feet of Impact)	12 (7,300)	10 (5,165)	14 (9,880)	5 (570)	5 (570)	5 (570)	4 (3,240)	13 (3,775)	13 (3,970)	8 (3,585)	32 (12,945)	None
303 (d) Streams (number) ⁸	7	10	11	0	0	0	1	11	11	12	22	None
Wetlands (acres) ¹	122	18	63	2	1	2	20	61	28	32	(106) ⁴	+104
Floodplains (acres)	1,103	1,002	847	25	22	25	88	162	567	334	1,682	+414
Vegetation/Wildlife Habitat ² (acres)	210	104	118	59	53	49	5	31	17	16	175	-5

**Table 4-28
Summary of Impacts**

Impact Category	Southern Section			SR 8			Middle Section	Northern Section			Total for Preferred Alternative ⁶	Change in Preferred Alternative Impacts Since Public Hearing ⁷
	Western	Central	Eastern	Alt B	Alt C	Alt D	Common	Western	Central	Eastern		
<i>Engineering/Utilities</i>												
Transmission Line Impact Number of Crossings (length in feet)	2 (955)	2 (1,470)	6 (3,140)	1 (300)	1 (300)	1 (300)	2 (310)	4 (1,115)	4 (1,130)	4 (1,450)	9 (3,210)	None
Gas Pipeline Impact Number of Crossings (length in feet)	8 (19,030)	8 (13,050)	10 (16,595)	3 (3,330)	3 (3,330)	3 (3,330)	3 (16,860)	12 (38,825)	11 (61,985)	8 (44,090)	25 (95,225)	None
2001 Estimated Construction (millions) ³	\$537.9	\$473.6	\$528.8	\$55.3	\$54.1	\$54.1	\$91.9	\$315.9	\$336.8	\$306.7	\$956.4	2001 Estimated Computed Costs
2010 Estimated Construction (millions) ³	\$701.9	\$618.0	\$690.0	\$72.2	\$70.6	\$70.6	\$119.9	\$412.2	\$439.5	\$400.2	\$1,247.9	2001 Costs Updated to 2010 Costs
Conservation Easements ⁵	11	6	11	5	5	5	0	4	6	11	17	None

¹ Wetland impacts in Southern Section are based on revised alignment for Central Alternative near Benoit

² Vegetation/Wildlife Habitat consists of: Bottomland Hardwood Forest, Upland Scrub/Shrub, and Freshwater Scrub/Shrub communities.

³ See Appendix G for Preferred Alternative cost estimate computations and the cost factors used for updating the cost estimates for the other DEIS alternatives to year 2010 (construction costs in table include ROW).

⁴ In the fall of 2005, an additional field assessment of the wetland impacts within the right of way limits was made. Based on that assessment the 68 acres of impacts (18 + 2 + 20 + 28) was increased to 106 acres for the FEIS to reflect updated information. Similar increases would be anticipated for the other alternatives. See Page 4-47 if additional information is needed on the field assessment conducted on the Preferred Alternative.

⁵ Conservation Easements include Wetland Reserve Program Easements, Farm Service Agency Easements, Ducks Unlimited Easements, and Conservation Agreements

⁶ Impacts Category Totals are based on adding the impacts for the Southern Section Central, SR 8 - Alt D, the Middle Section, and the Northern Section Central.

⁷ Difference in the Preferred Alternative impacts from the impacts presented in Table S-1 of the Draft EIS for the South Section Central Alternative (SSCA) + Middle Section + North Section Central Alternative (NSCA)

⁸ Number of streams shown in table were identified in 2004. Additional TMDL Reports have been compiled since 2004. See Tables 4-14 and 4-15.

Source: Kimley-Horn and Associates, Inc.; Neel-Schaffer, Inc.; 2005-2010

**Table 4-29
Summary Comparison of Alternative Combinations**

Impact Category	SSWA ¹ + Middle Section +			SSCA ¹ + Middle Section +			SSEA ¹ + Middle Section +		
	NSWA	NSCA	NSEA	NSWA	NSCA	NSEA	NSWA	NSCA	NSEA
Farmland (acres)	8,296	8,267	8,133	8,251	8,208	8,088	8,235	8,206	8,072
Residential Relocations	44	45	57	53	54	66	41	42	54
Business Relocations	5	5	5	5	5	5	6	6	6
Noise Receptors	2	2	2	5	5	5	2	2	2
Historic Sites (Adverse Effect)	1	1	1	0	0	0	0	0	0
Archaeological Sites (Potential Impact)	13	7	11	15	9	13	11	5	9
Hazardous Material Sites	3	3	3	3	3	3	3	3	3
Minority and Low-Income Population Served by I-69	41,633	41,633	41,633	46,081	45,470	46,081	37,913	37,913	37,913
Perennial Streams (Crossed)	34	34	29	32	32	27	36	36	31
Perennial Streams (Total Feet of Impact)	14,885	15,080	14,695	12,750	12,945	12,560	17,465	17,660	17,275
303 (d) Streams (number) ⁵	19	19	20	22	22	23	23	23	24
Wetlands (acres)	205	172	178	101	68 (106) ²	72	146	113	117
Floodplains (acres)	1,378	1,783	1,550	1,277	1,682	1,449	1,122	1,527	1,294
Vegetation/Wildlife Habitat (acres)	295	281	280	189	175	203	207	189	188

**Table 4-29
Summary Comparison of Alternative Combinations**

Impact Category	SSWA ¹ + Middle Section +			SSCA ¹ + Middle Section +			SSEA ¹ + Middle Section +		
	NSWA	NSCA	NSEA	NSWA	NSCA	NSEA	NSWA	NSCA	NSEA
Transmission Line Impact Number of Crossings (length in feet)	9 (2,680)	9 (2,695)	9 (3,015)	9 (3,195)	9 (3,210)	9 (3,530)	13 (4,865)	13 (4,880)	13 (5,200)
Gas Pipeline Impact Number of Crossings (length in feet)	26 (78,045)	25 (101,205)	22 (83,310)	26 (72,065)	25 (95,225)	22 (77,330)	28 (75,610)	27 (98,770)	24 (80,875)
2001 Estimated Construction (millions) ³	\$999.8	\$1,020.7	\$990.6	\$935.5	\$956.4	\$926.3	\$990.7	\$1,011.6	\$981.5
2010 Estimated Construction (millions) ³	\$1,304.5	\$1,331.8	\$1,292.5	\$1,220.6	\$1,247.9	\$1,208.6	\$1,292.7	\$1,319.9	\$1,280.7
Conservation Easements ⁴	20	22	27	15	17	22	20	22	27

Key: SSWA = Southern Section, Western Alt.; SSCA = Southern Section, Central Alt.; SSEA = Southern Section, Eastern Alt.
NSWA = Northern Section, Western Alt.; NSCA = Northern Section Central Alt.; NSEA = Northern Section, Eastern Alt.

¹ All impacts and totals in the Southern Section are based on SR 8 Alternative D; SSCA + Middle Section + NSCA is the Preferred Alternative

² In the fall of 2005, an additional field assessment of the wetland impacts within the right of way was made. Based on that assessment, the 68 acres of impacts shown in the Draft EIS became 106 acres for the FEIS. If additional field assessments were made on the other alternatives, increases in impacts would also be expected. See page 4-47 for more information.

³ See Appendix G for additional information on the Preferred Alternative Cost Estimate. Relative to the Draft EIS, the 2001 Cost Estimate for the Preferred Alternative increased by a factor of 1.3048. The 1.3048 factor was used for determining the 2010 cost of the other alternatives. Estimated construction costs in table include ROW.

⁴ Conservation Easements include Wetland Reserve Program Easements, Farm Service Agency Easements, Ducks Unlimited Easements, and Conservation Agreements.

⁵ Number of streams shown in table were identified in 2004. Additional TMDL Reports have been compiled since 2004. See Tables 4-14 and 4-15.

Source: Neel-Schaffer, Inc. and Kimley-Horn and Associates, Inc. 2005-2010

In the Southern Section, the Preferred Alternative would minimize impacts to streams, wetlands, and vegetation. In addition, the Preferred Alternative would serve the greatest percentage of the minority and low-income population, addressing a key component of the project's purpose and need. In an effort to reduce potential impacts, the Preferred Alternative was developed to use as much of existing US 61 as possible. Most of the cities within the project study area are located along US 61, and therefore, the Preferred Alternative would have the greatest number of residential relocations and noise impacts.

The Eastern Alternative in the Southern Section would minimize residential and noise impacts. However, the Eastern and Western Alternatives would have greater impacts to streams. There are also the fewest historic resources located in the Eastern Alternative. The Western Alternative would have the greatest total impact for streams, wetlands, and impact on vegetation. Although the Western Alternative would minimize residential relocation, it would also serve a much lower percentage of the minority and low-income population.

In addition to comparisons among the alternatives and sections, two other comparisons are helpful in evaluating the alternatives and comparing their impacts so as to differentiate the impacts of alternatives in specific areas. One such comparison involves the southernmost portion of the project, in the vicinity of Benoit. This comparison was documented in Chapter 2 (2.4.3.2) and showed that the alternative crossing Lake Bolivar (shown in green on **Figure 2-3**) impacts fewer wetlands than the alternative crossing to the north (shown in red on **Figure 2-3**) and therefore was incorporated into the Central Alternative in the DEIS and subsequently, became part of the Preferred Alternative.

The proposed construction will provide a vital link in the national I-69 corridor. This project will provide for a safer and more efficient highway system. Long-term benefits offered by this project—including economic development, reduced potential for accidents, reduced vehicular operating costs, savings in travel time, and the fulfillment of a national goal—should more than offset the short-term inconveniences and adverse effects on the human environment.

Chapter 5

List of Preparers

This Final Environmental Impact Statement was prepared in cooperation with the U.S. Department of Transportation, Federal Highway Administration, and Mississippi Department of Transportation, Division of Highways.

Federal Highway Administration

Andrew H. Hughes, P.E.
Division Administrator

Federal Highway Administration
Jackson, Mississippi
B.S. in Civil Engineering and over 30 combined years of experience in transportation engineering and planning.

Cecil W. Vick, Jr.
Realty Officer/Environmental Coordinator
Retired 2009

Federal Highway Administration
Jackson, Mississippi
B.A. in Liberal Arts, M.A. in English, and over 30 combined years of experience in NEPA issues, real estate, and planning.

E. Claiborne Barnwell, P.E.
Project Development Team Leader

Federal Highway Administration
Jackson, Mississippi
B.S. in Civil Engineering, and over 20 combined years of experience with the Mississippi Department of Transportation, transportation engineering, and NEPA issues.

Mississippi Department of Transportation

E. Claiborne Barnwell, P.E.
Division Engineer
Retired 2009

Mississippi Department of Transportation
Environmental/Location Division
See Above

Kim D. Thurman
Environmental Division Administrator

Mississippi Department of Transportation
Environmental/Location Division
M.C.S. in Mathematics and Computer Science, and over 15 years of experience in transportation planning.

R. Chad Wallace, P.E.
Location Engineer

Mississippi Department of Transportation
Environmental/Location Division
B.S. in Civil Engineering, and over 15 combined years of experience in transportation engineering and NEPA.

Neel-Schaffer, Inc.

Robert Walker, P. E.

B.S. in civil engineering and over 15 combined years of experience in transportation engineering and planning.

Jimmy Shirley, P. E.

B.S. in civil engineering and over 30 years of experience in transportation engineering.

Wayne Parrish

M.S. in mathematics and over 10 years of experience in transportation planning. Currently retired.

Mark Bailey, P. E.

B.S. in civil engineering with over 30 years of experience in transportation engineering.

David Ruhl, P. E.

B.S. in civil engineering and B.S. in geology and over 15 combined years of experience in transportation engineering and geology.

Aubrey Kopf, SCET

Senior Certified Engineering Technician with over 40 combined years of experience in roadway and conceptual design.

Muhammad Ali, E. I.

B.S. in civil engineering and over 3 years of experience in transportation engineering.

Sara Owen

Engineering Technician with over 20 years of roadway experience.

Mike Schulze

B.S. in environmental studies with over 6 combined years of experience in NEPA and natural resource studies.

Tonya Bolton

B.S. in wildlife management with over 6 combined years of experience in NEPA and natural resource studies.

Kimley-Horn and Associates, Inc.

Laurence J. Meisner, P.E. AICP

Master of Science, Regional Planning, UNC-Chapel Hill; Bachelor of Science, Industrial Engineering, Georgia Institute of Technology; more than 30 years of experience.

Elizabeth A. Reed, PWS

Master of Science, Coastal Zone Management/Oceanography, Florida Institute of Technology; Bachelor of Science, Marine Biology, Auburn University; 20 years of experience.

Todd A. Barker, AICP

Bachelor of Arts in English, University of North Carolina at Chapel Hill; Graduate Management Studies, North Carolina State University; over 15 years of experience.

Freya Thamman	Master of Arts, Geography, University of Arkansas; Bachelor of Arts, Gustavus Adolphus College, Environmental Science; 4 years of experience.
Meridith C. Krebs	Bachelor of Science, Plant and Soil Sciences, University of Tennessee, Knoxville; 3 years of experience.
Michael M. Rutkowski, P.E., AICP	Master of Science, Civil Engineering, North Carolina State University; Bachelor of Science, Civil Engineering, University of North Carolina at Charlotte; over 15 years of experience.
D. Norton Webster	Master of Science in Forestry, North Carolina State University; Bachelor of Science in Business, Wake Forest University; 9 years of experience.
Teresa Gresham, PE	Master of Science, Civil Engineering, University of Texas, Austin; Bachelor of Science, Civil Engineering, Michigan Technology University; 7 years of experience.
Pete T. Romano, REPA	Bachelor of Arts, Geographical Planning, University of South Florida; over 15 years of experience.
Andy R. Kiley	Master of Science, Environmental Resource Management, Florida Institute of Technology; Bachelor of Science, Biology, Notre Dame; 9 years of experience.
Colleen A. Kiley	Master of Science, Coastal Zone Management, Florida Institute of Technology; Bachelor of Science, Geology, Washington & Lee University; 6 years of experience.
Jennifer C. Haynie	Master of Environmental Management, Nicholas School of the Environment, Duke University; Bachelor of Science in Physics, Davidson College; 3 years of experience.
Tommy B. Cousins	Bachelor of Environmental Science, North Carolina State University; 3 years of experience.
Jason A. Yakimowich, P.E.	Master of Science, University of Tennessee; Bachelor of Science, Civil Engineering, University of Tennessee; 4 years of experience.
Jennifer J. Napier	Bachelor of Science, General Agriculture, University of Missouri, 6 years of experience.

Coastal Environments, Inc.

David B. Kelley, Ph.D.

Doctor of Philosophy, Anthropology, Tulane University;
Bachelor of Arts, Anthropology, University of Kansas; over
30 years of experience.

Richard A. Weinstein, RPA

Master of Arts, Anthropology, Louisiana State University;
Bachelor of Arts, Sociology, Wilkes College; over 30 years
of experience.

Joanne Ryan

Master of Arts, Archaeological Studies, Yale University;
Bachelor of Arts, Classical Archaeology, University of North
Carolina; over 15 years of experience.

Douglas C. Wells, Ph.D.

Doctor of Philosophy and Master of Arts, Anthropology,
Tulane University; Bachelor of Arts, Chemistry and
Anthropology, Vanderbilt University; 14 years of
experience.

Josetta A. LeBoeuf

Master of Arts, Anthropology, Louisiana State University;
Bachelor of Arts, Anthropology, University of Southwestern
Louisiana; 8 years of experience.

Stephanie L. Perrault

Master of Arts, Anthropology, Louisiana State University;
Bachelor of Arts, Anthropology, Louisiana State University;
12 years of experience.

Sara A. Hahn

Bachelor of Arts, Anthropology, University of Southwestern
Louisiana; 8 years of experience.

Brian P. Tyler

Master of Arts, Anthropology, Louisiana State University;
Bachelor of Arts, Anthropology, Washington University in
St. Louis; 3 years of experience.

Robert E. Fleming

Bachelor of Arts, Anthropology, University of New Orleans;
3 years of experience.

Ken Weeden & Associates

Kenneth E Weeden

Master of Science, Regional Planning, UNC-Chapel Hill;
Bachelor of Arts, Journalism, University of Mississippi; 30
years of experience.

A. Lavelle Fitch

Master of Education, Memphis State University; Bachelor of
Education, Memphis State University; 20 years of
experience.

Chapter 6

Draft EIS Distribution List

Federal Agencies

Department of Health and Human Services, Office of Environmental Affairs
Department of the Interior
Department of Agriculture
Department of Energy
Department of Transportation
Department of Commerce
Delta Regional Authority
Environmental Protection Agency
Federal Railroad Administration
Federal Emergency Management Agency
Office of Management and Budget
Federal Aviation Administration

Regional Offices

Department of Housing and Urban Development
Federal Emergency Management Agency
General Services Administration
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Federal Transit Authority

State Agencies

Mississippi Department of Wildlife, Fisheries, and Parks
Mississippi Department of Environmental Quality
Mississippi Department of Transportation
Mississippi Department of Archives and History
Mississippi Soil and Water Conservation Commission
Mississippi Department of Human Services
Mississippi Tourism Development
Mississippi Division of Economic Assistance
Mississippi Department of Environmental Quality
Mississippi Public Service Commission
Arkansas Highway and Transportation Department

Local Governments

Mayor of Alligator
Mayor of Benoit
Mayor of Beulah
Mayor of Boyle
Mayor of Clarksdale
Mayor of Cleveland
Mayor of Coahoma
Mayor of Drew
Mayor of Duncan
Mayor of Friars Point
Mayor of Greenville
Mayor of Greenwood
Mayor of Gunnison
Mayor of Indianola
Mayor of Jonestown
Mayor of Lula
Mayor of Lyon
Mayor of Merigold
Mayor of Mound Bayou
Mayor of Pace
Mayor of Rosedale
Mayor of Ruleville
Mayor of Shaw
Mayor of Shelby
Mayor of Tunica
Mayor of Winstonville

Sunflower County Administrator
Tunica County Administrator
Bolivar County Administrator
Coahoma County Administrator
Memphis Chamber of Commerce
Clarksdale-Coahoma County Chamber of Commerce and Industrial Foundation
Cleveland-Bolivar County Chamber of Commerce
State Senator, District 13
State Representative, District 9
State Representative, District 28

Local Agencies

City of Cleveland-Rosedale-Bolivar County Port Commission
Benoit Interstate 69 Committee
Great River Bridge Authority
Greenville Port Commission
Economic Development District of Bolivar County
The Nature Conservancy of Mississippi
National Forests in Mississippi
Bolivar County Council on Aging
Cleveland Bolivar County Industrial Development Foundation
Rosedale-Bolivar County Port Commission

Mississippi Band of Choctaw Indians
Eastern Band of Cherokee Indians
Cherokee Nation of Oklahoma
Chickasaw Nation
Choctaw Nation of Oklahoma
Jena Band of Choctaw
Muscogee (Creek) Nation
Seminole Nation of Oklahoma
United Keetoowah Band of Cherokee
Eastern Shawnee Tribe of Oklahoma
Quapaw Tribe of Oklahoma
Tunica-Biloxi Indians of Louisiana

Tunica County School System
Coahoma County School System
Bolivar County School System
West Bolivar County School System
Sunflower County School System
Bolivar County Board of Supervisors

Chapter 7

Comments on DEIS and Responses

The Draft Environmental Impact Statement was coordinated with federal, state, and local agencies and organizations, as well as with the public through an extensive public involvement plan.

7.1 DEIS Distribution

The following agencies received a copy of the DEIS. Specific agencies and organizations who responded to the DEIS are indicated with a (*). This chapter also includes the DEIS comments and responses asked by Federal Agencies, Regional Offices, and State Agencies. Response letters are included in **Appendix B** (Agency Coordination).

Federal Agencies

- Department of Health and Human Services, Office of Environmental Affairs
- * Department of the Interior
- * Department of Agriculture
- Department of Energy
- Department of Transportation
- Department of Commerce
- Delta Regional Authority
- * Environmental Protection Agency
- Federal Railroad Administration
- Federal Emergency Management Agency
- Office of Management and Budget
- Federal Aviation Administration

Regional Offices

- Department of Housing and Urban Development
- Federal Emergency Management Agency

General Services Administration

* U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

Federal Transit Authority

State Agencies

* Mississippi Department of Wildlife, Fisheries, and Parks

Mississippi Department of Environmental Quality

* Mississippi Department of Transportation

* Mississippi Department of Archives and History

Mississippi Soil and Water Conservation Commission

Mississippi Department of Human Services

Mississippi Tourism Development

Mississippi Division of Economic Assistance

Mississippi Department of Environmental Quality

Mississippi Public Service Commission

Arkansas Highway and Transportation Department

Local Governments

Mayor of Alligator

Mayor of Benoit

* Mayor of Beulah

* Mayor of Boyle

Mayor of Clarksdale

* Mayor of Cleveland

Mayor of Coahoma

* Mayor of Drew

* Mayor of Duncan

Mayor of Friars Point

* Mayor of Greenville

Mayor of Greenwood

Mayor of Gunnison

* Mayor of Indianola

Mayor of Jonestown

- Mayor of Lula
- Mayor of Lyon
- * Mayor of Merigold
- * Mayor of Mound Bayou
- * Mayor of Pace
- * Mayor of Rosedale
- Mayor of Ruleville
- * Mayor of Shaw
- * Mayor of Shelby
- * Mayor of Tunica
- Mayor of Winstonville

- * Sunflower County Administrator
- Tunica County Administrator
- * Bolivar County Administrator
- Coahoma County Administrator
- Memphis Chamber of Commerce
- * Clarksdale-Coahoma County Chamber of Commerce and Industrial Foundation
- * Cleveland-Bolivar County Chamber of Commerce
- State Senator, District 13
- State Representative, District 9
- State Representative, District 28

Local Agencies

- City of Cleveland-Rosedale-Bolivar County Port Commission
- Benoit Interstate 69 Committee
- Great River Bridge Authority
- Greenville Port Commission
- Economic Development District of Bolivar County
- The Nature Conservancy of Mississippi
- National Forests in Mississippi
- * Bolivar County Council on Aging
- Cleveland Bolivar County Industrial Development Foundation
- * Rosedale-Bolivar County Port Commission

Mississippi Band of Choctaw Indians

Eastern Band of Cherokee Indians

Cherokee Nation of Oklahoma

Chickasaw Nation

Choctaw Nation of Oklahoma

* Jena Band of Choctaw

Muscogee (Creek) Nation

Seminole Nation of Oklahoma

United Keetoowah Band of Cherokee

Eastern Shawnee Tribe of Oklahoma

Quapaw Tribe of Oklahoma

Tunica-Biloxi Indians of Louisiana

Tunica County School System

Coahoma County School System

Bolivar County School System

West Bolivar County School System

Sunflower County School System

* Bolivar County Board of Supervisors

7.2 Comment and Response Summary

7.2.1 Federal Agencies

United States Department of the Interior

Letter dated August 15, 2005

Comment: Field surveys for the presence of the federally listed endangered plant pondberry (*Lindera melissifolia*) and the federally threatened bald eagle (*Haliaeetus leucocephalus*) must be conducted once the Preferred Alternative is selected.

Response: Once the Preferred Alternative was selected, field surveys were conducted for the presence of pondberry (*Lindera melissifolia*) and the bald eagle (*Haliaeetus leucocephalus*) within the project corridor. One population of pondberry was identified during the field survey, which was conducted during September and October, 2005. The alignment was shifted to avoid this population, as described in 4.15.5. No bald eagles were observed and a biological conclusion of no effect was determined, due to the limited amount of suitable nesting habitat.

Comment: The regulations for Section 4(f) define “constructive use” of a 4(f) property as proximity impacts so great as to impair the values or the purposes of the property. The FHWA and MDOT have determined there will be adverse effects under Section 106 to these properties through the impacts of visual and noise intrusions into the historic setting of these properties. We find no evidence in the DEIS that the Mississippi State Historic Preservation Officer (SHPO) has concurred or not concurred with these effect determinations.

Response: According to the letter dated March 16, 2006, the Mississippi SHPO has concurred with the effect determination (see **Appendix B**). There would be no constructive use of Section 4(f) properties associated with the proposed project.

United States Department of Agriculture- Natural Resources Conservation Service

Letter dated: December 15, 2004

Comment: A couple of terminology errors were noticed. The Natural Resources Conservation Service concurs on you Draft Environmental Impact Statement.

Response: Terminology was updated to state “Natural Resources Conservation Services” and “Form NRCS-CPA-106”.

United States Environmental Protection Agency

Letter dated: February 4, 2005

Comment: Environmental Commitments/Requirements Table: The status of the commitments should state when they will be fulfilled, i.e. phase of the project and the responsible official for ensuring the commitments are met. In addition, the environmental impact commitments should be as specific as possible.

Response: The Environmental Commitments/Requirements table has been updated, including phase of the project, the specific branches or divisions within MDOT that will be responsible, and when commitments will be fulfilled. Environmental commitments have been made more specific, including detail regarding items such as bridge lengths and height and location of berms where sufficient design has been performed.

Comment: Summary Table of Comparison Alternative Combinations and Summary of Impacts: The FEIS should ensure consistency in the numbers of impacts between the two tables.

Response: The tables have been assessed for accuracy between the two tables. In addition, the table has been updated to reflect the Preferred Alternative.

Comment: Alternative Considered: The FEIS should identify the environmentally preferred alignment. EPA recommends the Central Alternative because, on balance, it results in the fewest overall environmental impacts. However, in order to fully assess the project impacts, the environmental and social impacts for the alternatives carried forward in the FEIS needs to be thoroughly analyzed.

Response: The FEIS has identified the Preferred Alternative as the Central Alignment, with some modifications to minimize impacts (see Section 2.4.3.3). The environmental and social impacts were fully assessed, meeting the project's requirements. All alternatives have been evaluated to the extent necessary to identify the Preferred Alternative.

Comment: 3.7 Air Quality: The FEIS should reference the regulatory citations/actions that determined that the area in question is in attainment for the national ambient air quality standards (NAAQS).

Response: The text has been revised the text to include EPA's regulatory citations.

Comment: 4.7 Air Quality: The rationale for the exclusion of this assessment should be modified in the FEIS. It is not sufficient to state that because the area is in conformance with the State Implementation Plan that the project would not cause violations of the air quality standards. The

selection should be re-written to address whether or not localized violations of the carbon monoxide standard, based on the different project alternatives, is anticipated.

Response: The text was re-written to state that violations, including localized violations of the carbon monoxide standard, are not anticipated for any of the project alternatives.

Comment: 4.8.1 Design year (2030) Build Alternative: Noise Methodology: The DEIS noise analysis should include the number of facilities that could be impacted by the proposed project. This includes those facilities that were excluded from the noise analysis because they were relocated. Following this, the DEIS could have stated that the facilities would be relocated due to the projected adverse impacts.

Response: All noise impacts were included in the **Table 4-11** in Section 4.8.1. Only structures located within the proposed right-of-way were not included as noise impacts. No structures would be relocated based on noise impacts.

Comment: 4.17.1 Archaeological: The remainder of the alternative should be assessed for archaeological impacts to develop more of a basis for selecting a Preferred Alternative. More information is needed to refine alignment and to fully assess impacts. Consultation and coordination with the State Historic Preservation Office and the Tribal Historic Preservation Offices regarding further avoidance, minimization and mitigation should continue as noted in the document.

Response: All alternatives have been sampled on an equal basis to provide a valid basis for comparison of archaeological impacts, and to identify potential impacts on archaeological sites. This effort was extraordinary compared to similar MDOT projects. Archaeology was not the deciding factor in selecting the Preferred Alternative, although the Western Alternative, which was not selected, had the most impact on archaeological sites. Additional work has been performed to avoid sites either previously known or discovered based on the survey. After additional testing was conducted on the Preferred Alternative, the alignment was modified to further avoid and minimize impacts to any significant archaeological sites. Consultation with SHPO and THPOs has been ongoing (see **Appendix B**).

Comment: Wetlands and Stream Impacts: In order to fully assess proposed project impacts and alternatives, the FEIS needs to provide more details on jurisdictional wetlands and streams. In addition to the quantities of each impact, this information should include the quality and function of each wetland and stream and identify whether the resources are jurisdictional or isolated. A wetlands functional assessment method such as Hydrogeomorphic Assessment Method or Index of Biological Integrity should be used. These evaluations and results should be quantified in the FEIS.

Response: All alternatives have been evaluated on an equal basis to determine their relative impact on streams and wetlands, in conformance with guidance provided by the Corps of Engineers, Vicksburg District. Additional work has been performed to evaluate the quality, functions, and values of streams and wetlands for the Preferred Alternative. This additional information has been documented in the FEIS. No additional work is needed for other alternatives.

Comment: Aquatic Resource Mitigation: The FEIS should include a draft mitigation plan to compensate for predicted wetland and stream losses that remain following efforts to avoid and minimize such impacts. The document should discuss mitigation on a watershed basis using COE RGL 02-2 and 1995 EPA Mitigation Banking Federal Guidance and functional assessment based on EPA Region 4's Compensatory Mitigation Policy.

Response: Existing mitigation banks such as Tallahatchie National Wildlife Refuge (NWR), O'Keefe Wildlife Management Area (WMA), and Dahomey NWR will be utilized for mitigation. In addition, on-site opportunities will be considered where available. Mitigation has been discussed and evaluated on a watershed basis. MDOT will contact property owners of potential mitigation sites adjacent to Dahomey NWR to identify willing sellers of such sites. Stream and wetland quality, functions, and values as determined above will be used in determining appropriate mitigation measures.

Comment: Water Quality Impacts: EPA notes the DEIS commits that MDOT will work with MDEQ to determine what pollution control measures should be adopted to advance the state's non-point source management plans in the project area...The status of development of Total Maximum Daily Loads (TMDLs) for any waterways in the study area should be identified in the FEIS and how the proposed project could affect implementation of restoration efforts in these

watersheds. Due to the presence of several impaired waterbodies in the area, we also request the opportunity to review and/or provide assistance in the development of an appropriate storm water management plan to ensure the effective control of polluted storm water runoff both during and after construction.

Response: MDOT's storm water management plan for the region, including TMDLs, has been accepted by the Mississippi Department of Environmental Quality.

Comment: Cumulative and Secondary or Indirect Impacts: One of the key purposes of the I-69 corridor is to promote economic development in the lower Mississippi Delta. However, induced growth created by the new proposed I-69 project will also result in additional environmental impacts. Although the document has effectively outlined potential locations of induced growth, there does not seem to be a comprehensive plan of how the resulting secondary impacts will be addressed...A watershed-based approach to protecting aquatic resources from secondary and cumulative impacts is needed. The FEIS should include the type of comprehensive information discussed in the aquatic resource comments regarding project impacts and mitigation so that an effective aquatic resource protection decision-making can be made. Conservation easements held by local governments should be considered once valuable aquatic resources are identified.

Response: The results of the additional economic studies performed by MDOT have been incorporated into the FEIS and will be used to further quantify indirect impacts. Indirect impacts have been minimized by selection of alignments and interchange locations for the alternatives, including the Preferred Alternative. Indirect impacts have been discussed in terms of watersheds.

Department of the Army- Vicksburg District, Corps of Engineers

Letter dated: January 7, 2005

Comment: We have reviewed all the information you have provided and have no specific comments to offer at this time. We will need a copy of the draft intensive cultural resource survey report that is to be conducted once the Preferred Alternative is chosen, and also an indication of how the tribal coordination is progressing.

Response: On December, 2005, a copy of the draft intensive cultural resource survey report was submitted to the Department of the Army. In addition, the Department was informed of the most recent tribal coordination.

7.2.2 State Agencies

Mississippi Department of Wildlife, Fisheries, and Parks

Letter dated: December 15, 2004

Comment: Our examination revealed that there was little discussion in the document of animal road crossings (especially bear crossings) in known corridors where there are streams and waterways or between adjacent wooded areas or other major pathways locally known as areas of high probable use by wildlife...The Black Bear for the Black Bear (*Ursus americanus*) is a species listed as Endangered by the State of Mississippi...The I-69 project seems to be an ideal project in which to incorporate such design features not only in the interest of wildlife conservation but automobile passenger safety and property loss as well.

Response: Animal road crossings have been evaluated and have not been incorporated into the project. Based on the location of the preferred alternative and the lack of large wooded tracts and corridors near the alignment, it has been determined that such crossings would not be effective. Potential wildlife crossings would be provided at locations where bridges will cross drainage areas. (See 4.15.3)

7.2.3 Native American Tribes

Jena Band of Choctaw Indians

Letter dated: December 3, 2004

Comment: After through review of the document submitted, it has been determined that there will be no significant impacts in regards to the Jena Band of Choctaw Indians.

Response: Coordination appreciated, and it is noted that there will be no significant impact to the Jena Band of Choctaw Indians.

Chapter 8

Agency Coordination and Public Involvement

Early coordination with appropriate agencies and interested citizens was accomplished through project scoping, regular meetings of the steering committee, and an extensive public involvement program. This section of the Final Environmental Impact Statement (FEIS) provides a summary of the agency coordination effort and public involvement process, as well as summaries of comments made at the citizens' public workshops. In addition, this FEIS also includes a summary of the comments from the corridor public hearing and the pre-hearing workshop.

8.1 Agency Coordination

8.1.1 Notice of Intent

The Federal Highway Administration (FHWA) is the lead Federal agency, in cooperation with the Mississippi Department of Transportation (MDOT). In accordance with the National Environmental Policy Act (NEPA), a Notice of Intent (NOI) to prepare a NEPA Environmental Impact Statement (EIS) was published in the Federal Register on May 9, 2001 (see **Appendix A**). No comments were received in response to the Notice of Intent.

8.1.2 Scoping Meeting

The initial coordination meeting, or scoping meeting, was held on July 11, 2001 at Clarksdale High School, a central location within the project study area. Prior to the meeting, the invitees were provided a map of the project's corridor study area and the agenda for the meeting. The invitees were requested to provide pertinent information in their areas of expertise to the project planners. Since the length of the study area is approximately 100 miles, optional field visits were conducted on Thursday, July 12, 2001. These field visits offered a tour and viewing of a portion of the project area. The field visits also offered the invitees an opportunity to locate their specific concerns for the project planners. The invitation to this meeting, the meeting's sign-in sheet, and the minutes from the July 11 meeting and the July 12 field visits are in **Appendix C**.

The initial scoping meeting had the following purposes:

- Obtain input from agencies/entities on what to avoid or take into account
- Provide means for early and frequent communication of inputs from those favoring or opposing acceptable alternatives
- Establish methods to facilitate and negotiate routes and alternatives
- Evaluate the need to change the project's scope of work based on inputs and comment sheets
- Initiate the scoping process by laying the groundwork for future meetings with specific agencies or groups

Eighty-nine representatives from the following agencies attended the July 11 scoping meeting:

- | | |
|---|---|
| • U.S. Environmental Protection Agency | • City of Cleveland |
| • Federal Highway Administration – Southern Resource Center | • City of Tunica |
| • U.S. Department of Agriculture Natural Resources Conservation Service | • Town of Ruleville |
| • U.S. Department of Agriculture Natural Resources Conservation Service – Tunica County | • Town of Beulah |
| • U.S. Army Corps of Engineers – Mississippi Valley Division | • City of Clarksdale |
| • U.S. Fish and Wildlife Service | • Sunflower County |
| • State of Mississippi House of Representatives | • Tunica County |
| • Arkansas State Highway and Transportation Department | • Leflore County |
| • Mississippi Department of Archives and History | • Bolivar County |
| • Mississippi Department of Transportation | • Coahoma County |
| • Mississippi Levee Board | • Yazoo Mississippi Delta Levee Board |
| • City of Greenwood | • Archaeological Conservancy |
| • City of Indianola | • Clarksdale Press Register |
| • Town of Benoit | • The Bolivar Commercial |
| • Town of Lula | • Delta Council |
| | • City of Cleveland-Rosedale-Bolivar County Port Commission |
| | • Great River Bridge Authority |
| | • Greenville Port Commission |
| | • Mississippi Space Commerce Initiative |

Approximately 20 representatives from the following agencies attended the July 12 field visits:

- U.S. Environmental Protection Agency
- Federal Highway Administration – Southern Resource Center
- Town of Benoit
- Cleveland-Bolivar County
- Bolivar County
- Sunflower County
- Tunica County

8.1.3 Request for Participation and Comments

A letter was sent on September 19, 2001 to the following federal and state agencies to request their participation in the study process as Cooperating Agencies and solicit comments on the proposed project. An asterisk (*) indicates those agencies that responded to the letter accepting Cooperating Agency status; copies of the invitation letter and the response letters are included in **Appendix B**. A second asterisk (**) indicates those agencies that initially accepted cooperating agency status and later declined that status.

Federal Agencies

- U.S. Department of Housing and Urban Development**
- U.S. Army Corps of Engineers*
- U.S. Fish and Wildlife Service*
- U.S. Department of Agriculture Natural Resources Conservation Service**
- U.S. Environmental Protection Agency*

State Agencies

- Mississippi Department of Archives and History*
- Mississippi Department of Wildlife, Fisheries, and Parks*
- Mississippi Department of Environmental Quality

8.1.4 Other Agency Meetings

In addition to the full agency scoping meetings and the steering committee meetings, the project team also coordinated with individual agencies as a part of the EIS process. These meetings fulfilled requirements of the NEPA/404 merger process and were scheduled as needed.

August 22, 2001

A letter was sent to Native American Tribes in the area inviting them to a coordination meeting on August 22, 2001. Since there was no Native American representation at the meeting, the meeting was cancelled. Two tribes, the Chickasaw Nation and the Cherokee Nation, declined to attend but sent letters thanking the FWHA for the invitation, and stating that they are not aware at this time of any culturally sensitive or sacred sites in or near the study area. However, they realize that the project could lead to the discovery of such sites. If such sites are uncovered, they expect the inadvertent discoveries to be brought to their attention immediately and all work at the site to cease according to applicable federal laws. Copies of the letters are included in **Appendix B**. The meeting invitation letter (located in **Appendix B**) was sent to the following tribes:

- Mississippi Band of Choctaw Indians
- Eastern Band of Cherokee Indians
- Cherokee Nation of Oklahoma
- Chickasaw Nation
- Choctaw Nation of Oklahoma
- Jena Band of Choctaw
- Muscogee (Creek) Nation
- Seminole Nation of Oklahoma
- United Keetoowah Band of Cherokee
- Eastern Shawnee Tribe of Oklahoma
- Quapaw Tribe of Oklahoma
- Tunica-Biloxi Indians of Louisiana

August 29, 2001

The second coordination meeting was held on August 29, 2001 between Kimley-Horn and Associates, Inc. and the U.S. Environmental Protection Agency. During this meeting, the EPA provided the project team with additional mapping data for the I-69 project, including Primary Ecological Areas (PEA), which are areas of ecological significance. Meeting minutes are in **Appendix C**.

April 2, 2002

A third coordination meeting was held at MDOT offices on April 2, 2002. The purpose of this meeting was to update the Cooperating Agencies, as well as other key governmental agencies and interested Native Americans, on the status of the project and to obtain the agencies' input on the alternative alignments being studied. Prior to the meeting, the invitees were provided with a map

of the alternate alignments, an environmental screening analysis of the alignments, and a copy of the Draft Purpose and Need statement. The minutes for the April 2, 2002 meeting are in **Appendix C**. Of the 18 agencies that were invited to meet with the project team, representatives from nine attended the meeting, for a total of 31 attendees. The agencies that were invited are listed below.

Attended

- Federal Highway Administration
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture Natural Resources Conservation Service
- Mississippi Department of Wildlife, Fisheries, and Parks
- Mississippi Department of Archives and History
- Mississippi Department of Transportation
- Arkansas Highway and Transportation Department

Did Not Attend

- U.S. Department of Agriculture Forest Service
- U.S. Department of Housing and Urban Development
- Mississippi Department of Environmental Quality
- Mississippi Soil and Water Conservation Commission
- Choctaw Nation of Oklahoma
- Jena Band of Choctaw
- Chickasaw Nation
- Quapaw Tribe of Oklahoma
- Tunica-Biloxi Indians of Louisiana

May 8, 2002

The fourth coordination meeting was held at the MDOT on May 8, 2002, and was attended by approximately 26 people. The purpose of the meeting was to provide a status report and present a recommendation for the alternative corridors to MDOT and FHWA for approval. Meeting minutes are in **Appendix C**.

September 4, 2002

The fifth and sixth coordination meetings were held on September 4, 2002, with field visits scheduled for September 5, 2002. The purpose of both meetings was to update the invitees on the

status of the project and to obtain their input on a limited number of merited alternative corridors. The minutes for both meetings are in **Appendix C**. The fifth meeting was the Mayors-County Supervisors meeting. The agencies that were represented included:

- Federal Highway Administration
- Mississippi Department of Transportation
- U.S. Department of Housing and Urban Development, Delta Initiatives
- City of Cleveland
- Coahoma County
- City of Shaw
- City of Greenville
- City of Mound Bayou
- City of Clarksdale
- Tunica County

February 11-13 2004

The sixth coordination meeting was the Agency-Native American scoping meeting, and was attended by representatives from the following agencies:

- Federal Highway Administration
- Mississippi Department of Transportation
- U.S. Department of Agriculture Natural Resources Conservation Service
- U.S. Environmental Protection Agency
- U.S. Corps of Engineers
- Mississippi Department of Archives and History

On February 11-13 2004, in accordance with the formal consultation process described in 36 CFR 800, MDOT, in conjunction with the Tennessee Department of Transportation (TDOT), hosted a Native American Conference. The purpose of the conference was to coordinate with Native American tribal representatives who could possibly identify properties of importance to Native Americans, as well as properties to which one or more tribes may attach religious or cultural significance, relative to the alternatives undergoing further study for SIU 9 and SIU 11. To provide a good cross section of representation for the issues involving the natural and human environments, some Federal and State Cooperating Agencies were invited to send representatives. The conference was attended by representatives of the following agencies, tribes, and consultant teams:

- Federal Highway Administration
- Mississippi Department of Transportation
- Tennessee Department of Transportation
- Mississippi State University
- Mississippi Band of Choctaw Indians
- Choctaw Nation of Oklahoma
- Chickasaw Nation
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Department of Housing and Urban Development
- U.S. Fish and Wildlife Service
- Mississippi Department of Archives and History
- PBS&J
- Neel-Schaffer, Inc.
- Kimley-Horn and Associates, Inc.
- Coastal Environments, Inc.

Bad weather conditions prevented the representative of the Quapaw Tribe of Oklahoma from attending the conference. Excluding the 22 representatives from the MDOT, TDOT, FHWA, and consultant teams, 13 persons attended the conference. Minutes for this meeting are contained in the **Appendix C**.

The main concern expressed by the Native Americans at the Conference, and on the field visit, was the area adjacent to US 61 in the vicinity of the US 49 intersection at Lula. It was agreed at the Conference that the consultant team would review and refine the alternatives, if necessary, near this intersection. It was also agreed that the consultant team would provide the Native Americans with a copy of the alternative mapping for the alternatives undergoing study in the Draft Environmental Impact Statement (DEIS).

January 21, 2005

To assist in EPA's review of the DEIS, the project team met with the appropriate EPA staff in its Regional Office in Atlanta, Georgia. The project team, including FHWA and MDOT representatives, provided a broad scope overview of the project, addressed the study approach and project status, discussed the identification of the alternatives' natural environmental issues, Environmental Justice and Community Outreach, development and refinement of alternatives, and addressed any questions from EPA.

Other topics discussed were the public hearings, the actions taken since the public hearings, the Environmentally Preferred Alternative, and what the project team believed would be the alternative recommended to the MDOT Technical Staff for approval. The following was addressed as the environmentally Preferred Alternative and the alternative the project team intended to recommend to the MDOT Technical Staff for approval:

- In the South Section, between Benoit and Clarksdale, the Central Alternative would be the Preferred Alternative and would take the Lake Vista crossing of SR 1;
- In the Middle Section, between Clarksdale and the Lula area, there is only one study alternative; this would be the Preferred Alternative;
- Between the Lula area near the Welcome Center and the interchange at Dubbs Road in the southern part of Tunica County, there are two alternatives. The Western Alternative would be recommended if the archaeological problems could be overcome. The Central Alternative would be recommended if archaeological problems could not be overcome; and
- Between the Dubbs Road Interchange and the SR 304 Spur east of Robinsonville, the Central Alternative would be the environmentally Preferred Alternative and the alternative that would be recommended to the MDOT Technical Staff for approval.

FHWA and MDOT emphasized that it was possible that there might be problems with the approval process internally within the MDOT on the Recommended Preferred Alternative. Before the Recommended Preferred Alternative is processed to the FHWA for approval, a recommendation would first need to be approved by the MDOT Technical Staff and then by the MDOT Transportation Commission. It was stated that if the described alternative was not approved by the MDOT Technical Staff and the MDOT Transportation Commission, then EPA would be notified and another meeting with them would be scheduled. Meeting minutes are in **Appendix C**.

February 3, 2005

A meeting was held with the Mississippi Department of Archives and History (MDAH) in the MDOT Environmental Division Conference Room to discuss the project's archaeological study issues particularly relating to the Western Alternative in the Northern Section near the Welcome Center and the Central Alternative in the Middle Section at the Coahoma-Jonestown Interchange.

Representatives from Coastal Environments discussed the known archaeological sites along the Western Alternative in the vicinity of the Welcome Center, and that the shared Central and Eastern alternative between Lula and Dubbs Road had been studied and adjusted to produce an

acceptable alignment from an archaeological perspective. It was determined that the known archaeological sites for the Western Alternative along US 61 in the vicinity of the US 49 intersection near the Welcome Center were too important and the probability of burial occurring in these sites too high to continue the possibility of using the Western Alternative in this area. Therefore, a decision was made to use the Central Alternative in the Northern Section as the alternative that would be recommended to the MDOT Technical Staff as the Preferred Alternative segment.

In addition, modifications proposed for the Central Alternative in the Middle Section at the Coahoma-Jonestown Interchange were also discussed. The modified concept was developed to better accommodate the interchange's traffic, to lessen the farmland impacts caused by the original concept, which offset the interchange north of the crossroad to avoid all the archaeological sites, and to create an interchange that would align with the crossroad in a manner that would avoid as much of archaeological sites as possible. The MDAH representatives reviewed the modified concept and gave their concurrence to the modified concept. Meeting minutes are in **Appendix C**.

February 16, 2005

This meeting was to present the Recommended Preferred Alternative to the MDOT and FHWA Technical Staff and to receive the staff's support for presenting the Recommended Preferred Alternative to the MDOT Transportation Commission for the Commission's approval. The Commission's approval is needed to advance the project to the next level of completing the remaining studies on the Preferred Alternative, preparing the Final Environmental Impact Statement, and obtaining a Record of Decision (ROD) to complete the study.

Each person attending the meeting's attendance was registered and every attendee received a handout developed to supplement the presentation. Displays were placed on easels as an aid to the power point presentation.

The presentation was developed in a manner that first provided minimal background information and then presented the Recommended Preferred Alternative in key segments controlled by major issues. The following were presented:

- A Study Area Map and the General Approach to the Study – Up to three alternative routes would be studied from near Benoit to near Robinsonville. Special emphasis would be made on Economic Enhancement and Environmental Justice. Some of the additional critical study issues assessed were archaeology, natural resources, and farmland impacts.
- A Map of the Refined Alternative Corridors and Comments on Critical Environmental Issues – The Dahomey National Wildlife Refuge in the southwest corner of the study, the natural resource concerns in the north part of the study area, and the archaeological and Native American concerns were identified as being critical issues.
- A Map of the Study Alternatives in the Benoit and Dahomey National Wildlife areas Identifying the Recommended Preferred Alternative as the Eastern (Green) Alignment – This alternative segment uses the Eastern Alternative from the connecting point to the adjacent study on Section of Independent Utility 12, the southern crossing of SR 1 near Lake Vista, and joins the Central Alternative south of the Dahomey National Wildlife Road between SR 448 and Litton Road. Some advantages of this Recommended Preferred Alternative Segment are: it is about \$4 million cheaper than other alternatives; it has the least number of impacted landowners; it is closer to Greenville; and, it has fewer environmental impacts. A disadvantage of this Recommended Preferred Alternative Segment is it is further from Benoit, Rosedale, and the Port of Rosedale.
- A Map of the Study Alternatives for Widening SR 8 to Four Lanes Between Cleveland and Rosedale and Comments on the Recommended Preferred Alternative for Accomplishing this Widening – The Recommended Preferred Alternative is to have a five-lane section extended west of Cleveland to a point west of the new I-69 Interchange with the Central Alternative. West of that interchange the roadway would transition to a four-lane divided section and remain this way until the eastern edge of Pace where the roadway would transition to a five-lane section through the built-up area of Pace. The Recommended Preferred Alternative would then transition back to a four-lane divided section to a point slightly east of Rosedale where it would then transition to a five-lane section and remain a five-lane section to the intersection with SR 1.
- A Map of the Study Alternatives in the Cleveland Area and Comments That the Central Alternative Segment is the Recommended Preferred Alternative Segment – The Central Alternative Segment is the Recommended Preferred Alternative Segment for the following reasons: it is about \$60 Million cheaper than the other alternatives; it has the least overall environmental impacts; it is a more direct route for the interstate motorist; and, it was preferred by 82% of the public attending the recent public hearings, including all the cities and towns along US 61 in Bolivar County north of Cleveland. Some disadvantages of using the Central Alternative Segment in this area are: it impacts more prime farmland; and converting US 61 to I-69 would be more disruptive to traffic during construction.
- A Map of the Cleveland Area and a Chart Addressing a Comparison of the Modified Eastern Loop Alternative around Cleveland with the Modified Central Alternative to the West of Cleveland – This comparison was needed to respond to requests received from landowners and the Bolivar County Chamber of Commerce after the public hearings. The comparison showed the Modified Eastern Loop Alternative Segment with the Connector to SR 8 West is not a better alternative than the Modified Central Alternative Segment. The modified Eastern Loop with the SR 8 Connector is estimated to impact 46 more property owners, require the relocation of seven more residents and two more businesses, has 19 more current residents that would be living within ¼ mile of the corridor, has 76 more residents that would be living within ½ mile of the corridor, and would cost approximately \$80 Million more than the Modified Central Alternative.

Some advantages of the Modified Central Alternative relative to the Eastern Loop Alternative with the SR 8 Connector are: it is a shorter and more direct route; it has less construction cost; it impacts fewer property owners; it has fewer relocation impacts; it would have less residents living within close proximity of the corridor. Some advantages of the Eastern Loop Alternative with the SR 8 West Connector relative to the Modified Central Alternative are: it passes closer to the existing infrastructure, and it has less impact to prime farmland. A disadvantage of the Eastern Loop Alternative with the SR 8 West Connector is it impacts an existing minority area southeast of Cleveland. The comparison of these two alternative segments did not take into account the major impacts the Eastern Loop Alternative would have on a planned residential subdivision and golf course development that would be located on the south side of SR 8 within the proposed right of way limits at this interchange location. Adjusting the interchange to the west to avoid impacting most of this planned subdivision would also require relocating SR 8 to the north on a parallel county road and placing the interchange access all on the north side of the relocated county road. Based on the analysis made of the Modified Central Alternative Segment with the Central Alternative Segment presented at the public hearings, the modified segment appears to be an improvement. The project team is recommending that the Modified Central Alternative segment be advanced to the same level of study as that accomplished on the Central Alternative. If the study verifies the Modified Central Alternative segment is indeed better, the project team recommends it replace that portion of the Central Alternative that was presented to the public at the recent hearings. The Modified Central Alternative is the project team's Recommended Preferred Alternative Segment between the Dahomey National Wildlife area and Clarksdale.

The project team concluded the presentation by stating that the recommended Preferred Alternative for SIU 11 is the Modified Central Alternative, which would use the Eastern Alternative crossing of SR 1 near Lake Vista. Following the presentation, MDOT and FHWA Technical Staff asked the project team questions about the project. MDOT Technical Staff stated that further time was needed to consider the recommendation. The meeting minutes, including questions asked at the meeting, are included in **Appendix C**.

August 13, 2008 Meeting and Follow-up Actions

The MDOT and the Mississippi Division Office of the FHWA conducted Cooperating and Participating Agency Coordination Meetings on multiple projects at the MDOT in Jackson on August 13-14, 2008. The goals of the meetings were to address the status of each of the studies and to discuss any special issues or concerns of the agencies. The meeting for this study on SIU 11 of I-69 was held during the morning of August 13th.

A copy of the Final EIS for review and an approval form for the Cooperating Agencies to sign were provided to each Cooperating Agency contact prior to the meeting on August 13th. With the exception of the U.S. Department of Housing and Urban Development, all Cooperating

Agencies in this study sent representation to the meeting. The Cooperating Agencies present were:

- the U.S. Environmental Protection Agency;
- the U.S. Army Corps of Engineers;
- the U.S. Fish and Wildlife Service;
- the U.S. Department of Agriculture – Natural Resources Conservation Service;
- the Mississippi Department of Wildlife Fisheries and Parks; and,
- the Mississippi Department of Archives and History.

Other agencies and organizations represented at the meeting included the Mississippi Department of Environmental Quality; the Federal Highway Administration; the MDOT Environmental Division; the MDOT Roadway Design Division; the MDOT Second District; the MDOT Third District; and, Neel-Schaffer, Inc.

MDOT Environmental Division Engineer Claiborne Barnwell presented a power point presentation on the study's history. His presentation addressed: purpose and need; status of the adjoining SIU 10 and SIU 12; project goals; development of alternatives and constraints; public, agency, and Native American involvement in the development of the alternatives; revisions made in the alignments of the alternatives to avoid natural and human environmental impacts; a follow-up independent economic study comparing benefits of the alternatives; the selected Preferred Alternative; that the selected Preferred Alternative is also the Environmentally Preferred Alternative; a summary of the alternatives' impacts; mitigation of impacts; and, the environmental commitments.

MDOT Staff Archaeologist John Underwood made a presentation on the study's archaeological findings and the steps taken in the alternative development to reduce the number of impacted sites.

Table S-1 and **Table S-2** were referred to by Mr. Barnwell in summarizing the impacts of the study alternatives and the Preferred Alternatives for I-69 and SR 8. Ms. Ntale Kajumba, the EPA representative, and Ms. Susan Jarvis, the Corps of Engineers representative, suggested improving **Table S-1** and **Table S-2** in the Final EIS to better explain the Preferred Alternative impact changes that had occurred since the Central Alternative was selected as the Preferred Alternative after the public hearings. It was also suggested that more current estimated costs should be shown in these two tables and/or addressed in their footnotes.

In response to the requests by Ms. Kajumba, Ms. Jarvis, and others, Mr. Barnwell advised **Table S-1** and **Table S-2** in the Final EIS would be updated to better address their concerns.

At the conclusion of the meeting, Mr. Barnwell requested the Cooperating Agency contacts provide their signed approval sheets along with any comments to the MDOT as soon as possible. The U.S. Fish and Wildlife representative brought that agency's signed approval sheet to the meeting and gave it to the project team at the meeting. A copy of that signed approval sheet is contained in **Appendix B**.

In the weeks after the meeting, signed approval sheets without cover letters and one with a cover letter that did not require a response were received from the following Cooperating Agencies: the U.S. Army Corps of Engineers; the Mississippi Department of Wildlife, Fisheries, and Parks; and, the Mississippi Department of Archives and History. A copy of each of these three approval sheets and the U.S. Army Corps of Engineers cover letter is contained in **Appendix B**.

After the meeting, the MDOT contacted the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) regarding signing their Cooperating Agency Approval Sheet. The USDA-NRCS referenced a previous letter mailed to the Mississippi Division Office of the Federal Highway Administration dated July 11, 2008. The letter stated in part: “After reviewing the document, NRCS has determined that no WRP easements will be impacted by the preferred alternative. Since the agency will not be impacted, we have no reservations with the project and request to be removed as a cooperating agency.” A copy of the July 11, 2008, letter and the unsigned approval sheet is contained in **Appendix B**.

As stated previously, the U.S. Department of Housing and Urban Development (HUD) did not send representation to the meeting. After the meeting, Mr. Barnwell contacted HUD and was informed that their representative in the study retired and was not replaced. They stated that HUD had no interest in continuing as a cooperating agency in the study. A copy of their unsigned approval sheet is contained in **Appendix B**.

The one remaining original cooperating agency whose approval of the Final EIS needs addressing, is the U.S. Environmental Protection Agency (EPA). The EPA signed their approval

sheet and provided suggested comments for inclusion in the Final EIS or Record of Decision (ROD). A copy of the EPA's signed approval sheet is contained in **Appendix B**.

Based on the actions taken in response to this Cooperating Agency Meeting, the approval sheet at the front of this document was revised to two sheets. The first sheet lists the following as Cooperating Agencies: U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; Mississippi Department of Wildlife, Fisheries, and Parks; and, Mississippi Department of Archives and History. The second sheet contains the scanned approval signatures.

The comments EPA suggested for consideration in the Final EIS after the August 2008 meeting were mainly listed under the categories of Aquatic Resources, Noise, Alternatives, or Summary of Impacts. The meeting minutes, which are contained in **Appendix C**, provide detailed information on the comments EPA provided after the meeting and the MDOT response to the EPA's suggested comments. **Table 8-1** was developed in response to an EPA request for identifying known hydraulic bridge crossings in the Final EIS.

**Table 8-1
Proposed Interstate 69
Section of Independent Utility 11
Probable Bridge Locations Over Waterbodies**

County	Waterbody	Segment (See Appendix G)	Approximate Location by Station Number (See Appendix G)
Bolivar	Lake Bolivar	B1-1	265+00
Bolivar	Straight Bayou	B1-2	485+00
Bolivar	Clear Creek	B2-1	630+00
Bolivar	Stillwater Bayou	B2-1	805+00
Bolivar	Bogue Phalia Tributary	B10-1	889+00
Bolivar	Bogue Phalia Dam	B10-1	906+00
Bolivar	Bogue Phalia	B10-1	931+00
Bolivar	Bogue Hasty	B10-1	1000+00
Bolivar	Hushpuckena River	B15-4	2545+00
Bolivar	Alligator Lake	B15-5	2835+00
Bolivar	Bogue Phalia	SR 8 Widening	506+00
Bolivar	Unnamed Tributary	SR 8 Widening	564+00
Coahoma	Harris Bayou	C2-1	135+00
Coahoma	Yazoo Pass	C7-2	1615+00
Coahoma	Muddy Bayou	C9-1	1810+00
Tunica	White Oak Bayou	T4-2	852+00
Tunica	Jack Lake Bayou	T4-2	1060+00
Tunica	Lost Bayou	T5-2	1480+00
Tunica	Beaver Dam Lake	T5-2	1538+00
Tunica	Big Six Ditch	T5-2	1600+00
Tunica	Beaver Dam Lake	SR 304 Spur	150+00
Tunica	Big Six Ditch	SR 304 Spur	204+00

Source: Neel-Schaffer, Inc. 2004, 2008.

The MDOT response also resulted in the following environmental commitments being added to this Final EIS.

- There are several existing bridges that will not be reconstructed in the initial construction phase; however, should any of these bridges be modified, consideration will be given for eliminating use of scuppers. Scuppers will not be included in the bridge designs for the proposed interstate except where determined to be the only practical way to safely handle the drainage.
- During design, a commitment will be included to consider the construction of detention/retention ponds for stormwater run-off where such a system would make a measurable difference in water quality, function without mechanical components, and require reasonable degree of maintenance.

- To accommodate aquatic and aquatic dependent fish and wildlife movement and migration installation of culverts will include inverted designs. Flat grades and low velocities of channel flow in conjunction with the soil types in the Delta will create a natural substrate by siltation in a very short time. Therefore, the gravel substrate would not provide any useful benefit.
- Impacted streams will be mitigated as part of the 404/401 permit process. In accordance with the EPA's suggestions, it is anticipated that mitigation would consist of restoration of streams within the same watershed using a ratio to be determined through negotiation between MDOT and permitting agencies.

In a letter to the EPA dated March 25, 2009, the MDOT advised the EPA of the format chosen for addressing the comments EPA provided in response to the meeting held on August 13, 2008. A copy of the MDOT letter is contained in Appendix B. The attachment to the MDOT letter was the documentation of the minutes and follow-up actions for the meeting held on August 13, 2008. As previously mentioned, **Appendix C** contains a copy of the documentation that was attached to the MDOT letter.

8.1.5 Coordination with FHWA and Other State DOTs

The project team joined in conferences with the FHWA and other state Departments of Transportation to discuss the background and environmental process for all I-69 projects, and coordinated with resource agencies regarding requirements and data. The FHWA led the conferences, which it viewed as a large scale scoping meeting.

The first joint I-69 conference was held August 16 and 17, 2001. Topics discussed included the national I-69 purpose and need, an overview of the NEPA completion and approval process, and coordination with federal and state agencies. It was emphasized that each of the I-69 segments should meet state and local needs as well as the national purpose. Presentations were made by the Indiana DOT and Mississippi DOT, as well as by federal and regional EPA representatives, the Corps of Engineers, and the U.S. Fish and Wildlife Service. The goal of this conference was to establish a process for all I-69 segments that will be collaborative, where each project team will work with each other and federal and state agencies to develop consensus in procedural decisions, utilize resources efficiently, and complete the national I-69 project successfully. Meeting minutes are in **Appendix C**.

The second I-69 NEPA coordination meeting was held in Robinsonville, Mississippi on July 23, 2002, and was attended by representatives from Indiana, Kentucky, Tennessee, Mississippi,

Arkansas, Louisiana, and Texas. Topics included balancing the national perspective with state and local needs, facilitating economic development along the corridor, environmental justice, and a cost/benefit discussion. Status report presentations were delivered by the states attending or their designee.

8.2 Public Involvement

A public involvement plan was developed at the initiation of the study process, and was updated throughout the process. The public involvement plan included use of several communications media as well as meetings scheduled at various points during the study. These communications media and meetings are described in the following sections.

8.2.1 Mailing List

A computerized mailing list consisting of elected officials, civic and business groups, local governmental agencies, and interested citizens was compiled at the beginning of the study and continually updated throughout the study process. The mailing list, as well as announcements in local newspapers, was used to notify the public of the study's initiation, progress, and proposals. Dates, times, and locations of the citizen's informational meetings also were announced through direct mailing and local newspaper announcements. At the time of the DEIS preparation, the list contained 674 names.

8.2.2 Newsletters and Brochures

A project brochure was distributed to the public at the initial citizens' informational workshops. The brochure presented the project history and assignment in an informative question-and-answer format. Instructions on how to obtain additional project information also were included in the brochure. Following the first public meetings, a folder was created that included the brochure and other updated project information that was added throughout the process. Information added to the folder may include fact sheets, press releases, maps, analysis spreadsheets, and comment sheets. A copy of the brochure is in **Appendix D**.

8.2.3 Citizen Questions and Comments

Citizens had the opportunity to contact the project team with questions or comments throughout the project process. Contact information was located on newsletters and on the website under the “Contact Us” link. Phone number, address, and email address was given for Neel-Schaffer and for Claiborne Barnwell of the MDOT Environmental Division. Comments received from newsletters or brochures are contained in **Appendix D**.

8.2.4 Project Website

The project website, <http://www.msdoti69.com>, was established in September 2001, and has been advertised in project publications and at public meetings since that time. The website includes a history of the project, frequently asked questions, project news, links to other I-69 corridors, and contact information. See **Appendix D** for samples of pages from the website.

8.2.5 Environmental Justice Task Force - Community Outreach Program

8.2.5.1 Environmental Justice Task Force Meetings

The Task Force was composed of representatives and citizens of Tunica, Coahoma, Bolivar and Sunflower Counties. An example of an invitation letter sent to an interested citizen is in **Appendix D**. Fifteen citizens attended the Bolivar/Sunflower County combined group meeting on March 5, 2002; the Coahoma County group met on March 6, 2002, with 10 attendees; and in Tunica, the group met on March 7, 2002, with a total of 11 in attendance. Project officials updated the citizen groups, and explained the purpose of the meetings. Attendees were then given a questionnaire that asked them to address any community, social, and economic issues in their community or county.

October 21, 2002

The Tunica County Task Force conducted its second meeting during lunch at the Tunica County Chamber of Commerce Office for the following reasons:

- To update this county group on the status of the study;
- To provide the county group a report on the format of a meeting that would be held later that day with area residents concerning the location of study alternatives from Prichard Road to the northern limit of the project; and,

- To provide this group an opportunity for input through asking questions and making comments in a small, informal environment.

As the Tunica County Task force received their update, members of the Tunica County Task Force made a few comments and asked the project team some general questions. After the project team completed the update and the members of the task force did not have any more questions or comments, several task force members expressed their appreciation for the update. There were not any requests made by members of the task force at this meeting for the project team to study additional alternatives. In general, the task force continues to support the alternative that passes just east of the airport, crosses Prichard Road just west of Oak Grove M.B. Church, crosses Verner Road west of Bonds Road, turns east near Robinsonville to parallel SR 304 to the south, continues east across SR 3 and the railroad, and then turns north to cross SR 304 to connect with the spur at the north end of the project.

Several task force members advised they planned to attend the Special Tunica County Meeting scheduled for later that day, and several task force members also stated they hoped the later meeting would satisfactorily address the attendees' questions, problems, and concerns about the alternatives recommended for further study.

January 29, 2003

The Bolivar/Sunflower County Task Force conducted this dinner meeting at Crawdad's Restaurant in Merigold. The purpose of the meeting was to update this joint two county task force on the status of the project and to obtain their input on the alternatives presented for detail study in the Draft EIS.

Invitation letters were mailed approximately two weeks prior to the meeting. Including the representatives from the MDOT, the FHWA, and the consultant team, there were 26 people who registered their attendance at this meeting.

The meeting opened with welcoming and opening comments by the consultant team and the MDOT. Everyone in attendance was then asked to provide a brief self introduction and during their introduction to state their association with the project. The attendees were advised an informal format would be used for the meeting, and aerial photography mapping displays of the alternatives recommended for further study were available for the attendees to view, ask

questions and make comments. The attendees were encouraged to submit their comments by using a comment form that was provided for them at the meeting.

The Bolivar/Sunflower County task force did not recommend adding other alternatives to the study. The members of the task force continue their overall support of the project. However, most of this joint county task force's Bolivar County members support an alternative that crosses SR 8 west of Cleveland, while the Sunflower County members support an alternative that crosses SR 8 east of Cleveland.

There was not much discussion concerning the Central Alternative north of Merigold. This was probably due to that alternative being discussed in such detail earlier in the day at the Highway 61 – North Bolivar County Mayors Meeting. There was also not much discussion concerning eliminating the Western Alternative from further study because that alternative blocks the planned westward expansion of the Dahomey NWR to the Mississippi River. There were not any major expressions of interest for or against the modified western alignment that crosses SR 8 west of Cleveland at the same location as the Central Alternative. That modified western alignment, after crossing SR 8, proceeds northwest on new location to connect to the western alternative near SR 444.

There was a request to move the shared crossing of SR 8 west of Cleveland, currently used by the Central and modified Western Alternatives, farther west. The interchange proposed at the current crossing is just east of Shaw-Skene Road, and the current conceptual design for the interchange does not impact the new water well and water tank on Shaw-Skene Road south of SR 8. Kimball Lake is a horseshoe type drainage area that begins to the north and south of SR 8 at a point approximately halfway between Shaw-Skene Road and the Bolivar County Correctional Facility. The next possible crossing point to the west for an interchange would be halfway between the Bolivar County Correctional Facility and the easternmost natural gas pipeline substation. An interchange at this location would have the Bolivar County Correctional Facility in the northeast quadrant, a natural gas pipeline substation in the northwest quadrant, and be bordered by Kimball Lake to the north and south of SR 8. There is another pipeline substation farther west at the western limits of Kimball Lake. For these reasons, this request to move the current crossing of SR 8 farther west was not explored.

At the conclusion of the meeting, the attendees were reminded to provide their comments in writing to the project team. Two comment forms were received from this meeting's attendees, and both of the forms were from Sunflower County residents expressing support for the crossing of SR 8 east of Cleveland. For further details on this meeting, see the minutes contained in **Appendix D**.

January 30, 2003

This meeting at Coahoma County Chamber of Commerce in Clarksdale was held to update this county task force on the status of the project and to obtain their input on the alternatives presented for detail study in the Draft EIS.

Invitation letters were mailed approximately two weeks prior to the meeting. Including the representatives from the MDOT, the FHWA, and the consultant team, there were 19 people who registered their attendance at the meeting.

The meeting opened with welcoming and opening comments by the consultant team and the MDOT. Everyone in attendance was asked to provide a brief self introduction and during their introduction to state their association with the project. The attendees were advised an informal format would be used for the meeting, and aerial photography mapping displays of the alternatives recommended for further study were available for the attendees to view, ask questions and make comments. The attendees were encouraged to submit their comments by using a comment form that was provided for them at the meeting.

The Coahoma County Task Force appeared pleased with the alternatives, and they did not recommend adding other alternatives to the study. One of the issues discussed was how the interstate would be accessed from the existing network of county roads, state and Federal highways. Another issue discussed was a concern about coordination of the location of I-69 with the planned City of Clarksdale Airport Expansion.

At the conclusion of the meeting, the attendees were reminded to provide their comments in writing to the project team. However, they chose not to submit any written comments. For further details on this meeting, see the minutes contained in **Appendix D**.

8.2.5.2 Public Meetings and Citizen Informational Workshops

September 24-27, 2001

Four initial, identical public meetings were held to discuss the proposed Interstate Highway 69 (I-69) during the week of September 24, 2001. Locations for the four meetings included Benoit, Cleveland, Clarksdale, and Tunica. Information was given on potential corridor alternatives and combinations of segments throughout the project area. Information packets were provided to each participant in the meeting discussing the goals, advantages, and possible corridor segments for the I-69 project. The meeting minutes are contained in **Appendix D**.

July 16-18, 2002

Three additional public meetings were held the week of July 15, 2002 in Clarksdale, Cleveland, and Tunica. Information was provided concerning the 1,000 feet wide alternative corridors, and mapping of known natural and human environmental features within 1,000 feet of the proposed segments. Information packets were provided to each participant in the meeting discussing the goals, advantages, and possible corridor segments for the I-69 project. The meeting minutes are contained in **Appendix D**.

April 30- May 1, 2003

The third set of public meetings was held the week of April 30, 2003. Locations of the meetings included both Cleveland and Clarksdale. Information was provided on the refined 450 feet wide alternative corridors recommended for study in the Draft Environmental Impact Statement. Also, steps were taken to explain to the public the process of deciding on a preferred alternative for the I-69 project. The meeting minutes are contained in Appendix D.

October 21, 2002

This Special Tunica County Meeting – concerning the location of study alternatives at the crossings of Prichard Road and Verner Road, and the location of the study alternatives relative to Oak Grove M.B. Church and Bonds Road – was held as scheduled at the Greater New Saint Paul Church for the following reasons:

- To inform the people living in this area or attending Oak Grove M.B. Church that the location of the I-69 alternative corridor receiving the most favorable comments in this portion of the County could impact their residence or pass near their church;
- To address these people's questions, problems, and concerns; and,

- To provide these people an opportunity to furnish their written comments.

The Special Tunica County Meeting was well advertised by letters to key community contacts, placing flyers in nearby community gathering places, and by making an announcement at the Oak Grove M.B. Church. Including the MDOT, FHWA, and consultant team representatives, there were 74 attendees at the meeting.

Aerial photography mapping of the alternative corridors under consideration was provided for the attendees to better understand the location of the alternatives. For the alternative that had received the most favorable comments at previous meetings, the people with concerns related to the church were advised an interchange would be provided for that alternative at Prichard Road without directly impacting the church or the adjacent cemetery. Upon learning this, the people with concerns about the church property appeared satisfied.

Most of the remaining comments about the alternative that had received the most favorable comments at previous meetings concerned the residences that would be relocated at that alternative's crossing of Verner Road and the noise impacts to remaining residences on Verner Road and Bonds Road. After the alternatives were further refined, it was agreed a follow-up meeting would be conducted to better identify the potential relocates on Verner Road and to address the noise concerns of Verner Road and Bonds Road residents.

Six written comments were received in response to the meeting. The comments were all from people who wanted to be relocated from this area prone to flooding, and a couple of the comments were from people who asked relocation assistance questions. For further details on this meeting, see the meeting minutes in **Appendix D**.

January 29, 2003 (Special Benoit Meeting)

This special meeting was conducted in the morning at the Ray Brooks School near Benoit for the following reasons:

- To update the Ray Brooks School, community, and farming contacts in the Benoit area on the project's status; and,
- To receive these contacts input on the alternatives presented for detail study in the Draft Environmental Impact Statement (EIS).

The attendees at this meeting were able to view maps of the alternatives in the Benoit area and discuss the alternatives with representatives of the MDOT, the FHWA, and the consultant team. Including the project team representatives, there were 17 attendees at the meeting. Most of the discussions concerned the alignments from SR 1 west to the connecting point of the adjacent study that HNTB Corporation is conducting on Section of Independent Utility (SIU) 12. Public comments regarding the HNTB meeting can be found in **Appendix D**. The following concerns from SR 1 west to the connecting point on the adjacent study were expressed: separation of farmland and potential farmland access issues, seep water from Mississippi River, maintaining drainage, school safety and increased noise at school.

The farming interests at this meeting requested that consideration be given to adding a southern alternative that would cross SR 1 between the Ray Brooks School and Scott near an area known as Lake Vista. In response, it was agreed at the meeting that the SIU 11 consultant team would conduct a sufficient study to determine if this requested alternative should be added to the study. For further details on this meeting, see the minutes contained in **Appendix D**.

January 29, 2003 (Bolivar County Mayors Meeting)

This special luncheon meeting was conducted at Crawdad's Restaurant in Merigold for the following reasons:

- To update the mayors of municipalities along US 61 between Merigold and Alligator on the status of the study; and,
- To obtain the mayors' input on the alternatives presented for detailed study in the Draft EIS.

Invitation letters to the mayors of Merigold, Mound Bayou, Winstonville, Shelby, Duncan, and Alligator were mailed approximately two weeks prior to the meeting. The 19 attendees at the meeting included most of the invited mayors, several municipal employees, the President of the Bolivar County Board of Supervisors, a couple of concerned citizens, and project team representatives from the MDOT, FHWA, and consultant team.

The meeting opened with welcoming and opening comments by the consultant team and the MDOT. Everyone in attendance was then asked to provide a brief self introduction and during their introduction to state their desires for the outcome of the project. All the mayors and local officials want an alignment closest to their municipality because they believed such an alignment

would provide the greatest economic impact. All of these officials expressed their support for the alignment that converts existing US 61 to I-69.

The attendees were provided an opportunity to view aerial photography mapping of the alternatives recommended for further study in the Draft EIS and to ask questions and make comments. Most of the discussions concerned the Central Alternative, which would convert as much of existing US 61 as possible into I-69. The consultant team explained a concept that would be used to construct the Central Alternative. During the discussion of the concept, questions were asked concerning potential interchange locations and how these six municipalities would be accessed from the interchanges.

At the conclusion of the meeting, the attendees were asked to provide their comments in writing to the project team. Two comment forms were received from this meeting's attendees, and both of the forms were from local officials who supported the Central Alternative. For further details on this meeting, see the minutes contained in **Appendix D**.

January 30, 2003

This meeting was conducted at the Tunica County Economic Development Building as a follow-up to the meeting held at Greater New Saint Paul Church in Tunica County on October 21, 2002. The purpose of this follow-up meeting was to update the Oak Grove Church members and residents in the areas surrounding Bonds Road, Verner Road, and Prichard Road on the status of the project, and to obtain their input of the alternative corridors recommended for detailed study in the Draft EIS. Using the registration sheet for the previous meeting, invitation letters were mailed approximately two weeks prior to this meeting.

Including the MDOT, FHWA, and consultant team representatives, there were 52 people who registered their attendance at the meeting. Welcoming, status report, and general project comments were made by the MDOT, FHWA, and consultant team representatives. A consultant team representative discussed the two alternative locations that are recommended for crossing Prichard Road and the constraints that restricted the amount of adjustment that would be made for the alternative location that crosses Prichard Road and Verner Road.

The consultant team representative identified the locations of the potential residential displacement for the alternative that crosses Verner Road, and the possible ways that a grade

separation bridge would be constructed at the Verner Road crossing to maintain access from one side of the interstate to the other. A MDOT representative advised the MDOT had specialist at this meeting to address relocation and acquisition questions. A FHWA representative elaborated on these issues from a Federal perspective.

There were a few follow-up questions from the audience on the possible construction phasing for providing a grade separation bridge at the crossing of Verner Road. The meeting then moved to an informal format where the attendees would view the aerial photography mapping displays for the alternatives and discuss their relocation type questions with the right of way specialists. The map of the Verner Road crossing identified locations of manufactured and brick homes within and adjacent to the 450 foot wide corridor width.

Some of the concerns discussed during the informal format were: access to the interstate; access to property adjacent or near the interstate; relocation assistance; and potential noise and aesthetic impacts.

At the conclusion of the meeting, the attendees were reminded to provide their comments in writing to the project team. However, only one person chose to submit a comment form. That person's comment was supportive and did not contain any suggestions. For further details on this meeting, see the minutes contained in **Appendix D**.

April 30, 2003 (Special Follow-up Benoit Meeting)

This special follow-up meeting was held at Ray Brooks School in Superintendent Dr. Suzanne Hawley's office. The primary discussions at the previous meeting concerned the crossings of SR 1 southwest of Benoit, and a request to study a crossing of SR 1 farther southwest of Benoit at Lake Vista. After the requests made at the previous meeting were analyzed, it was decided the crossing of SR 1 at Lake Vista merited study.

There were two meeting locations chosen for the Third Series of Public Meetings scheduled for April 30-May 1, 2003, in Cleveland and Clarksdale respectively. Since the Lake Vista crossing was one of the three alternative crossings that would be presented to the public for comments at the meeting in Cleveland that evening, it was appropriate to schedule the follow-up meeting at Benoit. Everyone that attended the previous meeting on January 29th was invited to this follow-up meeting. Because making changes west of the crossing of SR 1 will impact the adjacent study

on SIU 12, the SIU 12 contacts with HNTB and the Arkansas Highway and Transportation Department were invited to this follow-up meeting.

The Cleveland – Bolivar County Chamber of Commerce has been actively involved in the Great River Bridge project since its conception. Because it is likely that I-69 will use the Great River Bridge crossing of the Mississippi River on SIU 12, this group also needed to be advised of the history behind the alternative crossings of SR 1 that would be presented at the meeting in Cleveland that evening. By inviting this group to the follow-up meeting, they would have an opportunity to ask questions, express any concerns, and make comments prior to the meeting in Cleveland that evening. The appropriate members and officials of the Chamber, as well as other community leaders they deemed appropriate, were invited to the meeting by the Chamber.

There were 26 people who were registered as attendees at this meeting. Of the 26 people, nine were representatives of either the SIU 11 or SIU 12 project teams. The remaining 17 people were farmers, Chamber officials, City of Cleveland officials, Bolivar County officials or Ray Brooks School officials.

After the welcome was provided and everyone present introduced themselves, the attendees were advised the environmental document for the adjacent study to the west on SIU 12 study would state that the eventual crossing of SR 1 would be determined by the study to the east on SIU 11. Then attendees were informed the SIU 11 study began by using the SIU 12 crossing alternatives of SR 1, but as the engineering and environmental studies for SIU 11 progressed adjustments were needed in the SR 1 crossing alternatives. The following describes the presentation.

- The HNTB crossing location of SR 1 north of Benoit was eliminated from further detailed study because it was too far out of direction to proceed southeast and cross Litton Road prior to the current western limits of the Dahomey NWR.
- The HNTB crossing location of SR 1 just south of Downtown Benoit was eliminated because it had too many negative natural and human environmental impacts to connect with the remaining alternative alignment corridors to the east that are undergoing study.
- The HNTB crossing location of SR 1, southwest of Benoit and just south of Ray Brooks School, was adjusted south to the first curve in SR 1 south of the school. The adjustment in this crossing point was needed to avoid impacting the expansion of the school's athletic fields, and to connect with the SIU 11 study alternatives proceeding east from Benoit.
- The SIU 11 recommended SR 1 crossing location alternatives are just north of Ray Brooks School, at the first curve south of Ray Brooks School, and further south of the school at Lake Vista.

The attendees were advised how the crossing alternatives of SR 1 would connect to the west to the SIU 12 study and how the alternatives would cross SR 448 southeast of Benoit. An aerial photography mapping display was available for the attendees to view these alternatives recommending for further study, and the attendees were informed these were the SR 1 crossing alternatives that would be presented to the public at the meeting in Cleveland later that day.

While seated and in a formal setting, some of the attendees asked questions, made comments, and expressed concerns. Some of the major farmers in the area expressed their appreciation that the Lake Vista alternative was recommended to be added to the SIU 11 study.

The Cleveland – Bolivar County Chamber of Commerce representatives expressed concern that adding the Lake Vista alternative would delay obtaining a Record of Decision (ROD) for the HNTB study on SIU 12. The Chamber representatives advised they hope to obtain I-69 funding to supplement or in lieu of Great River Bridge funding for the Mississippi River crossing. They wanted assurance that adding the Lake Vista alternative would not delay obtaining the ROD on the SIU 12 study so the Great River Bridge construction could begin as soon as possible. The state highway officials from Arkansas and Mississippi advised they believed this could be worked out; however, they emphasized they could not say that for certain to the group today.

The following summarizes the two comment forms submitted by this meeting's attendees.

- One comment form received was from a citizen of Cleveland, who is a member of a Chamber industrial development committee. He did not believe the Lake Vista crossing merited further consideration because he thought it had been ruled out by earlier studies. He believes the only route that would be economically feasible for the ultimate economic success of the MS Delta is either the orange or red route.
- The other comment form received was from a farmer who supported the crossing alternative at Lake Vista. He believes there should be no hurry in the SIU 11 study but a commitment by everyone involved to get best possible route from east of Benoit to the Bridge Location.

For further details on this meeting, see the minutes contained in **Appendix D**.

April 30, 2003 (Special Rosedale Meeting)

This special meeting was conducted in the West Bolivar County Courthouse at Rosedale. SIU 11 of I-69 will interchange with SR 8 either near the eastern or the western limits of the City of Cleveland. The Rosedale – Bolivar County Port is a Mississippi River Port located to the west of SR 1 near the southern limits of Rosedale. SR 8 intersects with SR 1 in the south part of Rosedale, and SR 8 will serve as an intermodal connector between the Port and I-69 at Cleveland. There is also an industrial park near Rosedale and the Port.

SR 8 is a two-lane, two-lane highway over the approximately 18 miles from SR 1 at Rosedale to the western limits of Cleveland. The portion of SR 8 through Cleveland is a five-lane section, and the MDOT has location and environmental approval to widen SR 8 to four lanes from the eastern limits of Cleveland east to Ruleville in Sunflower County.

Regardless of the side of Cleveland on which I-69 has its interchange with SR 8, the MDOT decided SR 8 needed widening to four lanes between SR 1 at Rosedale and Cleveland. The reason the MDOT made this decision was to satisfy the expected intermodal connectivity needs that SR 8 would have associated with freight traffic between Rosedale and Cleveland. At the request of the MDOT, the I-69 SIU 11 study team agreed to conduct the necessary environmental and engineering studies to obtain the environmental clearance for widening this section of SR 8 to four lanes as part of the SIU 11 Study.

The alternatives recommended for further study to accomplish the widening of SR 8 were to be presented to the public at the meeting in Cleveland during the evening of April 30, 2003. The purpose of this meeting at Rosedale was to provide the community leaders, Cleveland Bolivar County Chamber of Commerce officials, local elected officials, and concerned citizens advance notice of the alternatives that would be presented for further study at the meeting that evening in Cleveland. Invitations to the Rosedale meeting were provided by the Chamber.

There were 22 people who were registered as attendees at this meeting. Of the 22 people, 10 were representatives of the SIU 11 project team, MDOT, or FHWA. The remaining 12 people were City of Rosedale officials, Chamber officials, City of Cleveland officials, Bolivar County officials, and concerned citizens.

After a welcome was provided by the MDOT, everyone introduced themselves and stated their interest in the project. The consultant team advised the attendees that aerial photography mapping displays of alternatives for widening SR 8 to four lanes were available for the group to view, ask questions, and make comments. The attendees were informed the same mapping displays would be presented to the public at the meetings scheduled for later that day in Cleveland and the following day in Clarksdale. Before asking the attendees at the Rosedale meeting to view the alternatives, which were placed flat on tables, the consultant team described the alternatives recommended for further study.

Two alternatives were presented for the intersection of SR 8 with SR 1 at Rosedale. One alternative would reconstruct the current intersection and the other alternative would relocate the intersection slightly south to align with the access to the State Park. From the eastern limits of the SR 1 intersection through the industrial park access to slightly west of Riverside Fertilizer Association, the only alternative under consideration is widening SR 8 to five lanes. At Riverside Fertilizer Association, the five-lane section would transition to a four-lane divided section with the new lanes being added on the north side of the existing lanes. The new lanes would continue on the north side of the existing lanes to curve near the electric substation. Using the curve near the electric substation to make the transition, the new lanes would be added on the south side of the existing lanes after exiting the curve. The new lanes would continue to be added on the south side of the existing lanes to the crossing of the Bogue Phalia located west of Pace.

From the crossing of the Bogue Phalia to natural gas pipeline substation just west of the Bolivar County Correctional Facility three alternatives were presented. One alternative is for the four-lane divided type section to transition to a five-lane section along the existing alignment of SR 8. The second alternative for accomplishing is a four-lane divided facility along the existing SR 8 corridor. The second alternative would use the same widening concept as the five-lane. The third alternative for accomplishing the widening at Pace is a four-lane divided alternative on new location to the north of SR 8. This alternative would rejoin SR 8 east of Pace where the new lanes would be added to the south of SR 8.

Between the natural gas pipeline substation just west of the correctional facility and the correctional facility, two alternatives were presented. The first alternative is to transition the four-lane divided section to a five-lane section. The second alternative is to maintain the five-lane section with all the widening being added to the south of the existing lanes.

From just west of the correctional facility to the western limits of Cleveland, the only recommended alternative is a five-lane concept with all the widening being added to the south of the existing lanes. Near the western limits of Cleveland a transition would occur to connect to the existing five-lane section.

The attendees were invited to view the mapping of the alternatives that were placed on the tables, and to discuss any questions, comments, or concerns they had about the project with members of the project team. The attendees were also encouraged to submit any comments they have about the project in writing using the comment form that was provided at the meeting.

The following summarizes the three comment forms submitted by this meeting's attendees.

- One comment advised the widening of SR 8 to four lanes is a great idea and much needed. However, the cost of this project should not be a part of the I-69 feasibility study since it is not essential to the route determination of I-69.
- Another comment was from the Port Director. He advised the need to widen this section of SR 8 to four lanes increases every year. He stated there are substantial cargo movements to and from the Port. Based on statistics from the MDOT and the Corps of Engineers, he advised in 1991 there were 467,000 short tons transported through the Port, while in 1999 there were 582,000 short tons transported. He stated the 712,000 short tons transported in 1995 was the largest amount moved between 1991 and 1999. He believes this project should be carried forward for the need that will be present in future years.
- The final comment received from this meeting's attendees expressed complete support for widening SR 8 to four lanes from Cleveland to Rosedale. This comment also expressed support for the northern bypass at Pace.

The following summarizes the comment forms submitted by people who were not registered as attendees at the meeting in Rosedale on April 30, 2003.

- Fifteen comments were mailed to the project team in the same Cives Steel Company envelope. This company is located in Rosedale. The comments were slightly different; but generally their comments supported the project to address the increased traffic that makes passing slower vehicles and farm equipment difficult, the narrow shoulders on SR 8, what some considered a contributing cause to a high number of traffic accidents, and the increased traffic that I-69 should generate on this section of SR 8.

- Twenty-four (24) comments were mailed in the same envelope from employees of the State Penal Farm located in Sunflower County at Parchman. Eighteen (18) of the 24 comments concerned the I-69 alternatives. These 18 comments expressed support for the Eastern Alternative in the Southern Section, which passes just west of the State Penal Farm. Three (3) of the remaining six comments expressed support for four-laning this section of SR 8 between Rosedale and Cleveland. The remaining three comments expressed support for widening SR 8 to four lanes from Cleveland to Ruleville and/or widening US 49W to four lanes from Ruleville to Parchman.

For further details on this meeting, see the minutes contained in **Appendix D**.

May 2, 2003

This luncheon meeting was requested by the Tunica County Chamber of Commerce on behalf of several landowners and several casinos located in the Robinsonville area. The purpose of the meeting was to discuss the proposed interchange locations in the Robinsonville area for the alternatives recommended for further study in the Draft EIS, and the manner in which the connecting roads at the proposed interchange locations would provide access to the casinos at Robinsonville.

There were approximately eight attendees at this meeting. The casino representatives wanted to make sure their traffic, especially from the Memphis area, is provided good access from I-69. The casino representatives expressed their support for the proposed Arkabutla Dam Road Interchange on the Western Alternative, and they advised they favor the Western Alternative over the Central and Eastern Alternative.

The casinos representatives are concerned about the manner in which the Western Alternative joins the spur, which connects existing SR 304 with the new section of SR 304 that is under construction. They advised the proposed Western Alternative will either require their customers from the north to travel west on existing SR 304 through an at-grade railroad crossing or their customers will be required to continue on I-69 south to the Kirby Road interchange to exit. After exiting to the north at the Kirby Road interchange, this traffic from Memphis would then have to turn left at existing SR 304 to proceed west. The casino representatives believe the existing at-grade railroad crossing on SR 304 would require them to direct their traffic to the Kirby Road Interchange. However, they believe the left turn required for their casino traffic at SR 304 after proceeding north from the Kirby Road Interchange is a substantial change in the existing traffic pattern.

The project team representatives were asked why the alternative originally proposed by the county, which crossed existing SR 304 between US 61 and SR 3, was eliminated. The casino representatives and landowners wanted to know if this alternative would be reconsidered or what other options were available to address their concerns.

During the course of the project team's addressing of the questions and concerns expressed at the meeting, the following noteworthy items were either discussed or decided.

- The county's original alternative crossed SR 304 between US 61 and SR 3 on a very severe angle. The angle of the crossing was unacceptable for providing an interchange at SR 304. Changing the angle of the crossing was also unacceptable because of the curves in the I-69 alignment that would be required to connect with the spur to the north and the Western Alternative to the south.
- The proposed Eastern and Central Alternatives would relocate existing SR 304 west of the SR 304 interchange location shared by these two alternatives. The new section of SR 304 west of the interchange would be located to the north of SR 304, bridge over the railroad, and possibly interchange with SR 3 before rejoining the existing five-lane section of SR 304.
- The proposed interchange locations for the Western Alternative would remain at Arkabutla Dam Road, Kirby Road, and existing SR 304.
- SR 304 would be improved west of the interchange for the Western Alternative in the same manner as that proposed for the Eastern and Central Alternatives. The casino representatives were satisfied that implementing this change in the Western Alternative will adequately address their concerns.

For further details on this meeting, see the minutes contained in **Appendix D**.

May 19, 2003

After the public meeting at Cleveland held on April 30, 2003, which was attended by Mr. Joe Aguzzi, the Aguzzi Family requested a Special Meeting with the MDOT. The purpose of the meeting was to discuss the Aguzzi Family's concerns about how the Western and Central Alternatives divide their farmland. The Aguzzi Family's main concern is their land located south of the Western and Central alternatives' shared crossing of SR 8 west of Cleveland.

The only MDOT representatives attending the meeting were the MDOT Third District Engineer and the MDOT Central District Transportation Commissioner. At the request of the Aguzzi Family, there were not any members of the consultant team or the FHWA in attendance at the

meeting. Prior to the meeting, the consultant team provided the MDOT Third District Engineer a copy of the alternative mapping presented at the recent public meetings in Cleveland and Clarksdale.

After the Third Series of Public Meetings and after this Special Meeting, some members of the Aguzzi Family submitted written comments. Those comments, opposing the Western and Central Alternatives crossing of SR 8 west of Cleveland and supporting the Eastern Alternative crossing of SR 8 east of Cleveland, are addressed in detail in the minutes for the Third Series of Public Meetings under comments received from attendees at the Cleveland Meeting and under comments received by non-attendees of the Third Series of Public Meetings.

June 20, 2003

The City of Cleveland and Bolivar County officials requested this meeting to help them better understand how to address the complaints they were receiving from landowners about the impacts these two alternatives have on their property. The meeting was held at the MDOT Third District Office in Yazoo City.

Approximately 15 people attended the meeting. The people representing the City of Cleveland and/or Bolivar County in attendance at the meeting included Cleveland-Bolivar County Chamber of Commerce officials and members, the Rosedale-Bolivar County Port Director, the Bolivar County Engineer, and the City Administrator for the City of Cleveland. The MDOT had representatives at the meeting from the Third District and the Environmental Division, and the consultant team had two representatives at the meeting.

After a welcome was provided by the MDOT Third District Engineer, the Cleveland-Bolivar County Chamber of Commerce officials advised their group is routinely being asked why the Western and Central Alternatives divides so much farmland between Litton Road and the SR 8 interchange location west of Cleveland, which these two alternatives share. He stated they do not know how to answer this question and that he hoped they could obtain some information at the meeting today to assist them in better answering the question.

The MDOT and the consultant team decided it was best for the consultant team representatives to address the question. There were tables in front of the chairs where the attendees were sitting. This sitting arrangement allowed the mapping displays of the Western and Central Alternatives

between Benoit and Clarksdale to be placed flat on the tables in front of the attendees. By placing two sets of mapping on the tables, all the attendees were able to view the mapping as the consultant team discussed the environmental and engineering factors that led to the recommended locations for the Western and Central Alternatives between Litton Road and the proposed SR 8 interchange location west of Cleveland.

After providing the explanation for the location of the Western and Central Alternatives between Litton Road and SR 8, the consultant team addressed some general questions concerning the impacts on the natural and human environment that would be caused by making changes in the alternatives between Litton Road and SR 8. Several attendees, representing Bolivar County interests, advised they understood these constraints. However, they stated they were not sure how well they could relay this information and address future questions on this issue.

The possibility of having a meeting in the future with people impacted by the current alternatives was discussed. The Bolivar County representatives expressed their appreciation for having the meeting, and advised they better understood the constraints that existed for the Western and Central Alternatives between Litton Road and SR 8 west of Cleveland.

For further details on this meeting, see the minutes contained in **Appendix D**.

8.2.6 Public Hearing

The public hearings were held on successive evenings between 4:00 and 7:00 p.m. at the following locations:

- Ray Brooks School near Benoit on December 13;
- Bolivar County Expo Center Annex in Cleveland on December 14;
- Clarksdale High School in Clarksdale on December 15; and,
- G.W. Henderson Center near Tunica on December 16.

Information on the refined 450-foot-wide alternatives studied in the DEIS was presented at these hearings using the same format as that used for previous public meetings. In addition, information on the alternatives studied for widening SR 8 in Bolivar County to four lanes between SR 1 at Rosedale and Cleveland was presented at these hearings. Aerial photography mapping displays on the alternative corridors recommended for detail study were placed on tables. In addition, other displays included a maps\ of the study area; known natural and human

environmental features in the study area; alternatives corridors studied and eliminated from further study; alternatives studied in detail in the DEIS; a chart summarizing impacts of the alternatives in the Southern, Middle, and Northern Sections; a chart summarizing impacts of combining the alternatives in the Southern, Middle, and Northern Sections, including the SR 8 widening; and typical roadway sections. Display maps were placed on easels for the public to view, ask questions, and make comments. At each hearing, brief presentations were made by the MDOT Environmental Division and the consultant team.

Discussion at each of the hearings included the following topics:

- The history that led to the three alternative locations for crossing SR 1 south of Benoit.
- The elimination of the alternative crossing of SR 1 just north of Benoit. The elimination was necessary because the crossing is out of direction for connecting to the study alternatives east of SR 1 that pass south of the Dahomey National Wildlife Refuge.

- The elimination of the far-west alternative between Benoit and the crossing of SR 444 in Bolivar County. The elimination was necessary because it bisected the planned westward expansion of the Dahomey National Wildlife Refuge to the Mississippi River.
- The three locations studied for crossing SR 1 south of Benoit are just north of the Ray Brooks School for the Western Alternative, either in the curve south of Ray Brooks School or at Lake Vista for the Central Alternative, and at Lake Vista for the Eastern Alternative.
- The information provided at the aerial photography mapping display areas for the I-69 alternatives and the alternatives to accomplish the widening of SR 8 to four lanes.
- The location of an alternative relative to a person's residence or property.
- Landowners' concerns about their farmland being divided and their access to divided farmland.
- Environmental constraints, engineering constraints, drainage ditches, and locations of changes in property ownership contributed to alternatives bisecting some farmland. When bisecting of farmland occurred, efforts were made to leave extremely large or very small tracts of land on each side of the alternative. The property retained by the owner after acquisition of the I-69 right-of-way was acquired could then be large enough to farm or it would be so small that the remaining property would be an uneconomical remnant.
- To lessen the impacts on farmland access, grade separation bridges or interchanges are proposed on a maximum spacing of approximately two miles. In addition, frontage roads are proposed where economically feasible and practical.
- Residents' concern about being relocated or having the interstate near their residences.
- The archaeological findings are major constraints for using the Western Alternative for I-69 in the Lula area near the Welcome Center

- The archaeological findings for the shared Central and Eastern alternative near the crossing of Flea Harbor Road in Tunica County have required this crossing point to be adjusted to two other options. One of the options is west of the current location near the natural gas pipeline crossing, and the other option is farther east of the current crossing point.
- Reconsideration of a previously dropped alternative that would use the Eastern Alternative from Benoit to SR 8 east of Cleveland, and then connect the Eastern Alternative to the Central Alternative at Merigold by following a routing east of the Steam Plant.

Attendees were provided a packet containing the project brochure; a color coded map showing the alternatives studied in the DEIS; a chart summarizing alternative impacts in each of the three sections, including the SR-8 widening; a chart summarizing impacts by combining alternatives between sections, including the SR 8 widening; and a comment form. Please see **Appendix D** for additional information on the DEIS public hearing, including comments and responses.

8.2.6.1 Summary Alternative Preferences by Section

A total of 679 persons registered their attendance at the four public hearing locations. Of the 679 persons, 85 registered in Benoit; 467 registered in Cleveland; 56 registered in Clarksdale; and 71 registered in Tunica. **Table 8-2** shows a summary of alternative preferences based on comment forms, letters, and resolutions received in response to the public hearings. Comment forms, letters, and resolutions were received at or following the public hearings.

Alternative		Support
Southern Section	Western	1
	Central	370
	Eastern	54
SR 8	Widening	3
	Bypass	3
Middle Section		4
Northern Section	Western	12
	Central	3
	Eastern	5
Note: In addition to the numbers stated above, there were 48 comment forms or letters that did not include statements that supported a particular alternative. Of the 48 comments, 12 showed support of the project in general.		

Source: Neel-Schaffer, 2005.

The following text indicates cases where a comment may have shown a segment preference or a preference for more than one alternative. For example, in the Southern Section eight persons who stated a preference for Lake Vista of SR 1 crossing for the Southern Section Central Alternative;

four persons preferred a Lake Vista crossing near Benoit. Also, in the Southern Section, there was support for an Eastern to Central Loop Alternative around Cleveland (20 comments); and six persons indicated a preference for either the Eastern Alternative or Eastern to Central Loop Alternative. In the Northern Section, one comment indicated a preference for either the Western or Central Alternative.

8.2.6.2 Resolutions or Letters of Support Received from Local Officials

Resolutions or letters of support for the Central Alternative in the Southern Section were received from the following:

- The Town of Merigold
- The City of Rosedale
- The Town of Duncan
- The Town of Beulah
- The Cleveland Airport Commission
- The City of Greenville
- Delta State University
- The Town of Boyle
- Bolivar County Economic Development District
- Port of Rosedale
- Bolivar County Council on Aging, Inc./Mississippi Public Transit
- The City of Mound Bayou
- The City of Cleveland
- The Town of Renova
- The Cleveland-Bolivar County Chamber of Commerce
- The Town of Pace
- The City of Shaw
- The Bolivar County Board of Supervisors
- The City of Shelby

These resolutions or letters of support for the Central Alternative in the Southern Section are shown in **Appendix D** and were included in the totals shown in **Table 8-2**.

Resolutions or Letters of Support for the Eastern Alternative in the Southern Section were received from the following.

- The City of Indianola
- The Ruleville Chamber of Commerce
- The Drew Chamber of Commerce
- The City of Drew
- The North Sunflower Community Council of Sunflower County Drew-Ruleville, MS
- The Sunflower County Board of Supervisors
- The Economic Development District of Sunflower County

These resolutions and letters of support for the Eastern Alternative in the Southern Section are shown in **Appendix D** and were included in the totals shown in **Table 8-2**.

8.2.6.3 Summary of Comment Forms and Letter Content

Comment forms and letters were submitted in response to the public hearings. The following text provides a summary, by section, of the public's statements in support or against a particular alternative. **Appendix D** includes a summary of the public comments/questions with responses, and copies of submitted comments.

Southern Section

Western Alternative

Reasons provided for supporting the Western Alternative in the Southern Section included:

- Is the straightest and stays on section lines better than the other alternatives.

Reasons provided for not supporting the Western Alternative in the Southern Section included:

- Is a detriment to the long-range business interests of the City of Cleveland. Cleveland has an industrial park not being fully utilized, along with excellent medical care access on the east side of Cleveland. The Western Alternative is too far from emergency medical services offered by the hospital at Cleveland. Most of the services provided in Cleveland for travelers are located along Highway 61. Why make potential customers come through Cleveland for services? Enhance business on the east side and leave the west side for residential growth.
- Extremely disruptive to farmland and wetlands.
- Doesn't make sense to spend federal dollars to support wetland development in this area only to then use federal dollars to build an interstate through them. Crosses through environmentally sensitive lands and would adversely affect wildlife.
- It is imperative that I-69 be as far south of the Ray Brooks School campus as possible. Believes air pollution and noise will severely impact the campus and outdoor activities at the school if this alternative is used.

Central Alternative

Reasons provided for supporting the Central Alternative in the Southern Section included:

- Probability of capturing economic development potential is much greater than the other alternatives. The Central Alternative is closer to more communities in Bolivar County and will benefit the existing population centers along US 61 between Clarksdale and Cleveland and provides best potential for reviving and developing local economies.
- By the Central Alternative being located closer to the municipalities along US 61, the cost to municipalities of providing utility services to businesses at interchange locations would be less. By following US 61, the Central Alternative offers the shortest and least expensive route for manufacturers located between Cleveland and Clarksdale.
- Serves more economically disadvantaged and minority residents. The Central Alternative is the only alternative within the Mid-Delta Empowerment Zone. By passing closest to the minority communities along US 61, this alternative best meets Environmental Justice guidelines.
- Is the least environmentally disruptive and damaging from an ecological standpoint. It avoids more Wetland Reserve Program land than the other alternatives and is the least disruptive to wild game and the natural habitat. By following US 61, there would be less right-of-way needed and fewer environmental issues. The Central Alternative involves fewer wetlands, farmland, stream, and floodplain impacts.
- By being millions of dollars cheaper, is most cost effective route and that is important to taxpayers. In addition, it has the least associated maintenance costs.
- Is the most feasible alternative as well as the shortest and straightest route. It does not create unnecessary additional highways that chop the Delta into smaller pieces creating unnecessary damage to the human and natural environments.
- The Central Alternative would enhance transportation to and from both ports in Greenville and Rosedale together with the industries in Cleveland. It provides more potential for multi-modal transportation by being closer to the ports as well as airports.
- More central to the geographic layout of the Delta. In addition, it is more centrally located to Delta State University and would provide safer and quicker access for non-local traffic generated by Delta State University.
- Does more to develop tourism and heritage efforts of the Blues Corridor by following US 61. It also borders the country's oldest black municipality of Mound Bayou, which was established in 1887 and has a lot of historical value.
- Creates additional four-lane miles of highway in the Delta with use of the connector routes and improvements to existing highways. US 61 is an established four-lane and provides better opportunities for interchange access.
- Common sense says to build the route along the already developed portion of Highway 61. This area does not need two four-lane parallel highway facilities within a few miles of each other.
- Provides good access to Great River Road State Park at Rosedale.
- Shows good financial planning to select estimated cheapest route and the ecosystem would not be affected as much as the other alternatives because those other alternatives do not use US 61.

- Would be closer to more industrial parks. The industrial site on the east of Cleveland has limited expansion area and the Bolivar County believes this alternative has the best long-term economic growth potential for Cleveland and Bolivar County as a whole.
- Shares with the Eastern Alternative the use of the southern crossing of SR 1 near Lake Vista; thus placing an alternative as far south of Ray Brooks School as possible. In addition, it as far away as possible from the Benoit Outing Club and the Bolivar community.
- Creates more positive impression than a route by Parchman.
- Could be completed quicker.
- Has most support from the public.

Reasons provided for not supporting Central Alternative in Southern Section included:

- Questions that it is cheaper than other alternatives. Crosses more county roads and drainage ditches at severe angles, which makes bridge construction most costly.
- Is located too far away from Cleveland.
- It is growing more residentially of the west side of Cleveland than the east.
- Do not need to replace an easy access Highway 61 with a facility only allowing access at interchange locations. Our communities are well served with Highway 61. We need more, not less, 4-lane highways.
- Some of the impacted farmland has been in families for generations, has been precision leveled, and has a tremendous agriculture base. Slices, or divides, too much prime farmland with high productivity. Some of the impacted farmland fields are square, irrigable.
- Several years ago when the West bypass of Highway 61 was built, the MDOT acquired 40 acres of farmland from a family. This family advises the land on either side of the 40 acres that they retained became virtually worthless from a productive agriculture state. They advised the productivity dropped about 30% on the remainder of the property because of the manner in which the highway crossed their property. The Central Alternative will take over 150 acres of additional farmland from this family and leave cut up and odd shapes in the remainder of their impacted fields.
- Is a complete detriment to the long-range business interests of the City of Cleveland. Cleveland has an industrial park not being fully utilized, along with excellent medical care access on the east side of Cleveland. Most of the services provided in Cleveland for travelers are located along Highway 61. Why make potential customers come through Cleveland for services? Enhance business on the east side and leave the west side for residential growth.
- Would stop housing growth to the west of Cleveland.
- Too far from emergency medical services offered by hospital at Cleveland.
- It is amazing how so much public opinion has been generated in favor of the Central Route by our elected officials and others who rely on farmers to sustain their own businesses. Private landowners were never reached out to by the community and thus stand to lose a great deal. The I-69 comment process has allowed public opinion to dictate the route at the expense of the private landowners without giving those impacted landowners much consideration.

Eastern Alternative

Reasons provided for supporting the Eastern Alternative in the Southern Section included:

- Passes closer to Cleveland. By looping around Cleveland to the south and east, this alternative has a greater length closer to Cleveland than the other two alternatives that pass west of Cleveland.
- Shared crossing of SR 1 at Lake Vista with Central Alternative is the greatest distance away from Benoit. In addition, it is as far away as possible from the Benoit Outing Club and the Bolivar community.
- Is in the Central portion of the Delta. It will bring education facilities closer to all Deltans and will be a more direct route from Clarksdale to Jackson.
- Will furnish the best route to serve more of the Delta to be an economic benefit to more Delta people. The Eastern Alternative will positively impact a greater portion of the whole Mississippi Delta and all of its residents than the other two alternatives.
- Will give the whole Delta a second four-lane highway running parallel with Highway 61, which is already in the middle of Bolivar County, and would greatly increase the economic development for the entire Mississippi Delta.
- Will benefit Drew, Ruleville, Sunflower, Indianola, Itta Bena, Greenwood, and Grenada with an interstate highway.
- The State of Mississippi owns an extremely large tract of land nearly adjacent to this alternative, and that tract of land is presently utilized for the State Penitentiary on a limited basis. The majority of such lands would be available for use for a major economic development project on the same scale as the previously State supported Nissan project near Canton, Mississippi. It is further believed that using this alternative adjacent to such State owned land would give a great advantage to the State of Mississippi in seeking economic development projects of such magnitude.
- Construction costs should be less. There are no hazards to hinder the construction.
- Could be constructed quicker.
- Has lower land values.
- Impacts less existing roads and drainage.
- Impacts less prime farmland and destroys fewer homes.
- Crosses intersecting county roads at better angles for bridge overpass construction.
- Impacts fewer rural water associations.
- Closer to Cleveland Industrial Park (which has empty buildings), hospital, and historic Downtown.
- Closer to motels located along US 61 near Cleveland.
- Does not interfere with residential expansion of Cleveland to the west.
- More north-south and can go along property lines better.
- Closer to Blues Heritage sites like Dockery Plantation and the burial site of Fannie Lou Hamer at Ruleville.
- East Cleveland, Ruleville, and Drew need more development than West Cleveland.

Reasons provided for not supporting the Eastern Alternative in the Southern Section included:

- Too far east of existing population centers.
- Would limit the economic growth east of Cleveland.
- Would require industrial traffic to the Port of Rosedale to travel through Cleveland to access the interstate.
- Adds unnecessary length to the interstate.
- Runs through rural Sunflower County.
- It doesn't make sense to spend federal dollars to support wetland development in this area only to then use federal dollars to build an interstate through them.
- Has no municipal growth opportunities in Sunflower County portion.
- Creates safety threat and detriment to tourism by passing so close to the State Penal Farm at Parchman.
- Extremely disruptive to farmlands and wetlands, and would adversely affect wildlife.
- Crosses through environmentally sensitive lands and disrupts duck hunting areas.
- Uses too much farmland, and we will not see positive effect.

SR 8 Improvements in the Southern Section

Comments on the SR 8 Widening in Bolivar County from Rosedale to Cleveland

- Do not need a bypass at Pace.
- Do widening through Pace along existing alignment.
- Bypass at Pace would cause too much negative impacts on farming operations; therefore, do widening along existing alignment.

Middle Section

Reasons provided for supporting the one alternative in the Middle Section included:

- Seems to be ideal route because of its use of the existing roadway.
- Makes good economic sense.

Reasons provided for not supporting the one alternative in the Middle Section included:

- Impact to a family farm at the Coahoma-Jonestown Interchange.

Northern Section

Western Alternative

Reasons provided for supporting the Western Alternative in the Northern Section included:

- For visitors and tourists traveling on I-69 that would use the Welcome Center located on US 49 North near the US 61 intersection, it is the closest alternative to the Welcome Center. In addition, they would only have to exit at the US 49 North-SR 315 Interchange, proceed north on US 49 until slightly outside the limits of the interchange, and then turn left into the Welcome Center.
- Less costly and safer because it requires only one interchange at the junction of US 49 North and SR 315.
- Believes there would be less chance of encountering Native American archaeological sites along US 61 than on new alignment.
- Less costly because of its use of US 61.

Reasons provided for not supporting the Western Alternative in the Northern Section included:

- Farmland impacts at the US 61 interchange near Dundee.

Central Alternative

Reasons provided for supporting the Central Alternative in the Northern Section included:

- A resident living on Verner Road in Tunica County advised they were willing to be relocated.
- Seems to be the best route.

Reasons provided for not supporting the Central Alternative in the Northern Section included:

- The concurrent Central and Eastern alternatives pass too far east of the Welcome Center. Lack of use may close the Welcome Center.
- For visitors and tourists traveling on the concurrent Central and Eastern alternatives that would use the Welcome Center, they would have to exit at the US 49 North-SR 315 Interchange, proceed north on a US 49 connector across the US 61 Interchange until slightly outside the limits of the interchange, and then turn left into the Welcome Center.
- The concurrent Central and Eastern alternatives require an interchange at the junction of SR 315 and the US 49 North Connector, a short US 49 North connector, and another partial interchange at US 61.
- More costly and not as safe because the concurrent Central and Eastern alternatives require two interchanges at the junction of SR 315 and the US 49 North.

- Believes there would be more chance of encountering Native American archaeological sites on new alignment than along US 61.
- Farmland impacts at the Crenshaw Road interchange.

Eastern Alternative

Reasons provided for supporting the Eastern Alternative in the Northern Section included:

- The shared Western and Central alternative in north Tunica County would divide a farm.
- North of Tunica in the vicinity of the Hollywood community, there is not a need to have so many highways (Old US 61, US 61, and I-69) so close together because not enough space is available for economic development opportunities without adversely impacting residents and residential development opportunities. The Eastern Alternative is farther away from existing population centers better suited for opening new economic development opportunities in the eastern portion of Tunica County along the SR 3 corridor.

Reasons provided for not supporting the Eastern Alternative in the Northern Section included:

- The concurrent Central and Eastern alternatives pass too far east of the Welcome Center, which may mean the Welcome Center would get less use. For visitors and tourists traveling on the concurrent Central and Eastern alternatives that would use the Welcome Center, they would have to exit at the US 49 North-SR 315 Interchange, proceed north on a US 49 connector across the US 61 Interchange until slightly outside the limits of the interchange, and then turn left into the Welcome Center.
- The concurrent Central and Eastern alternatives require an interchange at the junction of SR 315 and the US 49 North Connector, a short US 49 North connector, and another partial interchange at US 61.
- More costly and not as safe because the concurrent Central and Eastern alternatives require two interchanges at the junction of SR 315 and the US 49 North.
- Believes there would more chance of encountering Native American archaeological sites on new alignment than along US 61. Indian mounds yielding valuable pottery, artifacts, and arrowheads are found along the Buck Island corridor.
- Will reduce prime farmland that produces high value cotton and soybeans (Class I). The alternative Crosses and splits a three generation family farm.
- Farmland impacts at the Crenshaw Road Interchange.
- Perennial streams and wetlands will be destroyed along Buck Island Bayou and the Coldwater River.
- Wildlife habitat will be destroyed that provides food and cover for deer, turkey, rabbits, quail, and small animals.
- Floodplain impacts.
- Conservation tillage is being practiced on farmland along these stream corridors
- Has more residential relocations than other alternatives.

8.2.7 Follow-Up Actions

Several agencies, elected government officials, and citizens have been involved in continued coordination with the I-69 project team. Details of correspondences and meetings are included in **Appendix C** and **D**.

Chapter 9

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