INTERSTATE 69,
SECTION OF INDEPENDENT UTILITY #9

From the Interstate 55/MS State Route 304 Interchange in Hernando, Mississippi
to the Intersection of U.S. 51 and State Route 385 in Millington, Tennessee
DeSoto and Marshall Counties, Mississippi
Shelby and Fayette Counties, Tennessee

Final Environmental Impact Statement

Submitted Pursuant to the National Environmental Policy Act of 1969
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U.S. Department of Transportation
Federal Highway Administration,
Tennessee Department of Transportation and
Mississippi Department of Transportation

Cooperating Agency
Tennessee Valley Authority
U.S. Army Corps of Engineers, Memphis District
U.S. Army Corps of Engineers, Vicksburg District
U.S. Department of Interior, Fish and Wildlife Service

This document identifies and assesses the environmental impacts associated with the construction of an interstate facility from Hernando, Mississippi to Millington, Tennessee. The project is a segment of Corridor 18, a Congressionally-designated High Priority transportation Corridor that will be designated as Interstate 69. Segments of the roadway are proposed for new locations, while other segments will follow existing interstates and state highways built to interstate standards. The length of the proposed improvement is approximately 44 miles.

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Date of Approval	For Federal Highway Administration
_____	_____
Date of Approval	For Tennessee Department of Transportation
_____	_____
Date of Approval	For Mississippi Department of Transportation

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SUMMARY

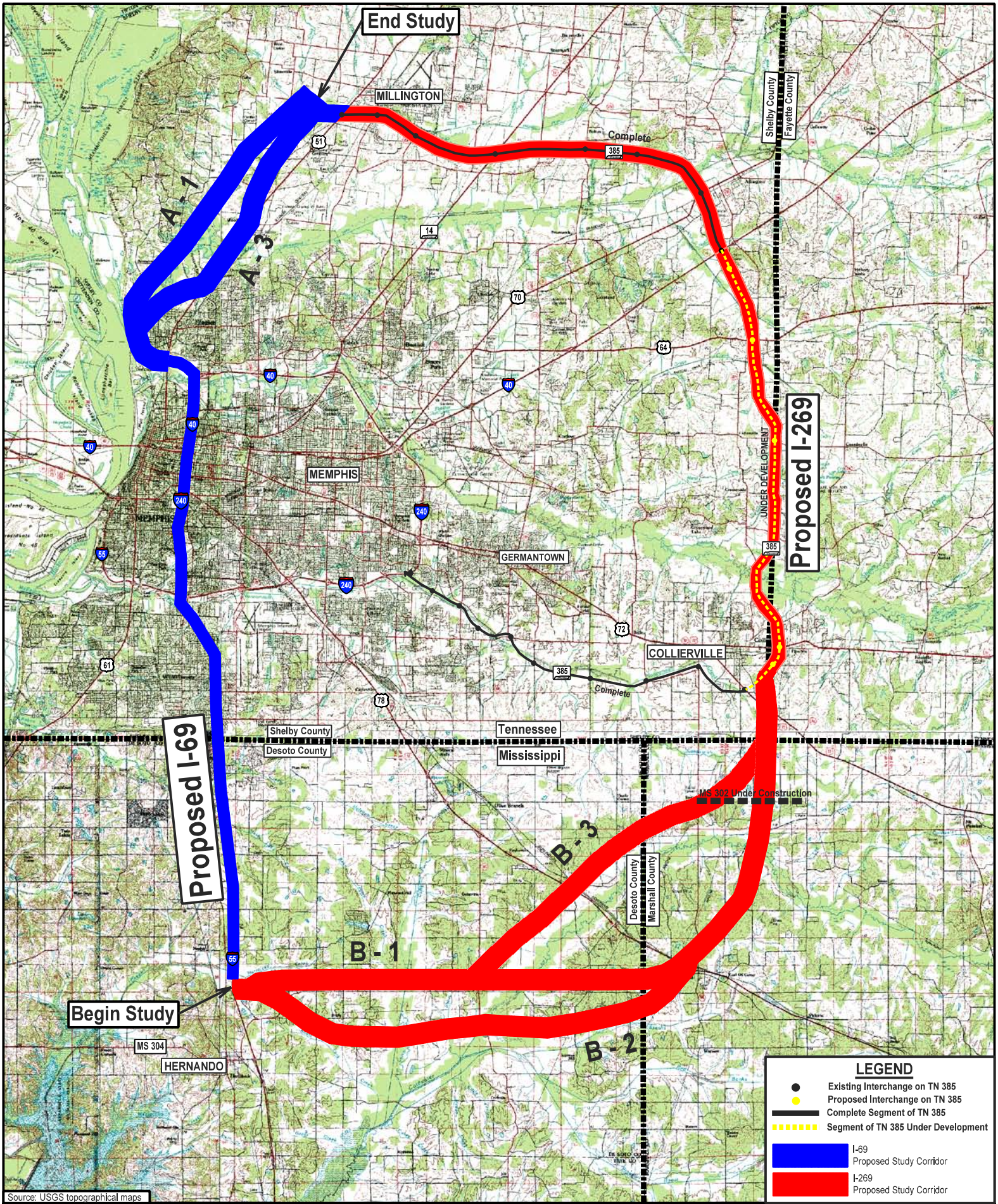
Proposed Action

This Final Environmental Impact Statement (FEIS) identifies and assesses the environmental impacts associated with the construction of a segment of proposed Interstate 69 (I-69) that extends from Canada to Mexico across the United States. The segment of interstate highway discussed in this document is Segment of Independent Utility 9 (SIU 9) as identified in the *I-69 Corridor 18, Special Environmental Study* dated February 7, 2000. The study corridor begins at the Interstate 55 (I-55) and Mississippi 304 (MS 304) Interchange in Hernando, Mississippi and extends north through Memphis, Tennessee to the intersection of US Highway 51 (US 51) and State Route 385 (SR 385) in Millington, Tennessee. The project is located in DeSoto and Marshall Counties in northwest Mississippi and Shelby and Fayette Counties in southwest Tennessee (Reference the Project Location map, Figure 1).

The Tennessee Department of Transportation (TDOT) and the Mississippi Department of Transportation (MDOT), in cooperation with the Federal Highway Administration (FHWA) is proposing a **Systems Approach Alternative** for this segment (SIU 9) of proposed I-69. It involves constructing two routes, an I-69 route through Memphis and a proposed I-269 route which by-passes Memphis to the east. The proposed project is consistent with the Memphis Long Range Transportation Plan and Mississippi's Vision 21 Plan.

Background

This proposed project is part of the overall 1,600 mile long I-69 corridor that is proposed to connect Canada to Mexico across the United States. The I-69 corridor has been supported by Congressional mandate since 1991. It was first approved as a high priority corridor from Indianapolis, Indiana to Memphis, Tennessee in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) legislation. In 1993 it was further amended by Congress to extend from Memphis to Houston, Texas. The National Highway System Designation Act of 1995 further extended the corridor from Houston to include the Lower Rio Grande Valley of Texas. The Transportation Equity Act for the 21st Century (TEA 21), signed into law June 9, 1998 redefined the corridor and officially designated it as Interstate 69.



Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1
Project Location Map

A Steering Committee was formed after the passage of the ISTEA legislation with members representing the eight states along the corridor to guide the development of the 1,600 mile long I-69 corridor study. The member states are Texas, Louisiana, Arkansas, Mississippi, Tennessee, Kentucky, Indiana, and Michigan. Each state department of transportation and the FHWA are represented on the Steering Committee. The Arkansas State Highway and Transportation Department was designated as the administrative agency for the Steering Committee.

Several studies of the overall corridor have been conducted under the guidance of the Steering Committee:

1. Corridor 18 Feasibility Study (1995)
2. Corridor 20 Feasibility Study (1996)
3. Corridor 18 Special Issues Study (1997)
4. I-69 (Corridor 18) Special Environmental Study (2000)
5. I-69 Sections of Independent Utility (2000)

These studies involved developing the purpose and need for I-69, setting goals, and evaluating the feasibility of multimodal alternatives such as rail, mass transit, and river barges. Based on the results of these studies it was determined that an interstate highway was both the most feasible and most cost effective alternative to meeting the purpose and need of I-69. The overall 1,600 mile corridor was divided into 32 Segments of Independent Utility (SIU's) for study purposes. Each state is responsible for the section within their state boundaries. Segments of Independent Utility are defined as independent highway sections that have logical beginning and ending points and are stand-alone projects that are considered to be a reasonable expenditure of public funds even if no other sections of I-69 were built. The proposed segment discussed in this document is Segment of Independent Utility 9 (SIU 9). (Copies of the previous reports are available at TDOT and MDOT offices.)

Purpose and Need

The purpose of I-69 is to provide an adequate transportation corridor for the movement of freight between Canada and Mexico. Studies of the movement of commodities, both finished goods and raw materials, show there is a significant demand for this movement of freight to occur along a

route within the designated I-69 Corridor (See Corridor Map Figure 1.1). With the increasingly global economy and evolving international trade opportunities, making a connection from Canada to Mexico across the United States is vital to the health of the United States economy. The I-69 Corridor will improve international and interstate trade, increase accessibility to the region, improve transportation system linkages, and stimulate economic development. I-69 will give the nation new capacity to efficiently move commodities from border to border significantly reducing travel times and cost.

The purpose of SIU 9 is also to respond to local traffic growth and travel demands by providing a high speed access controlled facility that is responsive to traffic usage and enhances access between communities and routes within the I-69 Corridor.

Memphis is the center of a 21 county growth area that includes eastern Arkansas, northwest Mississippi and west Tennessee. It is one of the top ten distribution centers in America and has spent the last decade building infrastructure to support its economic base. The Memphis International Airport is the largest air cargo facility in North America and ships over one million tons a year. The International Port of Memphis is the fourth largest inland port in the United States. Memphis has attracted many new jobs and the employment centers are hiring to keep pace with the distribution industry. This new growth has resulted in new warehousing and the development of new industrial parks and the expansion of existing industrial parks in both Tennessee and Mississippi. The expansion of the Frank C. Pidgeon Industrial Park in West Memphis, along with the North Memphis Industrial Park, the West Tennessee Business Center in Millington and the Chickasaw Industrial Park in northern Mississippi, have the potential to add over 75,000 new jobs in the Memphis growth area. These emerging and already established employment centers are generating extensive residential growth north, east, southeast, and south of Memphis. Fayette, Marshall, and DeSoto Counties are experiencing similar growth. Because of the region's importance as a transportation and distribution hub, this growth is likely to continue for decades. This new development will require needed support services and an adequate transportation system to afford people a reasonable commuting time to employment centers, as well as a safe and efficient means to move people and goods in and around the Memphis area.

Alternatives Considered

The alternatives considered for this project were selected based on the results of eight public involvement meetings, field reviews using aerial photography and USGS topographic maps, reviewing documented environmentally sensitive areas and constraints and input from other agencies as part of the scoping process. Recent traffic studies and the evaluation of future growth patterns in the project impact area were also factors in the selection of the alternative alignments.

A Technical Advisory Committee (TAC) consisting of representatives of the Tennessee and Mississippi Departments of Transportation, the Memphis Metropolitan Planning Organization (MPO), and the Federal Highway Administration from Tennessee and Mississippi was formed to evaluate information gained from the project studies and to make decisions regarding project development. The project alternatives selected for study, including the No-Build Alternative and those eliminated were approved by the TAC.

In the early phase of project development for this segment of I-69, two alternative corridors with a common beginning point at the I-55 Interchange in Hernando and a common ending point at the intersection of US 51/SR 385 in Millington were evaluated. One corridor passed through Memphis, the other bypassed Memphis to the east. As the study progressed and after evaluating traffic patterns and growth patterns in the surrounding area, it became apparent that neither a single route through Memphis, nor a single route bypassing Memphis to the east would meet the purpose and need of this segment of I-69.

Studies of the projected I-69 traffic and freight movement show that a large volume of the I-69 commercial traffic will have an origin or destination in Memphis. Recent traffic studies also indicate that a majority of traffic on the existing system through Memphis is local traffic and that the interstates currently operate at congested levels during peak hour periods. During the congested periods, through traffic on I-69 with destinations either north or south of the city and traffic destined for the major highways leaving Memphis to the east are not adequately served without an eastern bypass route. Also, since a large volume of traffic is destined for the downtown Memphis area, a single bypass route to the east does not meet the purpose and need of

I-69. Since a single route will not meet the purpose and need of this segment of I-69, a **Systems Approach Alternative** was proposed.

The **No-Build Alternative** and a **Systems Approach Alternative** that involves constructing two routes, one through town and a bypass route to the east, were fully evaluated in the DEIS and FEIS for this project.

No-Build Alternative

The No-Build, or No-Action Alternative, involves not building SIU 9 and leaving the existing roadway system in place. The widening of I-55 from Hernando, Mississippi to the state line would continue, as well as other ongoing improvements to I-240 and I-40 through Memphis. The construction of SR 385 and other planned improvements in the area independent of I-69 would be implemented along with other normal maintenance activities.

Systems Approach Alternative

In order to meet the purpose and need of I-69 and provide an adequate route for the movement of freight between Canada and Mexico through Memphis, as well as freight movement in Memphis and serve the anticipated traffic growth in this region a **Systems Approach Alternative** was proposed**.** The **Systems Approach Alternative** will provide a route through Memphis, as well as a bypass route to the east of Memphis. It will utilize sections of existing interstates and highways built to interstate standards. It will also require the construction of two new sections of interstate. It will connect approximately 100 miles of existing interstate and existing and proposed state highways into one complete system and will benefit far more businesses and people than a single route through Memphis or a single eastern bypass. It will provide an adequate level of traffic service to move people and freight in a safe and efficient manner in and around the Memphis area.

Approximately 55 miles of the proposed **Systems Approach Alternative** is already in place. This project will result in the construction of approximately 45 miles of new interstate construction; one 15-mile section north of Memphis, and a 30-mile section southeast of Memphis (See Project Location Map Figure 1).

The **Systems Approach Alternative** will begin at the I-55/MS 304 Interchange in Hernando and involves utilizing existing I-55, I-240, and I-40 through Memphis to US 51. A new 15 mile, 4-lane divided section of interstate will be constructed from US 51 north to connect with existing SR 385 in Millington. The existing section of SR 385 that extends south from Millington to I-40 and the proposed SR 385 alignment that extends south of I-40 to Collierville will be utilized as part of the eastern bypass segment. A new (approximately) 30 mile long 4-lane divided section of interstate will be constructed from SR 385 south of Collierville to connect with the I-55/MS 304 Interchange in Hernando, connecting the entire system. This **Systems Approach Alternative** will have interchanges with all intersecting State highways and major roadways around the Memphis area (See Project Location Map, Figure 1). No improvements to I-55, I-240, I-40 or SR 385 will be made as a result of this project. The existing section of SR 385 at Millington was previously built to interstate standards, and the new section currently under construction south of Collierville will also be built to interstate standards. The on-going improvements to I-55, I-240, I-40, and SR 385 are separate and independent projects that have their own funding and approved environmental documents. The environmental impacts associated with these projects has been well documented and appropriate mitigation measures are being implemented. The only changes to these projects as a result of the proposed I-69 project will be the new interstate designation signs.

Since the **Systems Approach Alternative** requires two new construction segments, one north of Memphis, and the other southeast of Memphis, to connect the entire system and meet the overall national and local purpose and need for the project, the segment that follows I-55, I-240, and I-40 north through Memphis will be designated I-69. It is proposed to designate the segment that bypasses Memphis to the east as I-269.

In evaluating this **Systems Approach Alternative,** two new location alternative alignments were evaluated for the 15 mile northern section, proposed I-69, and three new location alternative alignments were evaluated for the 30-mile southeast section, proposed I-269.

Proposed I-69

In evaluating the 15-mile new location section of proposed I-69, two alternative alignments were studied, A1 and A3 (See Location Map, Figure 1). As previously stated, the proposed I-69 route through Memphis begins at the new I-55/MS 304 Interchange currently under construction in Hernando, Mississippi and follows I-55, I-240, and I-40/240 through Memphis to US 51. Both alternative alignments share this common alignment. The existing cross-sections of I-55, I-240, and I-40/240 through this area vary from 4-lane section to 8-lane sections. Some sections of the existing roadway have recently been upgraded to eight 12-foot traffic lanes, some sections are currently under construction and other segments are in various planning stages of upgrade. Along these existing sections, no new right-of-way is expected to be needed for the I-69 project.

Alternative A-1

Beginning at the SR 300/US 51 Interchange, Alternative Alignment A-1 extends west for approximately 0.7 mile on new location before shifting north and crossing over the Loosahatchie River and floodplain. It continues north on new location for approximately 14 miles. It traverses mostly open land, some forested areas and scattered residential areas. It passes behind the BFI landfill and ends at a proposed interchange with SIU 8 at Millington. This alternative will cross several existing and proposed landfills. Alternative Alignment A-1 is approximately 15.2 miles in length. It will displace 21 families and two businesses. It crosses 21 streams and will result in the unavoidable fill of 48 acres of wetlands in the Wolf River and Loosahatchie River watersheds. It will also require the conversion of 128 acres of farmland to interstate right-of-way.

Alternative A-3

Alternative Alignment A-3 begins at the same location as Alternative Alignment A-1 and is coincident with A-1 to just south of the Loosahatchie River. Alternative Alignment A-3 does not cross the river at this point; it remains on the east side; it passes through agricultural land, forested land, several landfills, and a portion of a mobile home park. The alignment joins existing US 51 near the SR 388 intersection in Frayser. It passes just east of Firestone Park and continues along US 51 through the commercial area of Frayser. Alternative Alignment A-3 then crosses the Loosahatchie River and associated wetlands adjacent to existing US-51. After

crossing the river it extends north on new location through the Woodstock Community traversing some scattered residential areas and open land, ending at a proposed interchange with SIU 8 at Millington. This alignment is approximately 15.3 miles in length; it displaces 60 families and 5 businesses. It crosses 20 streams and will result in the unavoidable filling of 53 acres of wetlands in the Wolf River and Loosahatchie River watersheds. It will also require the conversion of 95 acres of farmland to highway right-of-way.

The proposed roadway cross-section for the new location alignments (A-1, A-3) will have four 12-foot wide traffic lanes separated by an 88-foot wide median within a minimum 300-foot right-of-way. Auxiliary lanes will be provided as needed between the proposed interchanges to accommodate merging traffic. The segment of Alternative Alignment A-3 that extends along existing US 51 through Frayser will have four 12 foot thru lanes separated by a 22-foot wide median with a concrete median barrier within a minimum 300 foot right-of-way. Auxiliary lanes will be provided as needed between interchanges to accommodate merging traffic. The segment on new location north of Frayser will be the same as Alternative Alignment A-1. Interchanges are proposed at all State routes and major roadways.

Proposed I-269

In evaluating the 30-mile new location segment of proposed I-269, three new location alternatives were evaluated, B-1, B-2, and B-3. The proposed I-269 route (eastern bypass) also begins at the new I-55/MS 304 Interchange in Hernando, Mississippi. The three proposed alternative alignments extended east on new location and shared the same alignment for approximately 1.2 miles, then split into two separate alignments, B-1 (B-3), and B-2 (Reference the Location Map Figure 1).

Alternative B-1

Alternative Alignment B-1 continues east crossing mostly farmland and open land, as well as creeks, scattered woodlands and residences. It crosses the Coldwater River and associated wetlands and heads north to Collierville, crosses the Coldwater River again and connects with the previously approved section of SR 385 south of Collierville. It then follows the approved SR 385 alignment to I-40 and then follows existing SR 385 to the end of the project in

Millington and ties into a proposed interchange with SIU 8. Alternative Alignment B-1 is approximately 28.6 miles in length. It will displace 57 families and 6 businesses. It crosses 39 streams and will result in the unavoidable fill of 69 acres of wetlands in the Coldwater River watershed. It will convert approximately 435 acres of farmland to roadway right-of-way.

Alternative B-2

Alternative Alignment B-2 separates from Alternative Alignment B-1 approximately 1.2 miles east of I-55 and extends south, then east, crossing over the Coldwater River, traversing open land with scattered residences, farmland and forested areas. It rejoins Alternative Alignment B-1 at the proposed US 78 Interchange at the DeSoto/Marshall County line and then extends north to follow the same alignment as B-1 to the end of the project in Millington. Alternative Alignment B-2 is approximately 30.6 miles in length. It currently displaces 53 families and 6 businesses. There are several new subdivisions being developed along this alignment. B-2 has the potential to displace an additional 100+ residences. It crosses 46 streams and will result in the unavoidable filling of 51 acres of wetlands in the Coldwater River watershed. It will require the conversion of 497 acres of farmland to highway right-of-way.

Alternative B-3

Alternative Alignment B-3 is coincident with Alternative Alignment B-1 from the beginning of the project to a point approximately 10.6 miles east; it then extends north to follow the northern floodplain of the Coldwater River. This alignment traverses open farmland, forested areas and scattered residential sites. It also passes through the Forest Hill Community, a recently developed residential area that contains many new homes and a new elementary school. There are 1,600 residential lots in this planned community. Alternative Alignment B-3 joins Alternative Alignments B-1 and B-2 approximately 3,000 feet north of the MS 302 Interchange and follows the same route to the end of the project in Millington. This alternative alignment is approximately 26.6 miles long. It currently displaces 52 residences and one business. Because of the rapid residential development along this alignment, it has the potential to displace several hundred additional residences. It crosses 37 streams and will result in the unavoidable fill of 6 acres of wetlands in the Coldwater River watershed. It will require the conversion of 253 acres of farmland to highway right-of-way

The proposed cross-section for these new location corridors will consist of four 12-foot traffic lanes with a 64-foot wide median within a minimum right-of-way width of 300 feet. Interchanges are proposed at state routes and major roadways.

Preferred Systems Approach Alternative

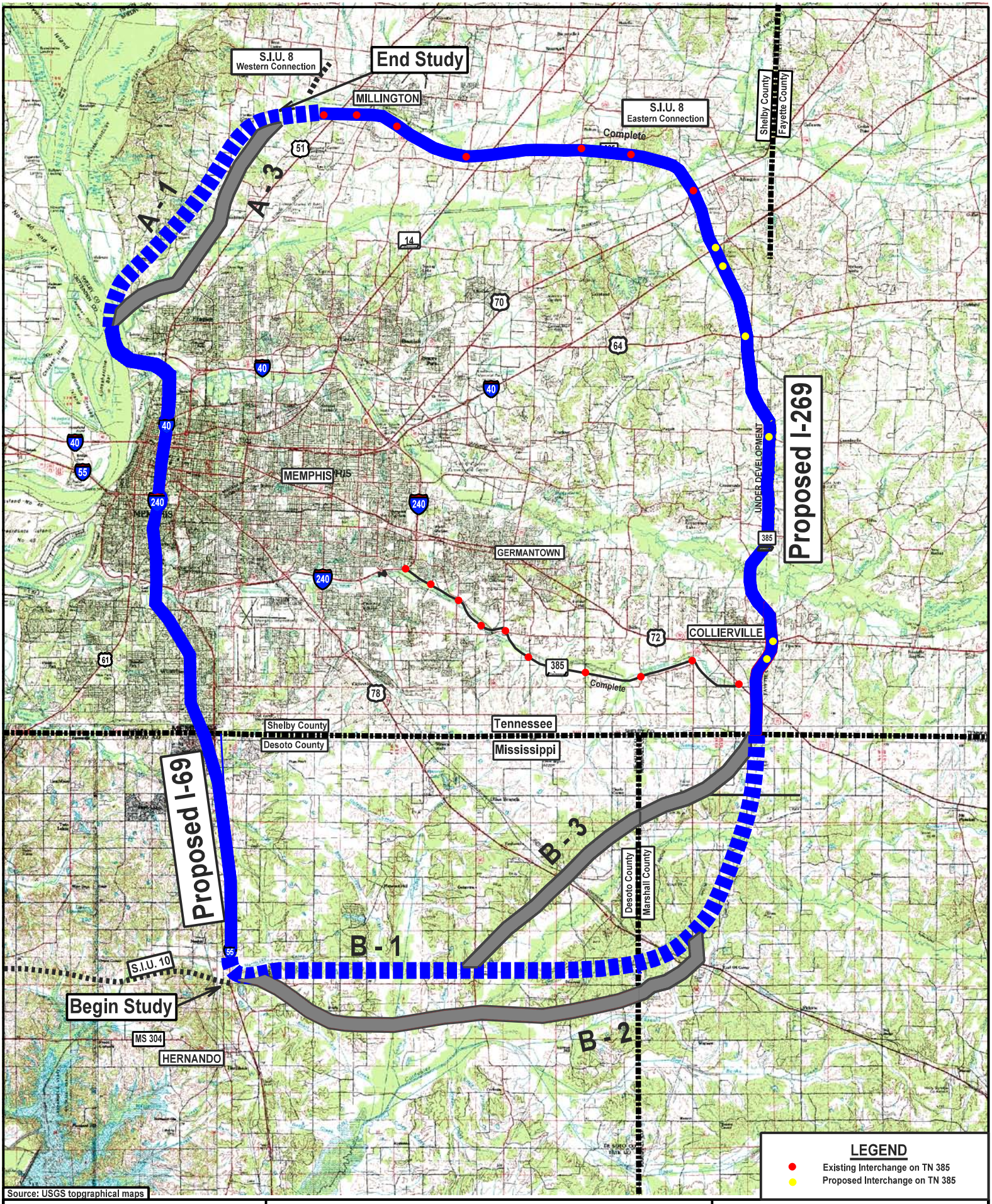
During the project development process, a wide range of alternatives were identified as possible alignments for this segment of I-69. Alternatives were analyzed for their ability to meet the purpose and need, financial feasibility and potential social, economic, and environmental effects.

A preferred alignment for the northern I-69 segment and the southern I-269 segment have been selected (Reference the Preferred Alternative Location Map, Figure 2). This selection was made based on information contained in the DEIS, noise studies, wetland and ecological studies, and other technical studies and on evaluating information obtained through an extensive public involvement process and agency coordination prior to publication of the DEIS. It was also based on the comments received on the DEIS and concerns raised by local residents attending the Corridor Public Hearings. It involved evaluating several design options aimed at resolving local concerns expressed in comments at the Corridor Hearings.

Proposed I-69 Preferred Alternative

Alternative alignment A-1 was selected as the preferred alignment for this segment of the **Systems Approach Alternative** for the following reasons:

- The alignment is slightly shorter and requires less right-of-way.
- A-1 displaces fewer families and businesses and is estimated to cost $20 million less than A-3.
- It avoids impacting the trailer park on Old Millington Road and is further away from concentrated neighborhoods in the Benjestown Road area.
- Alternative A-1 avoids construction impacts associated with providing ingress and egress to local businesses along US 51 through Frayser during the construction phases.



BLUE: SYSTEMS APPROACH ALTERNATIVE
BLUE DASHED: PREFERRED ALTERNATIVE
GRAY: NON-PREFERRED ALTERNATIVE

FIGURE 2
Preferred Alternative Location Map

- Alternative A-1 avoids the construction congestion associated with building an interchange at the existing US 51/SR 388 (North Watkins Street) intersection in Frayser and maintaining local traffic through this busy intersection.
- It will not impact access to the Vietnam Memorial Park or access to Firestone Park during project construction.
- It is further away from the Woodstock Community which will result in less congestion along US 51 in the vicinity of Woodstock during construction.
- There will be less noise impacts along the A-1 alignment.
- Alternative A-1 impacts less wetland acres.
- Alternative A-1 was preferred by local residents and received the most support at the Corridor Public Hearing.

Proposed I-269 Preferred Alternative

Alternative Alignment B-1 has been selected as the preferred alignment for the I-269 segment of the **Systems Approach Alternative**. The I-269 corridor is presently experiencing a significant increase in residential development and other infrastructure construction. Many new homes have been constructed since the beginning of this study which is directly related to the availability of developable land and the economic growth in this region.

Each of the alternative alignments studied have similar social, economic, environmental, and land use impacts. Alternative B-3 is the shortest route and follows the edge of the Coldwater River floodplain. Because the land in this area is above the floodplain, it is the most desirable for residential development, and as a result it is undergoing rapid change. Since the beginning of this study, a 1,600 lot planned residential community has developed. A new elementary school and fire station have been constructed. The alignment was shifted to miss the school; unfortunately it separates the school from the community it is designed to serve. The on-going rapid development of this planned community places many of the new homes in the path of the B-3 alignment. This planned community will be completed before funding is available for I-69 and will result in several hundred residential displacements, which will significantly increase the cost of the project and divide this community, as well as cause significant noise impacts on the homes adjacent to the interstate. Shifting the alignment further south will impact other new

subdivisions currently under construction and have a greater impact on the Coldwater River floodplain. Shifting the alignment further north would have a greater impact on existing residential development. B-3 also passes through a new subdivision under development south of Burke Road, as well as another new 200± lot subdivision under development on Smith Road. B-3 in this area would divide these residential areas, displace many homes and would have a noise impact on those left adjacent to the interstate. B-3 was opposed by a large majority of the public attending the Corridor Public Hearing, as well as local elected officials in the area. For these reasons B-3 was not selected. (The Corridor Public Hearing Summary is available at TDOT and MDOT offices).

Alternative B-2 is the longest of the three alignments studied and has the highest estimated cost. B-2 also has the potential to adversely impact new residential development in the area. It passes through the corner of a new subdivision (estimated to be 100± lots) currently under construction on Getwell Road. It also passes just south of a new subdivision (estimated to be 50± lots) under development on Fairview East Road. These new housing developments will be complete before the construction of this segment of I-69 begins. B-2 would displace many of these new homes and subject those left adjacent to the interstate to traffic noise impacts. For these reasons B-2 was not selected.

In consideration of the on-going development in this region and the impacts associated with each alternative along with public comments made at the Corridor Public Hearings and support of local officials, Alternative Alignment B-1 was selected as the preferred alignment.

Alignment B-1 closely follows MDOT's previously proposed MS-304 alignment that was presented at local public meetings. The three alignments proposed for the I-269 route were field located in an attempt to avoid as many existing environmentally sensitive areas, houses, businesses, churches, and other infrastructure as possible, to minimize the impact of this project. The alignments were shifted during the course of this study to avoid new development as it occurred. Although Alternative B-1 was initially estimated to displace 64 families which is slightly higher the Alternatives B-2 and B-3, there are no new subdivisions currently under development in the path of B-1. This alignment is supported by local elected officials who have

the authority to approve land use zoning to control future residential development in this area. Alternatives B-2 and B-3 due to the previously discussed on-going development will displace more houses and other infrastructure than the preferred alignment.

Alternative B-1 will displace more wetlands than Alternative B-3. The B-3 alignment was selected for this study because it was above the Coldwater River floodplain and avoided many wetlands. However, because of this desirable location new housing development is rapidly occurring. A new 1,600+ lot planned residential community is currently under construction in the path of Alternative B-3. Alternative Alignment B-3 has the potential to displace several hundred of these new homes. It would split the community and be very close to a recently constructed elementary school.

Alternative B-1 is more economically beneficial to the City of Byhalia and Marshall County. It will provide access to more land for local development. It will increase the tax base and improve the quality of life. It will provide better traffic service to existing industrial and residential development in the area. Alternative B-1 has been endorsed by the Northern Mississippi Industrial Development Association, Marshall County Industrial Development Authority, Marshall County Board of Supervisors, the Byhalia Chamber of Commerce and the town of Byhalia. It will provide very much needed economic relief to this area.

A more detailed description of the alternative alignments studied can be found in Chapter 2 Alternatives.

The following table (Table 1) is a comparison of the alternative alignments on new location. Since much of SIU 9 is on existing interstates and highways or on roadways previously approved for construction, the data presented is only for the new location alternative alignments.

Project Impacts

Land Use Impacts

The impacts to land use are very similar for all of the new location alignments studied including the preferred alternative alignments. Land use would change as land currently in agricultural

use, open farmland or other uses, is converted to highway right-of-way. Because the proposed roadway is access controlled, secondary development resulting from the proposed roadway is most likely to occur at the proposed interchanges with the state routes and major roadways it crosses. Development pressure would be focused on areas around the proposed interchanges, although not all interchanges are likely to develop in the foreseeable future.

The cumulative impact to land use involves the conversion of land from agricultural use and open space to residential, commercial and industrial uses. This conversion is already occurring at a rapid rate at various locations in the project area. Based on a review of land use plans prepared by the surrounding communities, as the population rate increases and job opportunities increase it is likely that the need for more residential and commercial development will continue for decades. These land use changes will result in the loss of wildlife habitat, wetlands, forested areas, farmland, as well as impact the floodplains of the surrounding rivers and streams. The number of acres of potential loss can not be accurately determined at this time. The actual size and number of future development projects and the likelihood of these actions being permitted is unknown.

Economic Impacts

None of the alternative alignments studied would have an adverse impact on the local economy. All of the alternatives including the preferred alternative alignments would displace a small number of businesses, however businesses similar to those displaced would remain in the area and there are sites available should the displaced businesses choose to relocate in the project area. The proposed project will have a beneficial secondary impact on the local economy by supporting the local governments' efforts to recruit new industrial, retail, and other facilities to the project area. The expansion of existing industry and new industry will increase area tax revenues and provide jobs. The cumulative impact will be an increase in the tax base in the surrounding communities through new development.

Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, February 11, 1994 requires that the evaluation of

Federal actions identify and address disproportionately high and adverse human health and environmental impacts on low income and minority populations. The evaluation of the preferred alternative alignments has not revealed any disproportionately high concentration of low-income and/or minority populations along the alternative alignments. The preferred alternative alignment would not change the basic social arrangement or character of the project area and would not create a barrier to social interaction. No impact on school districts or churches is foreseeable. Consequently, the project would not have a disproportionately high and adverse effect on those population groups.

Hazardous Materials

Although no hazardous material sites have been identified within the proposed right-of-way, additional studies of the land fill sites within the proposed right-of-way will be conducted to determine the contents and extent of materials and the specific impacts to the land fill site. In the event that hazardous substances or wastes are encountered within the proposed right-of-way of the preferred alternative alignments, their disposition shall be subject to the applicable sections of the Federal Resources Conservation and Recovery Act (RCRA), as amended, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended and the Tennessee Hazardous Waste Management Act of 1983.

The preferred alternative alignments will involve the removal of buildings and has the potential for encountering friable asbestos. Pursuant to the TDOT Standard Specifications for Road and Bridge Construction (March 1995), the construction contractor must notify the Tennessee Department of Environment and Conservation (TDEC) prior to the demolition of any building in accordance with TDEC policy and regulations. All structures containing friable asbestos must be demolished in accordance with these regulations and policies.

Protected Species

The proposed project will not impact any Federal listed threatened or endangered species or critical habitat. The proposed project is in compliance with Section 7 of the Endangered Species Act.

Cultural Resources Impacts

There are no archaeological or historical properties listed on or eligible for the National Register of Historic Places located along the preferred alternative alignments. SIU 9 of proposed I-69 is in compliance with Section 106 of The National Historic Preservation Act of 1966.

Section 4(f) Impacts

The proposed project does not involve the use of publicly owned land from a park, recreation area, or wildlife refuge, or any land from a historic site of national, state, or local significance. The proposed project (SIU 9) is in compliance with Section 4(f) of the Department of Transportation Act of 1966.

Executive Order 11990 Wetland Impacts

All of the new location alternative alignments evaluated for this segment of I-69 (SIU 9) involve the unavoidable filling of wetlands (See Table 1). Early in the planning phase an effort was made to field locate all the alternative alignments studied to avoid wetlands or minimize the impact to the extent practical. Until a ground survey is completed and roadway plan development is underway, the precise level of wetland impacts and appropriate mitigation can not be determined. The unavoidable impacts to wetlands will be mitigated at an approved wetland site. There are several wetland mitigation banks governed by approved "Wetland Banking Agreements" located in the affected watersheds that could be used to mitigate the unavoidable wetland impacts. On past projects, when use of wetland banks was authorized by the wetland Mitigation Banking Resource Team (MBRT), which is made up of Federal and State resource and permitting agencies, the mitigation ratio has been a minimum 2:1 for wetlands replaced inside the watershed and a minimum 4:1 for replacement of wetlands impacted outside the watershed. A listing of the type wetlands impacted, their size and functional value are contained in Chapter 4 under Wetland Impacts. TDOT and MDOT will work with the appropriate permitting agencies and follow established wetland banking procedures to determine if the use of the wetland banks is appropriate for this project and determine the level of mitigation required. A detailed mitigation plan will be developed in consultation with resource and permitting agencies during the design and permitting phase of the project.

Permits Needed

The preferred alternative alignments will require both State and Federal Water Quality Permits for stream crossings and wetland impacts. Section 404 permits from the USACE, National Pollution Discharge Elimination System (NPDES) permits, and Tennessee and Mississippi State Water Quality Permits will be needed. TDOT and MDOT will coordinate mitigation efforts with Federal and State regulatory agencies before preparing final mitigation plans and submitting permit applications. It is during the permitting process phase that the appropriate compensatory mitigation for the unavoidable impacts of this project will be determined.

Other Major Actions

There are several projects under development along the **Systems Approach Alternative** Corridor that will be incorporated into the overall I-69 route. The Mississippi Department of Transportation is presently constructing a new I-55/MS 304 Interchange in Hernando that will be the beginning point for SIU 9. MDOT will also be widening I-55 to eight lanes from Hernando to the state line. TDOT has under development the widening of I-240 to eight lanes from the I-55/240 Interchange to the I-40/240 Midtown Interchange. There is also another approved project currently under construction to widen I-240 to eight lanes from the I-40/240 Midtown Interchange to SR 300. With the construction of these projects, there will be an eight-lane facility that extends from Hernando, Mississippi north through the city of Memphis ending at the junction of US 51 and SR 300 just south of Frayser, Tennessee.

Another project TDOT is committed to build is a new segment of SR 385 east of Memphis. This project will connect with a previously constructed segment of State Route 385 constructed to interstate standards that extends from I-40 north to Millington. The new segment begins at the existing I-40/SR 385 Interchange and extends south to Collierville and connects with Nonconnah Parkway. This project has an approved Final Environmental Impact Statement and sections of the new roadway are currently under construction.

All of these improvements are separate projects, they have their own funding and environmental documentation that discussed the environmental impacts of each project, and they are not dependent on the approval of I-69. The environmental impacts associated with these projects

have been evaluated and the appropriate mitigation measures have been implemented. Copies of the environmental documents are available at TDOT and MDOT offices. All of these projects are included in the current 2026 Long Range Transportation Plan that has been adopted and found to be in conformity with the Clean Air Act. This segment of I-69 (SIU 9) will be routed over these roadways, however no additional lanes will be added and no new right-of-way is required. The only changes to these roadways will be the interstate signing.

SAFETEA-LU Statute of Limitations

"A Federal Agency may publish a notice in the Federal Register, pursuant to 23USC§139(1), indicating that one or more Federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 180 days after the date of publication of the notice, or within a shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply."

TABLE I

SUMMARY OF ALTERNATIVES

Alternatives	A-1	A-3	B-1	B-2	B-3	A-1/ B-1	A-1/ B-2	A-1/ B-3	A-3/ B-1	A-3/ B-2	A-3/ B-3
Project Length (miles)	15.2	15.3	28.6	30.6	26.6	43.8	45.8	41.8	43.9	45.9	41.9
New Right-of-Way (acres)	739	798	1479	1552	1406	2218	2291	2145	2277	2350	2204
Family Displacements	21	60	64	53	52*	85	74	73*	117	113	112*
Business Displacements	2	5	6	6	1	8	8	3	11	11	6
Non-Profit Displacements	0	0	0	0	0	0	0	0	0	0	0
Farmland (acres)	128	95	435	497	253	563	625	381	530	592	348
Stream Crossings	21	20	39	46	37	60	67	58	59	66	57
Potential Linear Feet of Stream Impacts (feet)	9,590	8,620	15,780	20,980	13,850	25,370	30,570	23,440	24,400	29,600	22,470
Wetlands (acres)	48	53	69	51	6	117	99	54	122	104	59
Historic Properties Impacted	0	0	0	0	0	0	0	0	0	0	0
Recorded Archaeological Sites	11	9	20	22	15	31	33	26	29	31	24
Hazardous Waste Sites	0	1	0	0	0	0	0	0	1	1	1
Landfill Sites	3	4	0	0	0	3	3	3	4	4	4
Impacted Noise Receptors	3	29	70	68	43†	73	71	46†	99	97	72†
Construction Cost ($ million)	169.2	190.3	315.3	338.3	262.9	484.5	507.5	432.1	505.6	528.6	453.2
Right-of-Way Cost ($ million)	30.0	36.0	40.1	56.0	51.7	70.1	86.0	81.7	76.1	92.0	87.7
Utility Cost ($ million)	1.4	1.4	2.6	2.8	2.4	4.0	4.2	3.8	4.0	4.2	3.8
Total Cost ($ million)	200.6	227.7	358.0	397.1	317.0	558.6	597.7	517.6	585.7	624.8	544.7

Impacts are based on a 300-foot wide corridor.

* Because of the recent residential development along this alignment, B-3 has the potential to displace several hundred new homes in the Forest Hill Community subdivision.

† Does not include future noise impacted residences in the Forest Hill Community subdivision that is currently under construction.

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ENVIRONMENTAL COMMITMENTS

Throughout the document measures are outlined to avoid, minimize, or mitigate the impacts of the proposed project on the human and natural environment. These measures are listed below:

ROW Acquisition

- Farms that are bisected by the proposed project will be evaluated during the design phase to determine if access can be provided for livestock and machinery.
- In order to minimize the unavoidable effects of right-of-way acquisition, TDOT and MDOT will carry out a right-of-way and relocation plan to assist all property owners and displaced persons. All displacees will be provided decent, safe and sanitary housing within their financial means.

Water Quality Protection

- The use of oversized drain, detention/retention structures, surface, subsurface, and cross drains designed as appropriate or needed so that discharge would occur in locations and in such a manner that surface and subsurface water quality would not be affected (the outlets may require aprons, bank protection, silt basins, and energy dissipaters).
- TDOT and MDOT will coordinate the permitting process during the development of right-of-way and construction plans in order to address any issues that arise.
- TDOT will coordinate with the Division of Water Pollution Control to ensure that all water bodies within the State of Tennessee are accurately identified and all unavoidable impacts to streams and wetlands are adequately addressed and MDOT will coordinate with the Mississippi Department of Environmental Quality to ensure that water quality issues are adequately addressed.

Water Quality Impact Minimization/Mitigation

- Mitigation measures to protect water quality will be in conformance with the appropriate water quality permits.
- TDOT and MDOT plan to use wetland mitigation banks to mitigate the unavoidable wetland impacts. The use of wetland banks versus on-site mitigation will be further discussed with resource and permitting agencies in the design phase of the project prior to

the permitting process.

- In the event on-site stream mitigation is not possible, TDOT will work through the Tennessee Stream Mitigation Program to mitigate stream impacts.
- MDOT will coordinate required stream impacts & mitigation with USACE through the Vicksburg District.
- During the design of the river and stream crossings, consideration will be given to minimize fill and extend bridge lengths to further avoid or minimize impacts to the floodplains and assorted wetlands.
- The commensurate wetland mitigation ratios will be determined in consultation with Federal and State resource and permitting agencies as soon as possible and before any permit applications are submitted.

Noise Concerns

- The criteria for the construction of noise barriers are not met along the preferred alignment in Tennessee. In Mississippi, the criteria are currently met for one location along alignment B1/B2 Section 1. Due to the rapid development along parts of the preferred alignment in Mississippi, a re-evaluation of the noise impacts will be conducted during the design phase before project plans are finalized.

Design Constraints

- Sidewalks or shoulders for pedestrians and shoulders or wide curb lanes for bicyclists will be provided on all bridges that cross over the interstate, as well as sections of roadway that pass beneath the Interstate.
- Measures will be evaluated to minimize and possibly avoid longitudinal impacts to streams impacted by the project.
- A sediment control plan will be developed in accordance with “Standard Specifications for Road and Bridge Construction” of the respective State.
- The project will be designed to avoid interruption of transportation facilities needed for emergency vehicles or any evacuation route needed to serve the community.
- TDOT will work with the Airport Authority during the design phase to reduce any impacts on Dewitt Spain Airport.

- TDOT and MDOT will consider wildlife passages should new information become available that identifies migratory trails that cross the proposed project.

Flood Protection

- Floodplain crossings will be designed to limit increases in backwater and downstream velocities in accordance with FEMA regulations, 23CFR625, 630, and 650, and any other State of Federal regulations as appropriate.
- TDOT and MDOT will work closely with USACE to consider effects of the project to on-going flood control projects.

Construction Measures (Vegetation)

- Vegetation clearing for the project will be limited to the minimum area required for construction of the project and disturbed areas will be re-vegetated with native species as soon as practical to hold soil movement to a minimum and minimize impacts to wildlife.
- TDOT and MDOT will work with the state water quality agencies to insure that proper controls are in place on all 303(d) listed streams and that the Total Maximum Daily Loads (TMDLs) are considered in the design and construction phases of the project and are in compliance with the storm water permits.
- Prohibit the dumping of chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful waste into or alongside of streams or impoundments, or into natural or manmade channels leading thereto.

Debris and Hazardous Material Disposal

- Disposal of debris, to include open burning, will be in accordance with all applicable laws and ordinances.
- Toxic or hazardous material will be segregated, labeled and stored and disposed of properly.

Air Quality and Noise Protection

- Restrict construction activities in the vicinity of noise sensitive receptors to 7 AM to 7 PM during the week (5 – 6 days) and be discontinued on Sundays and on locally

observed federal and /or state holidays.

- To reduce potential air quality impacts, tarps will be used on trucks transporting construction wastes and equipment will be properly maintained.
- If open burning of waste is implemented, the contractor must meet the burning and dust control requirement of any applicable state and local laws, ordinances and regulations regarding these emissions.
- The contractor shall comply with all state and local sound control and noise level rules, regulations, and ordinances that apply to any work performed pursuant to the contract.
- Each internal combustion engine used for any purpose on work related to the project shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without such muffler.

Miscellaneous

- Traffic will be maintained on existing roadways during construction or detours will be developed. Access to properties will be maintained during construction.
- Work in and around utilities will be coordinated with the appropriate utility companies to avoid or minimize damage or disruption of services.
- The contractor will cease construction if any archaeological material is encountered and contact the appropriate State Historic Preservation Officer.

Most of the above measures are required by various Federal and State laws, regulations, policy or best practice. Several of these measures that need additional work to accomplish are considered to be of such importance that they are identified on the following page as environmental commitments. The implementation of these environmental commitments will be specifically tracked by the respective States and the progress on their implementation will be addressed in all environmental re-evaluations.

SPECIAL ENVIRONMENTAL COMMITMENTS

- TDOT and MDOT will coordinate the permitting process during the development of right-of-way and construction plans.
- TDOT and MDOT plan to use wetland mitigation banks to mitigate the unavoidable wetland impacts. The use of wetland banks versus on-site mitigation and wetland mitigation ratios will be further discussed with resource and permitting agencies in the design phase of the project prior to the permitting process.
- In the event on-site stream mitigation is not possible, TDOT will work through the Tennessee Stream Mitigation Program to mitigate stream impacts.
- During the design of the river and stream crossings, special attention will be given to minimize fill and extend bridge lengths to further avoid or minimize impacts to the floodplains and assorted wetlands.
- Measures will be evaluated to minimize and possibly avoid longitudinal impacts to streams impacted by the project such as shifting the alignment, spanning streams, and special design details (diversion ditches, settling ponds).
- The criteria for the construction of noise barriers are not met along the preferred alignment on new location in Tennessee. In Mississippi, the criteria are currently met for one location along alignment B1/B2 Section 1 which will be constructed. Due to the rapid development along parts of the preferred alignment in Mississippi, a re-evaluation of the noise impacts will be conducted during the design phase before project plans are finalized. Additional noise barriers will be provided where the criteria are met.
- Sidewalks or shoulders for pedestrians and shoulders or wide curb lanes for bicyclists will be provided on all bridges that cross over the interstate, as well as sections of roadway that pass beneath the Interstate.
- Vegetation clearing for the project will be limited to the minimum area required for construction of the project and disturbed areas will be re-vegetated with native species as soon as practical to hold soil movement to a minimum and minimize impacts to wildlife.
- Construction activities will be restricted in the vicinity of residencies and other noise sensitive receptors to 7 AM to 7 PM during the week (5 – 6 days) and be discontinued on Sundays and on locally observed federal and /or state holidays.

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CHAPTER 1
PURPOSE AND NEED FOR PROPOSED ACTION

1.1 PROJECT BACKGROUND

Interstate 69 (I-69) is a 1,600-mile long national highway project that will ultimately connect Canada to Mexico. Also known as Corridors 18 and 20, I-69 includes eight states from the Gulf of Mexico and Texas's Golden Triangle, through the Mississippi Delta, the Midwest, to the industrial north and finally to Canada. The states include Arkansas, Indiana, Kentucky, Louisiana, Michigan, Mississippi, Tennessee and Texas. (See Figure 1-1, Overall U.S. Study Corridor)

1.1.1 Legislation

The national I-69 Corridor was designated by Congress in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) to connect major cities and enhance economic development. The enactment of the North American Free Trade Agreement of 1992 (NAFTA) has stimulated trade flows from Mexico to the industrial north/northeast portions of the United States, as well as trade flows from Canada. The Transportation Equity Act for the 21st Century (TEA 21), signed into law June 9, 1998, extended Corridor 18 from Canada to Mexico and officially designated it as Interstate I-69.

Studies of the movement of commodities, both finished goods and raw materials, show there is significant demand for this movement to occur along a route within the designated I-69 Corridor. With an increasingly global economy and evolving international trade opportunities, direct and continuous connections from Canada and Mexico play a key role in the health of the United States economy. I-69 will give the nation new capacity to efficiently move commodities from border to border, significantly reducing travel times and cost.

Source: Corridor 18 technical report.

0 50 100 200
Scale in Miles

0 50 100 200
Scale in Kilometers

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Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-1

Overal U.S. Study Corridor

1.1.2 Previous Studies

A Steering Committee comprised of representative states and the Federal Highway Administration has spearheaded studies of the national corridor. These studies helped determine whether building I-69 is feasible and cost effective. The Steering Committee additionally determined the overall purpose and goals for the I-69 project.

The overall defined purpose of I-69 is:

- 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 Corridor 18 Steering Committee's *Special Environmental Study: Statement of Purpose and Need for I-69* (February 7, 2000), the overall defined goals for I-69 are:

- 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.
- To enhance regional and local transportation systems by providing transportation capacity to meet current and future needs.
- 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.
- To facilitate connections to intermodal facilities and major ports along the corridor.
- To facilitate the safe and efficient movement of persons and goods by fostering a reduction in incident risk.
- To upgrade existing facilities to be utilized as I-69 within the Corridor to design standards suitable for an Interstate highway and commensurate with the projected demand.

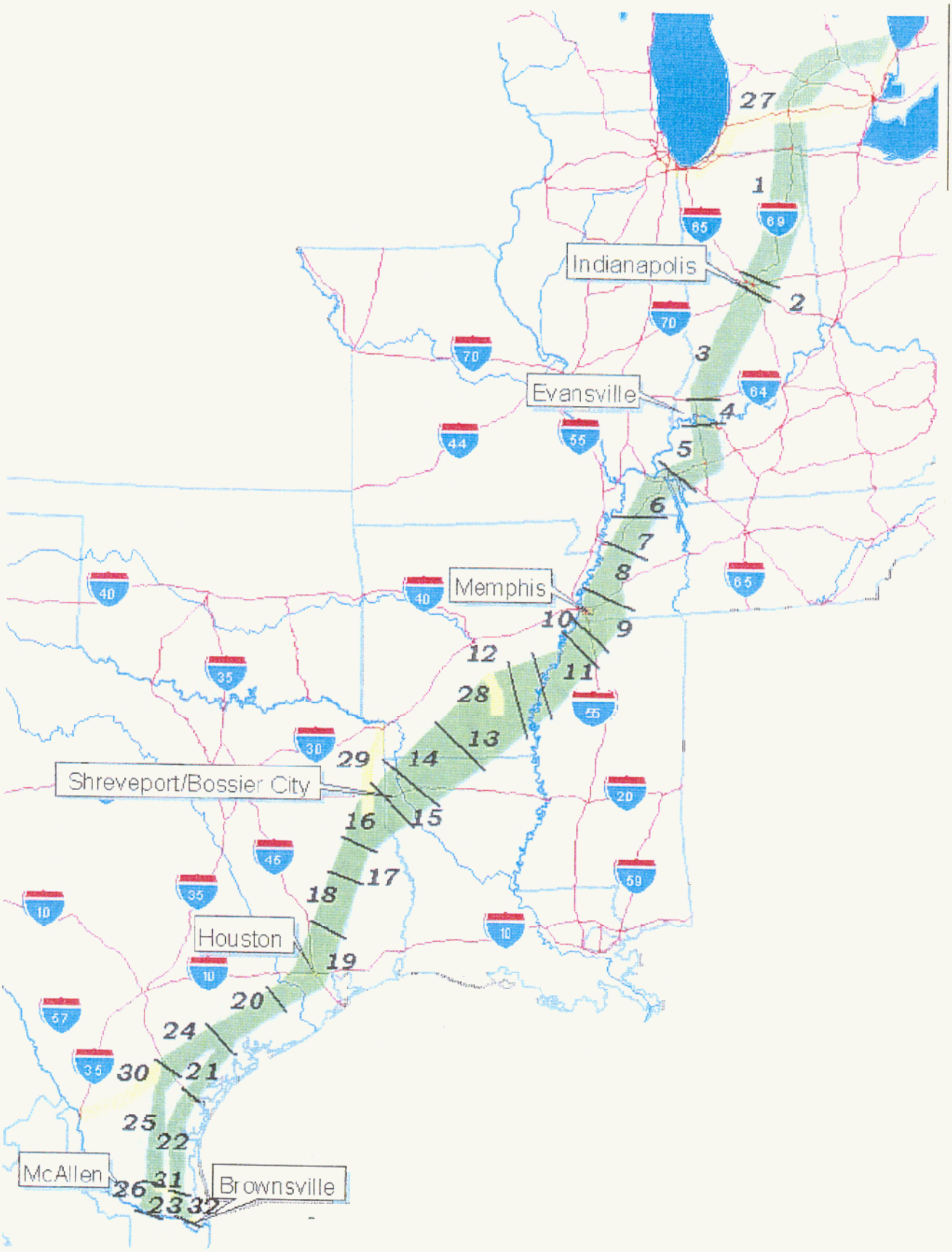
- To directly connect the urban areas named by Congress (the "named cities" of Indianapolis, Evansville, Memphis, Shreveport/Bossier City, and Houston and the Lower Rio Grande Valley) with an Interstate highway.

Between 1991 and February 2000, several analyses of the full corridor were conducted resulting in the following reports:

- Corridor 18 Feasibility Study (1995)
- Corridor 20 Feasibility Study (1996)
- Corridor 18 Special Issues Study (1997)
- I-69 (Corridor 18) Special Environmental Study (2000)
- I-69 Sections of Independent Utility (2000)

In order to facilitate project development, environmental studies and construction, the ***I-69 (Corridor 18) Special Environmental Study*** divided the overall 1,600-mile route into 32 Sections of Independent Utility (SIU's) (See Figure 1-2, Sections of Independent Utility Map). Each SIU is to address state and local needs, schedules, and funding constraints. As stated in the December 8, 2000 Federal Register, "the SIU's were developed in a manner consistent with FHWA Memorandum dated November 3, 1993 on establishing logical termini, and have been approved for advancement to the FHWA National Environmental Policy Act (NEPA) decision making process."

Each SIU is under the jurisdiction of the transportation agency in each state responsible for planning, design and construction of Interstate highways. Some sections are already complete, like that between Indianapolis and the Michigan/Canadian border. Some sections are existing highways in need of upgrading to Interstate standards. Other sections are in various stages of environmental and design work, and others are awaiting funding for appropriate environmental, location or design decisions.



Source: Corridor 18 Study.

0 50 100 200
Scale in Miles
0 50 100 200
Scale in Kilometers

N
W E
S

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-2
Sections of Independent Utility

Because specific highway locations vary greatly, the SIU process gives state transportation agencies the responsibility of addressing the particular needs along a specific section. The SIU process also means each segment has an independent utility or significance, and the work done on each section will satisfy the transportation need and objective of that particular project. The SIU connecting points, approved at the federal level, are defined as "rational end points for transportation improvements and review of environmental impacts".

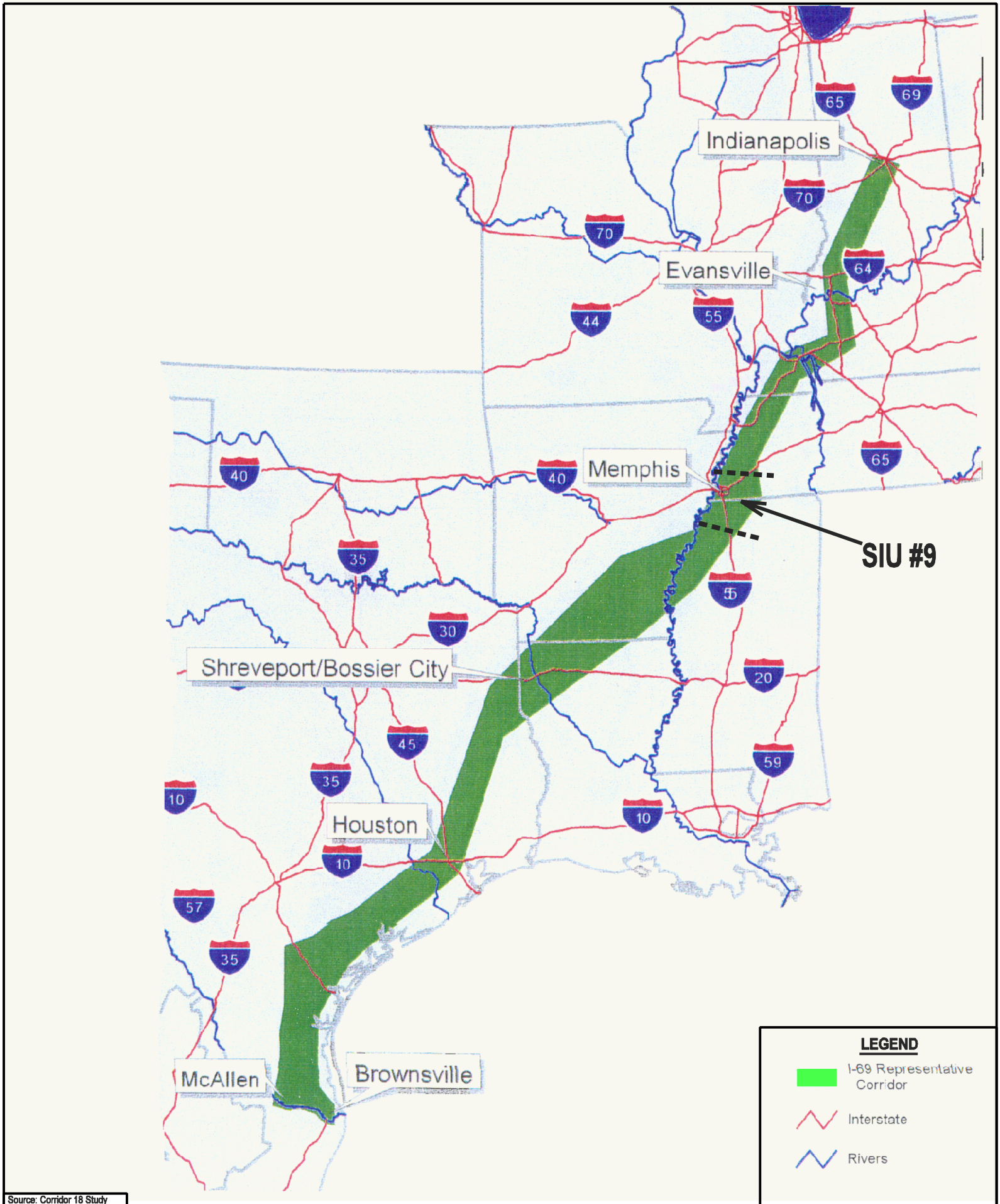
This document will specifically address Section of Independent Utility 9 (SIU 9). See Figure 1-3.

1.2 PROJECT PURPOSE AND NEED

The purpose of this project (SIU 9) is to provide a route for I-69 that will satisfy the traffic demands between the logical termini of Hernando, Mississippi and Millington, Tennessee. Its purpose is also to increase accessibility of the region, stimulate economic development, respond to local traffic growth and travel demands of the public by providing a high speed access-controlled facility that is responsive to traffic usage, reduces travel time by providing needed roadway links, improves safety and enhances access between communities and routes within the I-69 corridor. This purpose is best accomplished through a systems approach to meeting the diverse traffic demands of the Memphis Urbanized Area and providing the economic growth opportunities envisioned by the surrounding communities.

1.2.1 Description of the Study Corridor

This project is located within the Memphis Metropolitan Planning area. Memphis is the largest city in Tennessee with a population of 650,100. The population of the Standard Metropolitan Statistical Area (SMSA) is approximately 1,105,094 (1999 Bureau of Business and Economic Research Census). Transportation policy for major roadways in the Memphis area is guided by the Memphis Urban Area Metropolitan Planning Organization (MPO). The Memphis Urban Area Metropolitan Planning Organization Transportation Policy Board (TPB) is composed of the principal elected officials of the governmental jurisdictions participating in the Memphis Urban Area Transportation Planning Process, along with the chairpersons of the major providers of local and regional transportation facilities. The TPB is responsible for administrative and fiscal



Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-3
Segment of Independent Utility #9

control; review and approval of all transportation planning, programming and implementation; and establishment of committees as required to ensure cooperative, comprehensive and continuing transportation planning. The MPO Executive Board membership includes the Governors of Tennessee and Mississippi, the Mayors of Memphis and Shelby County, the President of DeSoto County, the Mississippi Board of Supervisors and all chief executive officials from the counties and municipalities in the MPO planning area and the Chairpersons of the Memphis Port Commission, Airport Authority and Transit Authority. The MPO planning area includes all of Shelby County, the western portion of Fayette County and the northern portion of DeSoto County.

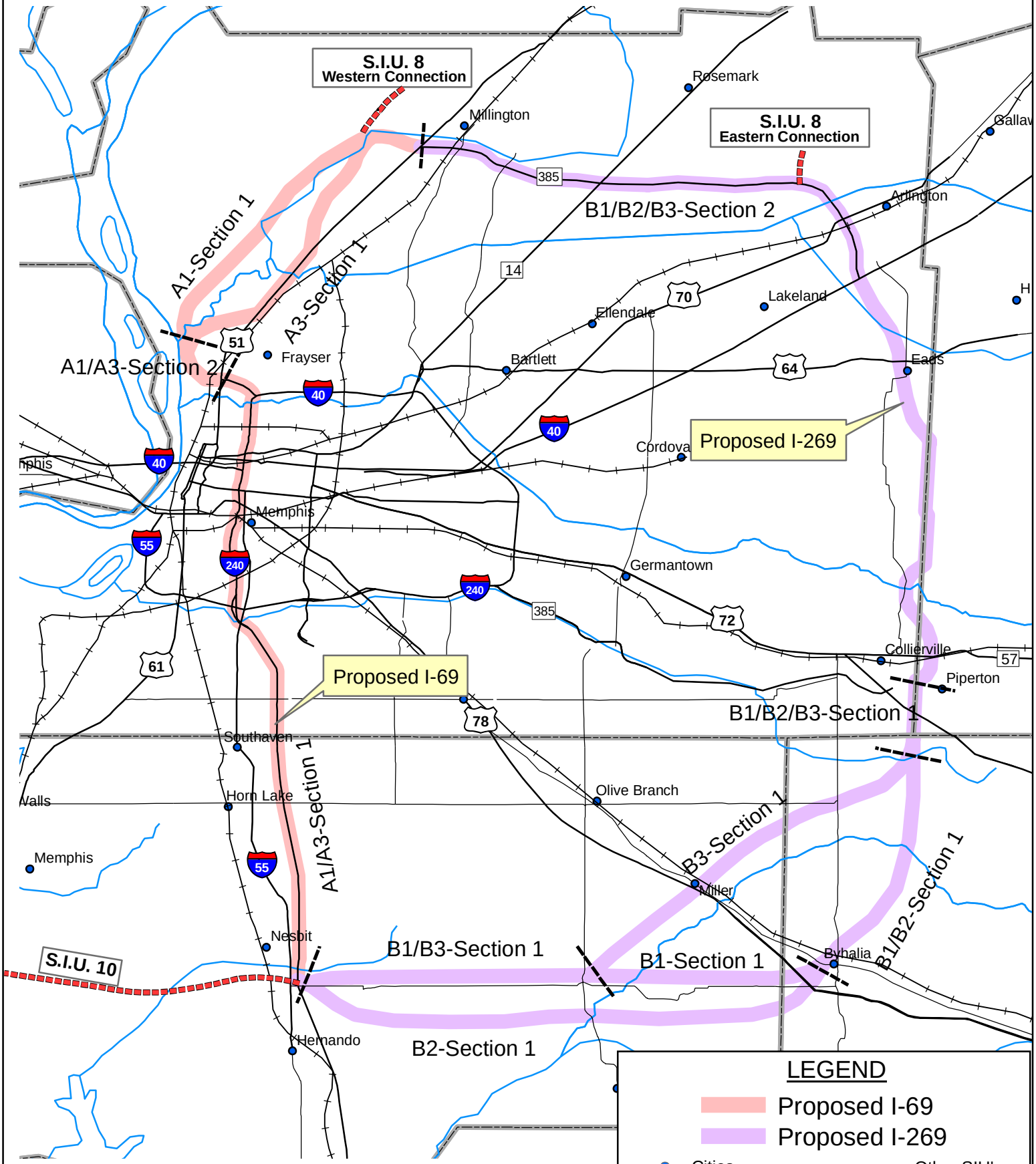
The beginning and ending points for SIU 9 were determined by the ***I-69 (Corridor 18) Special Environmental Study: Sections of Independent Utility***, dated August 25, 1999. The southern and northern termini locations allow the possibility of studying various alignments through the Memphis urban area.

SIU 9 begins at the new Interstate 55/MS 304 Interchange currently under construction in Hernando, Mississippi (linking with SIU 10) and extends north through Memphis to the intersection of US 51 and State Route 385 in Millington, Tennessee (linking with SIU 8). Truck traffic in this region is expected to grow over the next twenty years. By 2020 the U.S. Transportation System is expected to handle about 23 billion tons of cargo valued at nearly 30 trillion dollars. Increases in the volume of freight has strained the transportation network in some locations and exacerbated conflicts between the traveling public and freight carriers creating potential bottlenecks for the movement of freight. Memphis is one of the largest distribution centers in the United States. Over 300 motor freight carriers operate in Memphis offering direct service to all 48 contiguous states as well as Canada and Mexico. More metropolitan markets can be served overnight from Memphis than any other city in the United States (Memphis Chamber of Commerce website, www.memphisregion.com). Understanding future freight activity is important for matching infrastructure supply to demand and for assessing investment and operational strategies to avoid becoming a potential bottleneck.

Memphis is one of the "named cities" in the federal legislation to be connected to the new I-69 facility. The movement of freight in Memphis is a multi-billion dollar industry, and the city is a hub of multi-modal transportation. Interstates 55, 40, and 240 serve the Memphis area, which is nearly halfway between Canada and Mexico. It is one of the top ten distribution centers in the United States. I-69 offers much needed economic opportunities for West Tennessee and Northern Mississippi. This economic artery will boost job creation and business expansion throughout the 21-county region (See *Corridor 18 Feasibility Study*, 1995). The completion of I-69 will offer the region additional opportunity to compete for distribution jobs.

Currently three existing interstate facilities serve the Memphis area. I-40 travels in an east-west direction across the state of Tennessee connecting the cities of Knoxville, Nashville, and Memphis. I-40 connects California on the west coast to North Carolina on the east coast. I-240 is a local transportation facility circling the majority of the City of Memphis and providing movement around and within the Memphis urban area. I-55 is a north-south facility crossing the state of Mississippi and the southwest corner of Tennessee connecting Memphis to Jackson, Mississippi. I-55 connects the New Orleans, Louisiana area in the southeast, crossing the Mississippi River in Memphis and continuing to St. Louis, Missouri and Chicago, Illinois in the northeast. The convergence of these three interstates in Memphis and the growth in local traffic has significantly affected the capacity and level of service of the existing transportation system in the Memphis area.

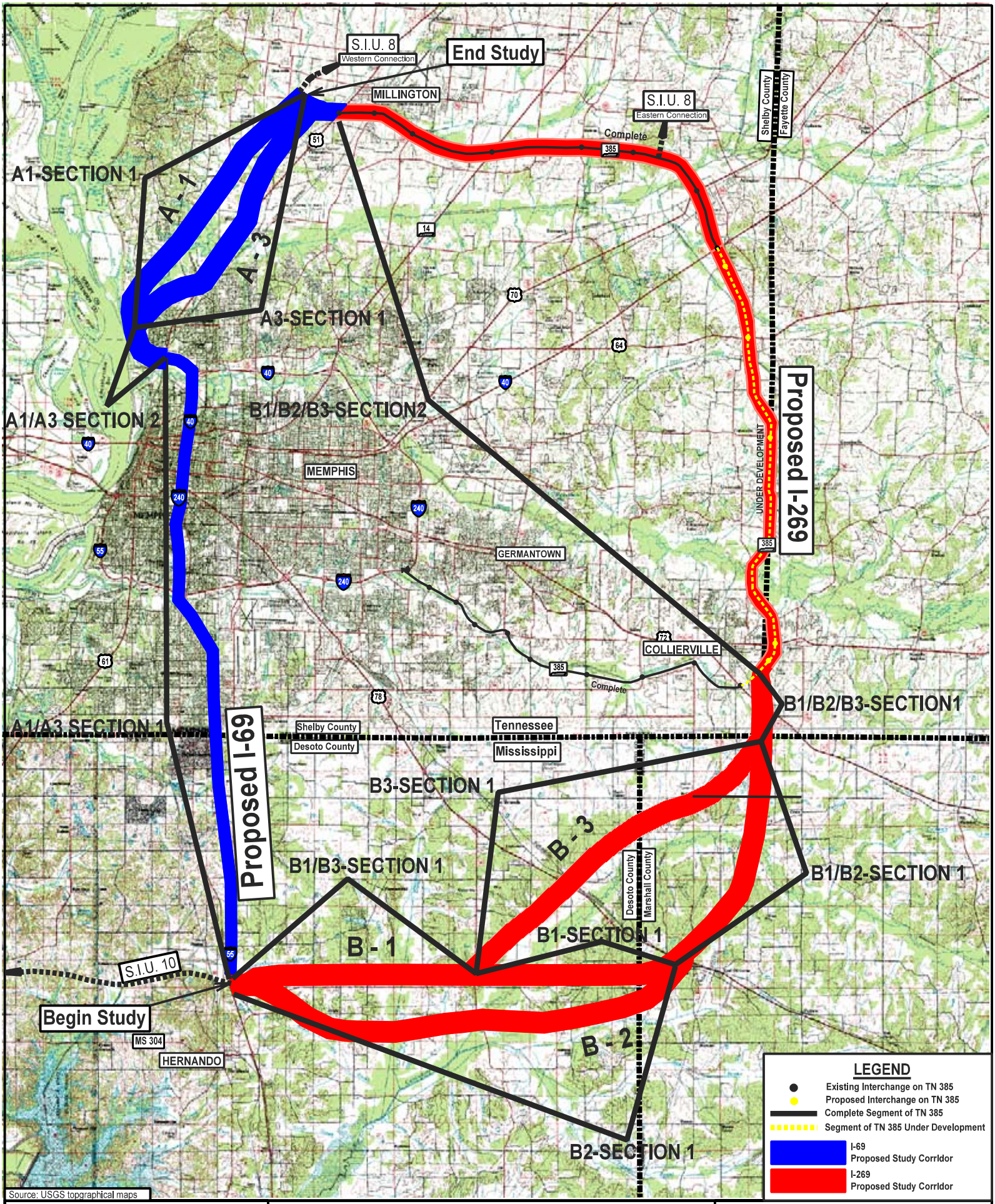
In the early phase of project development for this segment of I-69, two alternative corridors with common beginning and ending points were evaluated. One corridor passed through Memphis, the other bypassed Memphis to the east. Each corridor utilized sections of existing interstates and highways built to interstate standards. Each corridor also had sections involving construction on new location. As the study progressed and after evaluating traffic patterns and growth patterns in the surrounding area, it became apparent that neither a single route through Memphis, nor a single route bypassing Memphis to the east would meet the purpose and need of I-69 (See Figures 1-4A and 1-4B).



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-4A
General Location Map



Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-4B
Systems Alternative Approach Map

Recent traffic studies indicate that a majority of the traffic on the existing interstate system through Memphis is local traffic and that the interstate currently operates at congested levels during peak hour periods. Arkansas has widened I-40 to the west of Memphis from four lanes to six lanes. According to the Arkansas Trucking Association, only sections of the Pennsylvania and Ohio Turnpikes have more daily truck traffic than the section of I-40 between Memphis and Little Rock, Arkansas. Studies of the projected I-69 traffic and freight movement show that a large proportion of the I-69 commercial traffic will have an origin or destination in Memphis.

Bringing the I-69 traffic through Memphis on existing interstates would provide good connection to the Mississippi River bridges (I-40 West and I-55 North), the Port of Memphis, the Memphis International Airport and the intermodal connections in Memphis. Also, I-69 through Memphis is approximately 25 miles shorter than the eastern bypass. However, during congested periods, through traffic on I-69 would experience delays and a low "Level of Service" especially as traffic volumes increase. Through traffic on I-69, and traffic destined for the major highways leaving Memphis to the east, would not be adequately served without an eastern bypass. Conversely, since a large volume of traffic is destined for the downtown Memphis area, a single bypass route to the east does not satisfy the purpose and need of the I-69 corridor.

In order to meet the purpose and need of I-69 and provide an adequate route for the movement of freight between Canada and Mexico, as well as freight movement in Memphis and the anticipated growth in this region, a **Systems Approach Alternative** has been selected as the preferred alternative.

The **Systems Approach Alternative** involves connecting existing and proposed interstates and other existing and proposed major highways identified in the Memphis Long Range Transportation Plan and Mississippi's Vision 21 Plan into a roadway system that will meet the defined goals and purpose and need of I-69. It will provide a route through Memphis, as well as a bypass route to the east of Memphis.

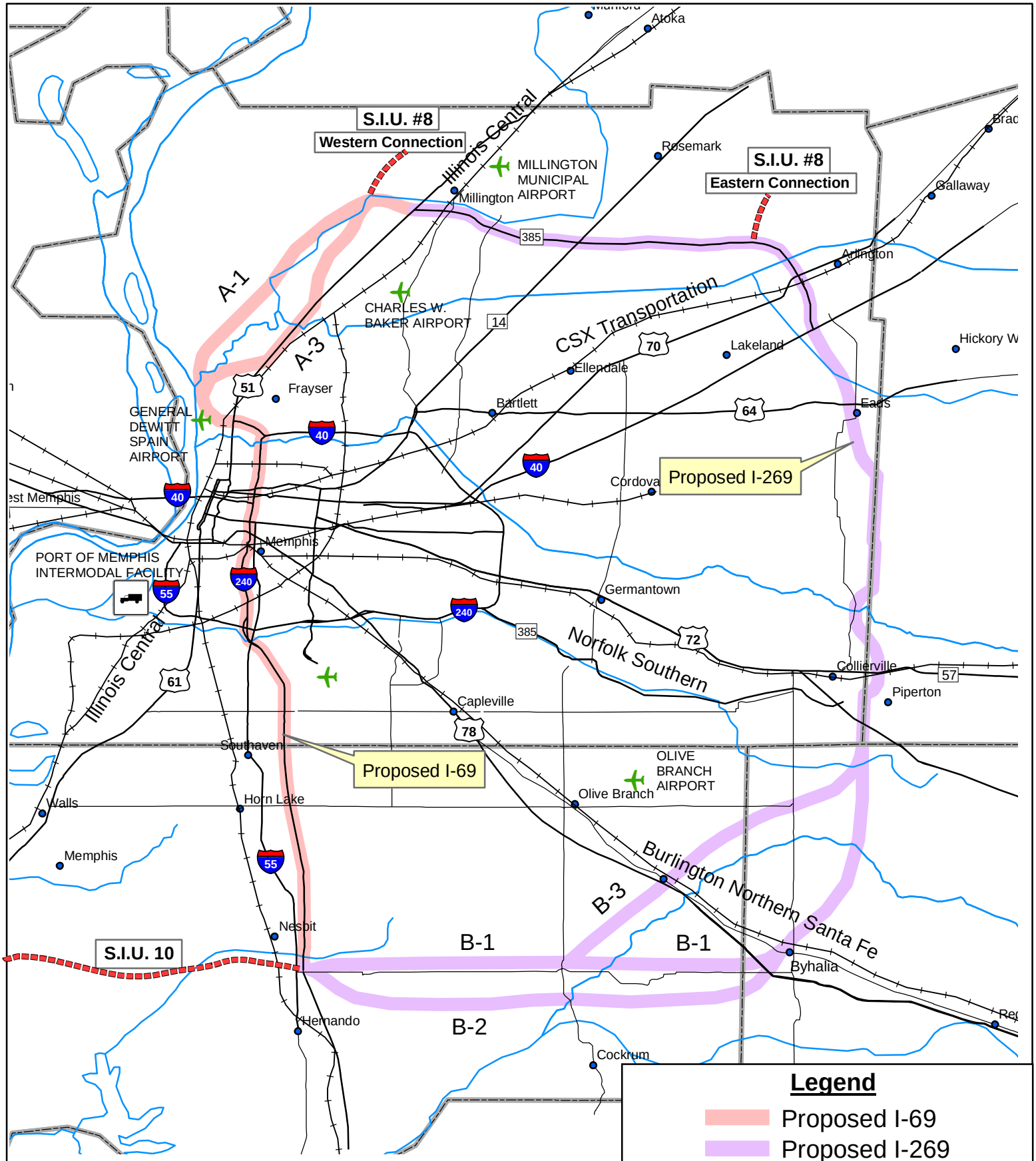
Much of SIU 9 is proposed to utilize existing interstates and other state highways built to interstate standards. The primary route for proposed I-69 will begin at the I-55/MS 304

Interchange currently under construction in Hernando and follow existing Interstates 55, 240, and 40 through central Memphis. The alignment will then follow State Route 300 to its junction with US 51. At this point, the alignment extends west and then north approximately 15 miles on new location to the US-51/SR-385 intersection in Millington, Tennessee.

The **Systems Approach Alternative** will include an eastern outer loop that will also begin at the I-55/MS 304 Interchange in Hernando and extend east and then north approximately 30 miles on a new location alignment into Tennessee to a connection with State Route 385 in Collierville. The sections on new location in Mississippi will follow the corridor identified as MS 304 in the Memphis Long Range Transportation Plan. (The purpose and need of the MS 304 route is to provide a safe transportation facility with the capacity to meet the present and projected traffic needs resulting from the rapid growth of industrial, commercial and residential development in DeSoto and Marshall Counties.) The eastern part of the **Systems Approach Alternative** will then follow the approved route for State Route 385 from Collierville to I-40 (under development) and then follow the completed section of State Route 385 that extends from I-40 to its intersection with US 51 in Millington, connecting the entire system. Starting at US 51 in Millington, it would link State Route 14, US 70 in Arlington, I-40, US 64, State Route 57, US 72 in Collierville, US 78 in Byhalia and I-55 near Hernando. This not only makes these local cities more accessible to the destinations along these major arterials (Nashville; Knoxville; Jackson, Mississippi; Birmingham, Alabama; etc), but also makes these cities more accessible to each other (See Figure 1-5 Transportation Map).

This eastern loop could potentially be signed as I-269. The eastern loop will be referred to as proposed I-269 throughout this document.

The Memphis Long Range Transportation Plan identifies the need for an eastern outer loop to provide additional regional transportation access to the smaller cities and municipalities around Memphis and to connect to other key US Highways such as US 78, US 72, US 64, and US 51 which carry truck traffic that ranges from 12 to 22 percent of the total volume. US 78, which approaches Memphis from the southeast, is proposed to be upgraded to interstate standards and designated as part of the Interstate System. Future proposed I-22 will interchange with I-269



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-5
Transportation Map

north of Byhalia. This will provide a new interstate connection for freight movement from Memphis to Birmingham, Alabama. It will also provide access to the proposed 6000 acre Chickasaw Industrial site north of Byhalia which will be a major regional employment center that is vital to the local economy of Marshall and Fayette Counties. Recent land use studies indicate an increase in warehousing and truck terminals along the US 78 corridor, as well as south of the Memphis International Airport. This growth in warehousing and freight traffic will not be served by a single route through Memphis. Connecting US 78 with the outer loop (proposed I-269) will enhance the movement of people and freight in this corridor. This **Systems Approach Alternative** will also connect with major state highways and will provide flexibility in transportation choices. One of the goals of I-69 is to enhance economic growth opportunities both domestic and international through efficient flexible transportation. Without the eastern loop (proposed I-269), the communities and businesses east of Memphis with destinations either north or south of the city will be forced to travel through the city on the existing congested interstate system.

The same is true for travelers and freight movers coming from the north or south of Memphis. Without an eastern loop, travelers will be forced to use the existing congested route through Memphis. The outer loop will provide travelers with an alternate route to avoid bottlenecks caused by either an accident or breakdown in service. The eastern loop will also reduce some of the existing congestion. It could also serve as an emergency route in the event of a disaster in the downtown area.

The **Systems Approach Alternative** will connect approximately 100 miles of existing interstate and existing and proposed state highways built to interstate standards into one system that will benefit far more businesses and people than a single route through Memphis or a single eastern bypass route. Approximately 55 miles of the proposed systems alternative is already in place. This project will result in approximately 45 miles of new construction (See **Systems Approach Alternative** Map in Figure 1-4B).

There are several projects as previously mentioned in various stages of development along the proposed **Systems Approach Alternative** that are separate and independent projects from I-69.

These improvements will be incorporated into the proposed I-69 system, however, they are committed projects with funding and environmental documentation already completed or scheduled for completion, and their construction is not dependent upon the approval of I-69. The only changes to these routes will be the interstate designation signing. See Chapter 2, Alternatives, in this document for further discussion of these improvements.

1.2.2 Consistency with Long Range Transportation Plans

Memphis, Tennessee

The Memphis and Shelby County Division of Planning and Development has prepared the *2026 Long Range Transportation Plan and Conformity Determination for 2026 Long Range Transportation Plan* and *Transportation Improvement Plan 2006-2008.* The document addresses the future transportation needs within the MPO's boundaries. The **Systems Approach Alternative** is included in the conformity analysis. The **Systems Approach Alternative** predominately utilizes road corridors that have existed or have been planned for the region over the past 50 years.

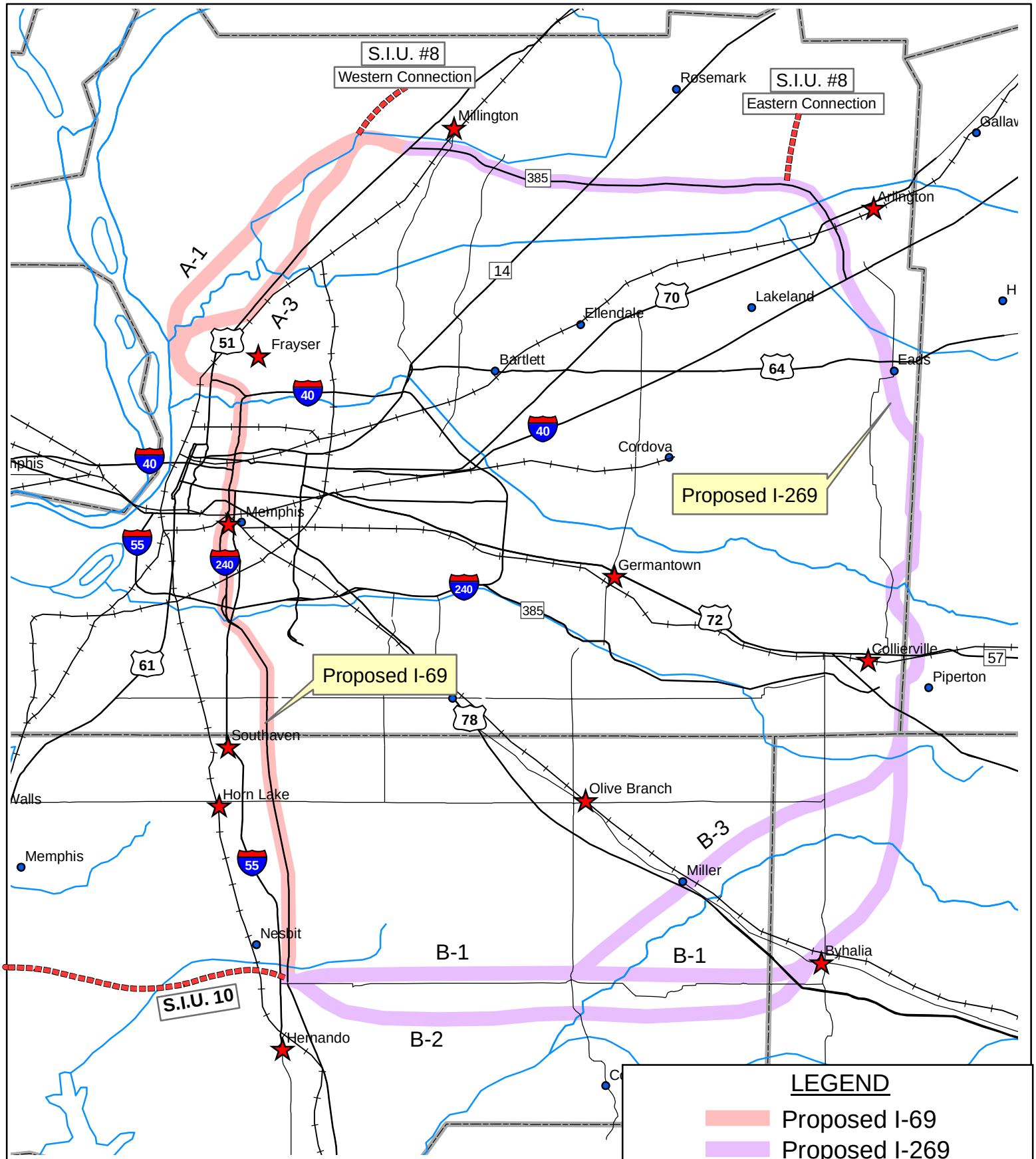
1.2.3 Consistency with Other Development Plans

The **Systems Approach Alternative** is also consistent with the development plans of the surrounding communities to improve infrastructure and create economic opportunities (See Surrounding Communities Map, Figure 1-6).

1.2.3.1 Tennessee

Memphis 2005 Plan

The City of Memphis and Shelby County have jointly developed a ten-year plan called *Memphis 2005*. The plan's strategic goals include creating a balanced industry mix, job growth, increasing international trade and revitalization. Part of the *Memphis 2005* plan is to "Aggressively construct infrastructure that will enhance the development of a diverse community and local labor pool to meet global market place demands in a positive climate". This development plan includes steps to expand freight terminals at the Port of Memphis, build north river port facilities, increase rail yard capacity, and increase highway capacities to increase productivity for businesses and citizens. Interstate objectives are to build I-69, upgrade I-55 on and off ramps for



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-6
Surrounding Communities

truck traffic and improve the I-40/240 Midtown Interchange. The **Systems Approach Alternative** will enhance the city's plan to build infrastructure, expand freight terminals and increase its economic base by providing a connected roadway system that efficiently moves people and goods within and around Memphis.

Memphis, Tennessee

The Amendment to the City of Memphis Urban Growth Plan was issued on December 13, 1999. I-69 is addressed specifically in the document. The Plan states "either route (of I-69) will have a direct benefit to the City of Memphis, encouraging redevelopment and new development within the City and its proposed Urban Growth Area". The Midtown Initiative, which is discussed in the Plan, is a program designed to attract new businesses to Midtown. The **Systems Approach Alternative** will provide connectivity to local and regional markets that will encourage new businesses to move into this area.

Frayser, Tennessee

In August 2001, the Frayser Community Development Corporation initiated the preparation of a comprehensive plan for the future development of Frayser. The plan was developed by the University of Memphis Graduate Program in City and Regional Planning, in cooperation with the Memphis and Shelby County Division of Planning and Development and the Memphis Division of Housing and Community Development. The plan indicates that a major focus should be on "linking to the region while building on economic assets". A recommendation was that major roads should be extended and connected to the road system in the region to give better access to the community.

Forcing all the truck traffic along the proposed I-69 route will compound the existing congestion problems through Memphis. Constructing just the proposed I-269 route does not provide the connectivity needed north of Memphis into the Frayser area diminishing the economic benefit needed to attract new industry and provide jobs. The **Systems Approach Alternative** utilizing the proposed I-69 route through Memphis and the proposed I-269 route (Outer Loop) will provide the linkage to I-40/I-240 and provide a freeway facility connecting the Millington/Frayser area to downtown Memphis; it will also connect Paul Barrett Parkway with

Nonconnah Parkway and I-55 in Hernando. It will improve the interconnectivity of the entire region.

Another recommendation from the planning team was to identify potential industrial firms and work to provide a comprehensive incentive package to attract new industry. Locating the proposed I-69 route in close proximity to Frayser will provide the incentive for industries to locate in this area. It will be close to a major port, have rail access, and be close to a major highway system capable of carrying heavy traffic between the port facilities and the potential factories.

Millington, Tennessee

The Millington Reserve Area Study was published on January 15, 1998. It emphasizes the fact that Millington and the surrounding area have "an abundance of land for potential employment generating development". Millington is anticipating a population increase of approximately 15,000 residents by the year 2020. The City is actively trying to attract industrial prospects. Industrial users traditionally locate near transportation facilities for economic reasons. The **Systems Approach Alternative** ties all the major highways into a roadway system that can provide the access required by these industries to reduce travel time and to move people and freight more efficiently in and around Memphis.

Arlington, Tennessee

The Land Development Plan for Arlington, Tennessee adopted November 18, 1996, recognized that I-69 can enhance their economic growth. The construction of the proposed **Systems Approach Alternative** will "place Arlington in the center of two major transportation routes which, over time, will make Arlington an ideal place for all types of development". Arlington is anticipating a population increase of approximately 30,000 residents over the next 20 years. A goal of the plan is to provide an efficient and effective transportation system with "appropriate linkages" and "adequate traffic circulation". With the implementation of the **Systems Approach Alternative**, the town will become much more accessible to the rest of the region and improve the local economy.

Germantown, Tennessee

A major goal of *The Germantown Land Use Plan* is to prepare for "a strong, diversified economic base". The Plan also recognizes the need for the development of a major road network to accommodate the existing and anticipated future growth. The proposed I-69 route through Memphis would not provide the needed access to Germantown to expand its economic base. The proposed I-269 route however, will provide interstate access on the east side of the City. This will help the economy by increasing the flow of tourists and travelers through the area.

Collierville, Tennessee

The Land Use Plan for Collierville, Tennessee: Recommended Amendments from the Land Use Plan Committee was adopted on August 13, 2001. The Plan emphasizes industrial land use in the areas currently occupied by industry. The areas being used for industrial purposes are in the southeast quadrant of the town, with the majority bordering the Fayette/Shelby County line. The proposed I-269 route will run along the county line in the Collierville area. This is opportune since industrial development should not be emphasized where public infrastructure "cannot facilitate proper industrial development". Another goal of the Plan is to separate through traffic from local traffic and develop an effective series of north-south arterials and collector streets. Extending south into Mississippi, the proposed I-269 route will provide a major north-south arterial into the Collierville area.

Shelby County, Tennessee

The Shelby County Growth Plan, dated November 12, 1999, states that with the construction of I-69, "development in eastern Shelby County and western Fayette County will occur rapidly" because the roadway will be "the chief determinant of future land use". The plan contains a discussion on I-69 being a Priority One road. The plan explains that Priority One roads are roads that are needed within the next ten years. The priority of these roads is determined by projected travel patterns derived from the traffic demand model. The model shows that the existing interstates through town are congested at peak hours, and that an outer loop will relieve some of the traffic impact. The **Systems Approach Alternative** will assist the county in developing future land use plans to insure orderly growth.

Fayette County, Tennessee

A major goal of *The Land Use Plan for Fayette County, Tennessee* is to "encourage moderate growth of industry to provide adequate employment opportunities for all county residents". This will "depend largely upon local initiative in seeking out industry to locate in the county". The increased access that the **Systems Approach Alternative** can provide will be a major factor in attracting industry to locate in Fayette County. This increased access will also attract new residents from the Memphis area. According to the Land Use Plan, "The income for most of the expected residents will be earned in Memphis and at least some of this income will be spent in Fayette County." The proposed I-269 route will provide access to employment centers such as the Chickasaw Industrial Area along the corridor and will help increase the economic vitality of the county.

1.2.3.2 Mississippi

Vision 21 Plan

The State of Mississippi Vision 21 Plan is a proposal to upgrade or construct highways where needed with no new taxes from the public. This program is "a needs-based, pay-as-you-go highway program that will upgrade existing roadways or build new highways where they are needed most". The improvement of I-55 south of the state line and MS 304 west of I-55 are listed as "immediate" projects within the Vision 21 plan. MS 304 from Collierville to I-55 is listed as a "special funding" project that is contingent upon obtaining Federal Funding. MS 302 east of I-55 and US 78 south of the state line are improvement projects listed as "committed". The proposed I-269 route closely follows the proposed MS 304 route and if approved could provide the funding needed to construct this improvement.

Southaven, Mississippi

Southaven is located adjacent to I-55 and will be affected by I-69. However, a transportation or land use plan was not available at the time of this study.

Hernando, Mississippi

The 2010 General Development Plan for the City of Hernando, dated June 1991 through December 1993, has goals consistent with this project. The development goals include the

promotion of "the orderly growth and development of Hernando by providing ample development opportunities to achieve growth expectations". The main transportation goal is "to ensure an adequate thoroughfare system capable of providing safe and efficient transportation of people and goods within and through Hernando". The Plan recommends both east/west and north/south road improvements. More specifically, the Plan calls for Green T Road to become a full two-lane section to function as the northernmost east/west access for Hernando. The proposed I-269 route goes beyond fulfilling this need, since it is planned to run north of and parallel to Green T Road. It will be a major northeast/southwest route that will provide an alternate route for motorists coming from the north and east headed for Tunica, Mississippi, a major tourist area, and other areas in Mississippi, to avoid the congestion in Memphis.

Olive Branch, Mississippi

The General Development Plan for the City of Olive Branch was prepared in December 1993. The Plan states that Olive Branch has historically been the leader in industrial development in DeSoto County. In order to maintain this leadership role, "City and County economic development officials must…fine-tune their economic development and marketing activities to attract appropriate industries". Olive Branch is located along US 78, which is proposed to be upgraded to interstate standards connecting Memphis to Birmingham, Alabama, providing a direct link to the proposed I-269 route. The **Systems Approach Alternative** will be a great marketing tool and encourage economic development in and around Olive Branch, especially with the anticipated growth in warehousing and truck terminals along US 78. It will increase the economic base of the city.

Horn Lake, Mississippi

The General Development Plan for Horn Lake, Mississippi was last updated in June of 1993. The Plan encourages the development of industrial and commercial land use areas in locations that have good transportation facilities. The Plan states that the main focus of the commercial land use areas is "to provide essential services to the Horn Lake marketplace with an increasing emphasis on "regional" commercial uses in the I-55 corridor. The Plan designates new industrial/employment centers along the I-55 Corridor to "capitalize on efficient roadways and available, affordable labor supplies that can be accessed from the interstate". SIU 9 will

incorporate the improvement of I-55 into the **Systems Approach Alternative**, which will enhance interstate access to Horn Lake.

Byhalia, Mississippi

Byhalia, which will be served by the proposed I-269 route, currently has no transportation or land use plan but is working on zoning maps. Byhalia is one of the economically depressed cities that will benefit from having access to the proposed I-269 route. Not only to attract industries, but also to provide a high-speed facility for workers traveling to and from Memphis, Millington and Hernando. I-269 will provide access to the proposed 6000 acre Chickasaw Industrial Area just north of Byhalia which has the potential to create 10,000 new jobs and spur the local economy.

DeSoto County, Mississippi

DeSoto 2010: General Development Plan for DeSoto County, Mississippi, dated June 1991 to April 1993, indicates there is a need for east-west roads in the county to relieve some of the traffic congestion on Goodman and State Line Road. The proposed I-269 route will serve as this east-west traffic reliever. The Plan suggests the key to economic development is "to create solutions for providing infrastructure…and then effectively marketing these sites to the correct industrial clientele". The **Systems Approach Alternative**, which provides access to the other major highways in the region, will be a marketing tool for attracting the desired industries and will also satisfy one of the goals of this project, which is to enhance economic development along the corridor.

Marshall County, Mississippi

The Northeast Mississippi Planning and Development District's Comprehensive Economic Development Strategy (CEDS), dated 2001, discusses improving the economy and quality of life for six counties in northeast Mississippi, one of which is Marshall County. The report states that industry is one of the essential elements for economic growth. Currently, "the rate of development of new industry is not sufficient to maintain this sector of the economic base". A trend is beginning that may change this for Marshall County. This tendency is the southeastern shift of the Memphis metropolitan area. The CEDS committee believes "if this trend can be

supported with the necessary infrastructure, the land and labor available in these counties will attract attention from businesses in areas where labor is in short supply and land is expensive". Building the proposed I-269 route as part of the **Systems Approach Alternative** will provide the impetus for businesses to relocate to this area and be a key to a strong economic base in Marshall County.

1.2.3.3 The Delta Initiative

The proposed project is also consistent with the long range plans to revitalize the Lower Mississippi Delta Region. The economy of the Delta, traditionally based on agriculture, has been in decline for many years, which has resulted in high unemployment, low levels of income, dependence on welfare, poor health care and deterioration in the transportation infrastructure.

One of the initiatives of the Delta plan is to improve the transportation system. Highways have always been an access to opportunities. ISTEA has made funding available to revitalize the transportation network in the Delta. This resulted in the creation of jobs, which led to an increase in quality of services and competitiveness of Delta based corporations. The southeast and Delta are strategically located to play a crucial role in the growth of hemisphere trade. In the Delta, transportation is the key to access, development, job creation and opportunities. An improved highway system is essential to sustaining this growth and revitalizing the region. I-69 will strengthen the impetus for economic growth and new employment in the region by providing the critical linkage to major multi-state and intrastate corridors for commercial expansion and creation of jobs. The **Systems Approach Alternative** provides an efficient connection for the major highways, north, west and east of Memphis to access the Delta region.

1.2.4 Economic Development

With its various types of intermodal transportation, Memphis offers more than 130 million square feet of distribution space and more than 89,000 people employed in distribution and related industries. There are three industrial parks currently under development in Memphis and Northern Mississippi that will benefit from having access to I-69. These industrial parks will provide employment opportunities for the surrounding communities (Reference Figure 1-7 for the Industrial Parks Map). The **Systems Approach Alternative** will facilitate economic

development by providing a major roadway system for the movement of people and goods to major marketplaces along the corridor.

1.2.4.1 Frank C. Pidgeon Industrial Park

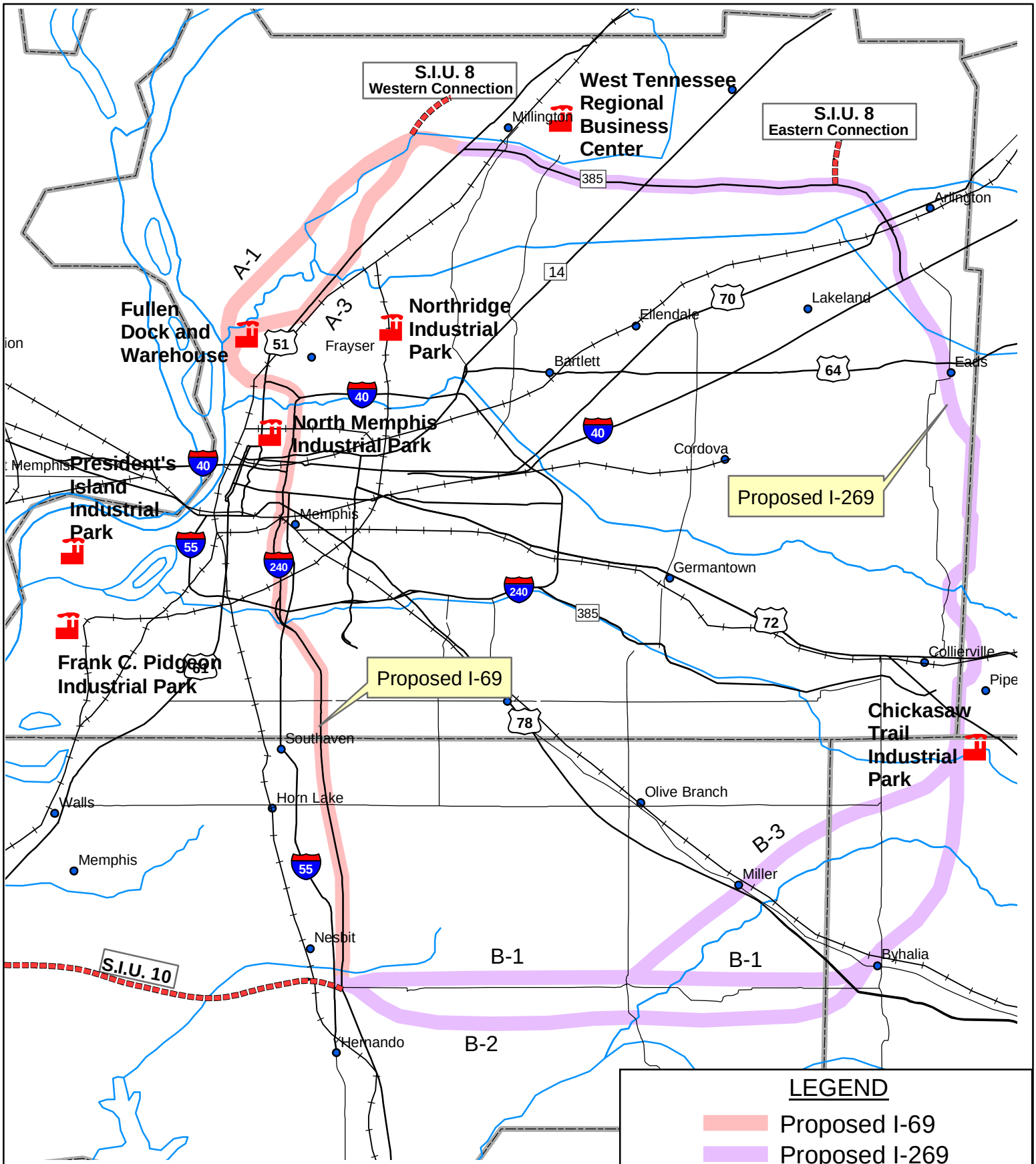
The Frank C. Pidgeon Industrial Park is a 3,000-acre industrial park located along the Mississippi River in Shelby County, Tennessee. The Pidgeon Industrial Park offers access to I-55, area railroads and the Mississippi River. The site is accessed from the Mallory Avenue exit off I-55 and is surrounded by Lake McKeller on the north, the Mississippi River on the west, the Tennessee/Mississippi state line on the south and the Illinois Central/Canadian National (CN) railroad tracks on the east. The industrial park is estimated to employ 10,000 to 15,000 people. This industrial park has direct access to I-55, which will intersect with proposed I-69. The **Systems Approach Alternative** connects to all the state highways and major roadways and provides access to more commuting workers in the region.

1.2.4.2 Presidents Island Industrial Park

The Presidents Island Industrial Park, located on Presidents Island north of the Pidgeon Industrial Park, is a 1,000-acre fully developed industrial park. Occupants of this industrial park employ approximately 5,000 people. This industrial park also has direct access to I-55, which will intersect with the proposed I-69 route and provide access to more commuting workers in the region.

1.2.4.3 West Tennessee Regional Business Center

In 1993, as a result of the actions taken by the Base Realignment and Closures Commission, the Naval Air Station Memphis (NAS Memphis) was downsized. This created the downsizing of the largest employer in Millington. Subsequently, approximately 1,900 of the 3,400 acres of the former Memphis Naval Air Station airfield became surplus Navy property and were transferred to the City of Millington. The property is now designated as the West Tennessee Regional Business Center.



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-7
Industrial Parks Map

According to the *Master Plan of the West Tennessee Regional Business Center, Millington, Tennessee* dated, July 1997; approximately 516 acres have been designated for air-served, rail-served, and general light industrial uses. Approximately 274 acres will be covered with office and scholastic uses, and 20 acres will be dedicated to retail use. Almost 450 acres will be required for airport and air-related services. Finally, open space will be the largest proposed land use with a total of 643 acres. According to the Master Plan, the center will be "a multi-modal regional business park employing more than 22,000 people across a wide spectrum of business and industry." Build-out of the business park will take 15 to 20 years. According to the *Recommendations for Planned Growth and Rural Areas, Shelby County Growth Plan*, prepared by the Memphis and Shelby County Division of Planning and Development, November 12, 1999, in the next 20 years, the reuse of the NAS Memphis is expected to be one of the largest employment centers in Shelby County. The **Systems Approach Alternative** will provide the Millington area and the West Tennessee Regional Business Center with convenient access to a major port and rail facilities and interstate access to the south and east, which will enhance the movement of people and freight.

1.2.4.4 Chickasaw Trail Industrial Park

The Chickasaw Trail Industrial Park is a 6,000-acre industrial park to be located in northwest Marshall County, Mississippi. The industrial park is being developed over a ten-year period and will create approximately 10,000 new jobs. The approximate boundaries of the park are US 72 from the Shelby/Fayette County line to Red Banks Road on the north side, Red Banks Road on the east side, Goodman Road (MS 302) on the south side and Quinn Road on the west side. The Chickasaw Trail Industrial Park will consist of mainly distribution and high-tech assembly facilities. The proposed I-269 route is located in close proximity to this industrial park and would provide quick access to the interstate system and national marketplaces. Just south of this area near Byhalia US 78, which is a major freight corridor between Memphis and Birmingham is proposed to be upgraded to interstate standards (future proposed I-22). The **Systems Approach Alternative** will enhance the value of this industrial park as a major distribution center. It will allow freight that is destined for areas north and east of Memphis to move efficiently and avoid the congestion on the existing interstate system through Memphis, and also provide some needed traffic relief to the downtown area.

1.2.4.5 Other Industrial Areas

Situated on the Mississippi River at the mouth of the Loosahatchie River, four businesses plan to turn this locale into a major industrial area. Fullen Dock and Warehouse unloads and sells limestone aggregate, and unloads steel coils, and mineral ores and alloys at its six docks. North Memphis Warehouse, Inc. offers inside and outside storage along with rail facilities. Port 740, Inc. offers switching of barges along with dredging and towing services. Jimmy T. Wood, Inc. operates a 50-truck fleet throughout the United States. Together they provide a one-stop facility for their customers. Recent steps taken to advance their plan include the creation of a one-mile slack water harbor and the investment of $4 million into their businesses.

Several smaller industrial parks are scattered throughout the Memphis area. Two that are in close proximity to the project are the North Memphis Industrial Park and the Northridge Industrial Park. The North Memphis Industrial Park is a 433-acre industrial park located west of I-40 and south of the Wolf River. In the early stages of development, the 550-acre Northridge Industrial Park is situated north of I-40 in the Raleigh area of Memphis. Both have industrial and commercial opportunities and convenient access to river, rail, air and interstate.

The industrial areas and proposed industrial areas mentioned here are only a portion of those found in the Memphis area. The **Systems Approach Alternative** will particularly benefit those mentioned, as well as other fully developed industrial parks in the area, by providing interstate traffic access to major marketplaces. It also provides a facility with an acceptable level of service for commuting workers. The proposed I-69 route provides access for freight traffic coming from the south and west of Memphis, while the proposed I-269 route will provide access for traffic coming from the north and east of Memphis.

1.2.5 Traffic Service

1.2.5.1 Travel Forecasts

The traffic investigation is intended to determine anticipated travel and the characteristics of traffic flow that may be expected for the proposed I-69 and proposed I-269. The investigation is centered on a comparison of anticipated No-build conditions with anticipated build conditions.

Three primary sources were used to develop projections of future traffic. The first source is the regional travel model, which is used to project traffic volumes in the Memphis region. The model is maintained by the Memphis Area Metropolitan Planning Organization (MPO). The second source is traffic count data, obtained from TDOT, MDOT and from the City of Memphis. The intent was to apply the regional model and use the count history as a way to supplement model output. The third source for future travel is projections provided by the I-69 Corridor Studies, which provided estimates of future year travel that is expected to be generated by new activities within the I-69 corridor that develop as a result of the implementation of I-69.

1.2.5.2 Traffic Investigation

The traffic investigation focused on the anticipated traffic flow characteristics of the proposed I-69. Travel forecasts of daily traffic were converted into peak hour estimates for analysis. Traffic analysis was performed using a series of computational procedures collectively called "capacity analysis," because they are based on theoretical estimates of the highest stable volume that can be sustained on a roadway.

The key expression used to describe the quality of traffic flow is "Level of Service," a term that indicates the relative level of traffic congestion. The procedures for determining Level of Service are presented in the *Highway Capacity Manual* (HCM2000), published by the Transportation Research Board. Notes concerning the capacity analyses procedures are included in Appendix A.

The traffic investigation reviewed the two corridors that make up the **Systems Approach Alternative** as separate alternatives. Proposed I-69 included I-55, I-240, I-40, State Route 300, and the proposed new location. Likewise, Proposed I-269 included MS 304, MS 304-State Route 385 Connector and State Route 385. During the course of the study, it became apparent that both corridors would be needed, and so they were subsequently combined into the proposed **Systems Approach Alternative**. The **Systems Approach Alternative** allows a motorist traveling northbound on I-69 approaching the Memphis Region on SIU 10 (the MS 304 roadway) to have a choice as to whether to follow the I-69 option through midtown Memphis, or to follow the I-269 option that serves as a beltway around the Memphis urban area.

1.2.5.3 Level of Service

Level of Service for freeways is based on an estimate of the "density" of traffic. Density is expressed as vehicles per mile per lane. The Level of Service is a designation that is similar to giving a segment of roadway a grade for performance. In this way, Level of Service A indicates very good traffic flow. Levels of Service B, C, and D indicate declining levels of motorist comfort when driving the roadway segment. Level of Service F indicates congested traffic flow. See Table 1-1 for a more complete description of Levels of Service.

TABLE 1-1

LEVELS OF SERVICE DESCRIPTIONS

Levels of Service (LOS)	Traffic Flow Conditions
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The general level of physical and psychological comfort provided the driver is high.
B	Reasonably free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is high.
C	Flow with speeds at or near free flow. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension because of additional vigilance required for safe operations.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At the lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceeded the capacity, or ability of the highway to accommodate that number of vehicles. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Source: Transportation Research Board, 1994.

Levels of Service were determined for each segment of the proposed I-69 and proposed I-269 locations. For the most part, the slight differences in projected traffic volume were not enough to make a difference in the projected Levels of Service. There are a number of segments that

indicate a difference. In these cases it is generally because the projected volumes are near the volume associated with the threshold volume of the next Level of Service. For this reason, when values are near the threshold of the next Level of Service, both Levels of Service are given. In this way Level of Service B/A indicates a high Level of Service B (a "B-plus"), while Level of Service D/E indicates a low Level of Service D (a "D-minus").

1.2.5.4 Traffic Flow

The Traffic Investigation that is included in Appendix A was originally developed as a review of the differences in anticipated traffic flow characteristics between the two proposed corridors, and found the differences to be slight. Each corridor has advantages and disadvantages. Proposed I-69 is designated along a route that is expected to have capacity deficiencies, which would be expected whether or not these roadways are designated as part of I-69. Most of proposed I-69 through SIU 9 would make use of existing roadways that are already experiencing traffic congestion.

Proposed I-269 would not be expected to experience traffic congestion. Most of proposed I-269 consists of roadways that do not now exist. These roadways are on the LRTP, and are all proposed to be constructed by the year 2030. Primarily, these roadways are the proposed completion of State Route 385 in Shelby and Fayette Counties, and the replacement of MS 304 in DeSoto and Marshall Counties.

Proposed I-269 is a more circuitous route, and so less of the projected I-69 north-south through traffic would follow that alignment, except during peak traffic times during the day. There is through travel that would be attracted onto proposed I-269, such as travel between proposed I-69 and major routes to the east (US-78/I-22, US 72, State Route 57, US 64 and I-40). The proposed I-269 roadways are also expected to attract a substantial amount of regional traffic. In this way, the roadways that are proposed to be designated as I-269 are needed in order to relieve congestion that would otherwise be anticipated near the edges of the urbanized area of the Memphis region. Routes that would benefit from reduced travel due to proposed I-269 include all circumferential routes from the I-40/I-240 loop outwards.

A specific example of a route that will benefit from the proposed I-269 is existing MS 304. Without the new proposed I-269, the existing roadway would reach capacity at a volume substantially below the volume projected to be carried by the new roadway. Traffic would seek other routes as alternatives, which would add traffic to Church Road and to MS 302 and to other minor streets in DeSoto County, as well as some traffic that would shift onto routes in Shelby County. Instead of operating at a low Level of Service, with volumes near capacity, the existing MS 304 roadway operation is expected to improve with the implementation of the proposed I-269. Traffic will divert onto the new roadway, and the volume on the existing MS 304 is anticipated to decline, resulting in a high Level of Service. Similar improvements in traffic operational character will be experienced by all of the other routes that could serve east-west traffic through DeSoto County. This benefit of reduced traffic congestion will be experienced on MS 302, on Church Road, and on other roads in DeSoto County.

In a similar way, State Route 205 (Collierville-Arlington Road) will benefit greatly from the construction of the parallel Proposed I-269 (SR-385). Other existing roadways that serve north-south traffic in eastern Shelby County and western Fayette County will also benefit.

In addition, proposed I-269 will serve as a termination point for proposed I-22, which is proposed as a re-designation of US 78 from Birmingham to Memphis.

Proposed I-69 and I-269 are projected to serve a very high percentage of truck traffic. This reflects the intent of the I-69 project to serve as an enabler of commerce. The I-69 Corridor Study estimated that trucks would make up nearly half of the "new" trips through the Memphis region. The "new" trips are the additional trips that would be expected to be generated by growth of trade and economic development within the corridor due to the construction of I-69. The total amount of these "new" trips is estimated to be approximately 10,000 per day north of Shelby County, and to be somewhat more than that south of DeSoto County. Also, the regional routes served by proposed I-69 and proposed I-269 carry substantial levels of truck traffic. For example, I-40 in Fayette County carries a traffic flow that is approximately 39 percent trucks, and US 78 (proposed I-22) in DeSoto County carries approximately 22 percent trucks.

1.2.5.5 Proposed I-69

I-55 in DeSoto County is proposed to be widened to eight lanes from MS 304 north to the Mississippi/Tennessee state line. Between MS 302 and State Line Road, auxiliary lanes are proposed which would make a total of ten lanes. The need for the widening was confirmed by this study. Even with the proposed widening, congestion is anticipated by the year 2030 for I-55 from Star Landing to MS 302. There are small differences between Proposed I-69 and No-build conditions, with Level of Service D/E anticipated in the congested areas.

In Tennessee, volumes projected for I-55 are higher than in Mississippi, and traffic congestion is indicated. A widening project has been completed, which provides eight lanes from the state line north to I-240. However, one lane in each direction is restricted to High-Occupancy-Vehicle (HOV) use during peak travel times. Level of Service F is anticipated for No-build conditions from Shelby Drive to I-240. The congestion would be only slightly worse for proposed I-69.

The through route for I-69 is proposed to continue northwards, leaving I-55 and using the existing I-240 roadway. On I-240, north of the interchange with I-55, the existing roadway has six lanes. The six-lane section is expected to be inadequate to serve future travel demand. Level of Service F is anticipated if the roadway is not widened. Planning is under way to develop a widening project for this portion of I-240. The traffic congestion that is expected is not due to the proposal to designate the roadway as I-69. Level of Service F would be anticipated for No-build conditions as well as for proposed I-69.

North of the Madison Avenue interchange is the interchange of I-240 with I-40. The existing interchange of I-240 with I-40 is deficient, and is now undergoing reconstruction to better accommodate through travel demand on I-40. I-69 is proposed to continue north, through a proposed extension of I-240, and then onto the existing I-40 roadway.

The reconfiguration of the interchange will result in an extension of I-240 by creating collector-distributor (C-D) roadways that will extend northward through the interchange with Jackson Avenue. These C-D roads are planned to be extended in the future, to north of the Chelsea/ Firestone interchange. In this way, for this short stretch, I-40 will be located in the median of I-

240, with the two roadways running parallel but with all of the roadways separated by barriers. Proposed I-69 will be routed on the I-240 roadways. The I-240/ proposed I-69 roadways will be three lanes in each direction, and are anticipated to operate at Level of Service C.

TABLE 1-2
PROPOSED I-69 LEVELS OF SERVICE (LOS)

Location	Proposed I-69					No-Build				
	2030 ADT	Level of Service for:				2030 ADT	Level of Service for:			
		4 Lanes	6 Lanes	8 Lanes	10 Lanes		4 Lanes	6 Lanes	8 Lanes	10 Lanes
I-55 North of SR 304	76,500			C		68,800			C	
I-55 North of Nesbit/Pleasant Hill	82,500			C		74,900			C	
I-55 North of Star Landing	92,500			D		84,900			D	
I-55 North of Church Road	100,500			D		92,900			D	
I-55 North of Nail Road	106,500			E		98,900			D	
I-55 North of SR 302	114,200				D	107,200				C/D
I-55 North of Stateline	117,200			F		110,200			D/E	
I-55 North of Holmes	120,200			F		113,200			E	
I-55 North of Shelby Dr.	136,000			F		129,100			F	
I-55 North of Elvis Presley	144,000				E	137,100				D/E
I-240 North of Norris	124,400			E		119,200			E	
I-240 North of S. Parkway	125,400			E/F		120,200			E	
I-240 North of Union	89,300			D		84,700			D	
I-240 North of I-40	68,900		C			66,500		C		
I-240 North of Jackson	58,700		C			56,700		B/C		
I-40 North of Chelsea/Firestone	123,300			D		118,500			D	
SR 300	50,500	D				48,500	C			
I-69 West of US 51 (N 2nd St.)	45,500	D/C				43,600	B/C			
I-69 North of N. 2nd St.	49,400	D				NA				
I-69 North of Watkins	37,400	C				NA				
I-69 North of Cuba-Woodstock	30,400	B				NA				
I-69 North of SR 385	35,900	C				NA				

In the I-40 portion of proposed I-69, the traffic volumes projected to be contributed by I-69 (long-distance through trips) amount to less than four percent of the total trips.

At State Route 300, the proposed I-69 alignment is to leave I-40 and continue on the existing State Route 300 roadway. State Route 300 ends at US 51 (Danny Thomas Boulevard). From this point going northwards, the alignment of proposed I-69 is on future roadways that do not now exist. A proposed extension of North Second Street is planned to tie into proposed I-69 by way of a new interchange west of US-51.

The proposed I-69 would be constructed on new alignment to the north and would be parallel to US 51. West of Millington, an interchange is proposed for I-69 and I-269, which would form the northern terminal of I-269.

North of I-40, all of the roadways proposed to be employed for I-69 are anticipated to have four to six lanes. All of these proposed roadway segments would be expected to experience Level of Service D or C or better.

1.2.5.6 Proposed I-269

In Mississippi, MS 304 is an east-west route that currently is a two-lane rural road for most of its length. A construction project is under way to replace this facility with a new four-lane limited access freeway built to interstate standards between US 61 and I-55. This roadway will be the SIU 10 portion of I-69.

In the future, this new replacement for MS 304 is proposed to be extended eastward past I-55 (SIU 9). It will continue eastward past US 78 (proposed I-22). From there the proposed road will curve northward, cross from DeSoto County into Marshall County, reaching the state line a short distance south or west of US 72. It is this roadway that is proposed to be designated as a portion of I-269.

Existing MS 304 is a two-lane rural highway extending from Hernando, Mississippi through DeSoto and Marshall Counties to Byhalia, Mississippi. The existing route has many alignment

deficiencies, geometric deficiencies, as well as unsignalized intersections. The existing traffic volumes along the route range from approximately 1,500 to 5,100 vehicles per day with approximately seven percent trucks.

The adopted Long Range Transportation Plan for the Memphis Urbanized Area includes a proposal for a new four-lane freeway to be designated as MS 304 to provide the existing and future east-west travel demands and to link up with the Tennessee proposal for State Route 385 at Collierville. For purposes of this study, proposed MS 304 (four-lane freeway) is included in the No-Build network as part of the "Existing and Committed System". The traffic analysis addresses the impacts that the routing of I-269 will have on the traffic operations and level of service on this proposed roadway.

The capacity of existing MS 304 is substantially below the volume projected for the new proposed MS 304. If the proposed replacement of MS 304 were not implemented, then the forecast traffic volumes in the No-Build condition could not be accommodated on the existing roadway, resulting in Level of Service F, and in a spillover of traffic volumes that would lower the expected levels of service for many parallel roadways. The impact would be a decline in the travel character for all east-west traffic through DeSoto and Marshall Counties. Motorists would shift their travel to other routes that would then result in a decline in the Level of Service of those other routes. The routes in Mississippi that would experience increased volumes include MS 302, Pleasant Hill Road, Holly Springs Road, Ingrams Mill Road, Strickland Road, Star Landing Road, Church Road and Stateline Road. The routes in Tennessee that would experience increased volumes include Holmes Road, I-55, I-240, I-40 and State Route 385.

The alignment for proposed I-269 is to cross I-55 on this proposed MS 304 towards the east, and to follow this road to the Tennessee border. The travel demand projected for MS 304 is much less than for the I-55/I-240/I-40 roadway segments that are to be used for proposed I-69. MS 304 is anticipated to operate at Level of Service B in Mississippi.

Proposed I-269 is expected to provide better connections between various portions of the region. In particular, circumferential travel around the outlying areas will be greatly improved. For

example, travel between Collierville and Hernando will be facilitated, as will travel between Millington and Byhalia. The attraction of local travel onto this proposed roadway will relieve traffic congestion on other parallel roadways in the region. The route that will benefit the most from the construction of this roadway will be MS 302, which is a road that is currently being widened in order to address congestion. Other parallel facilities will also benefit, such as Church Road and Stateline Drive in DeSoto County, Holmes Road in Shelby County, and even I-55 to I-240 to SR 385 would gain some relief by the presence of the proposed road.

Proposed I-269 will be extended into Shelby County to tie to State Route 385. This road is projected to have higher volumes in the vicinity of Collierville, as it will serve as a route of access to the part of SR 385 (Bill Morris Parkway, or "Nonconnah Parkway") that forms an east-west connector to I-240. On the connector roadway, Level of Service C may be expected for either proposed I-269, or for No-build conditions.

The proposal for I-269 is to follow the proposed State Route 385 roadway north from Collierville to meet the existing State Route 385 (Paul Barrett Parkway) in Arlington, and then to follow the existing Paul Barrett Parkway to Millington. The first segment of the State Route 385 portion of proposed I-269 is between Bill Morris Parkway and SR 57 (Poplar Avenue) in Piperton, just east of Collierville, and is projected to be the most congested segment on the proposed I-269 alignment. Level of Service D is anticipated for either proposed I-269, or for No-build conditions. North of State Route 57, Level of Service C is projected for this roadway in either the No-build condition or for proposed I-269. In the vicinity of I-40, Level of Service C or D is anticipated in the area between US 64 and US 70.

Beginning at I-40, State Route 385 is an existing roadway around the northern portion of Shelby County. Between US 70 and State Route 14 (Austin Peay Highway) the road is expected to operate at Level of Service B for No-build conditions or at Level of Service B or C for proposed I-269.

TABLE 1-3

PROPOSED I-269 LEVELS OF SERVICE (LOS)

Location	Proposed I-269			No-Build		
	2030 ADT	Level of Service for:		2030 ADT	Level of Service for:	
		4 lanes	6 lanes		4 lanes	6 lanes
MS 304 East of I-55	32,000	B		26,300	B	
MS 304 East of Getwell Rd.	31,000	B		26,200	B	
MS 304 East of Craft Rd.	29,000	B		24,200	B/A	
MS 304 East of SR 305	26,800	B		21,500	A	
MS 304 East of US 78	32,100	B/C		27,600	B	
MS 304 East of SR 309	28,400	B		24,600	B/A	
MS 304 North of SR 302	28,500	B		24,300	A/B	
MS 304 North of Stateline	29,200	B		25,100	B	
304-385 Connector North of Holmes	43,000	C/D		38,900	C	
SR 385 North of Nonc.Pkwy	50,900	D		46,600	D	
SR 385 North of Poplar	44,700	C/D		39,200	C	
SR 385 North of Macon	45,200	C		41,800	C	
SR 385 North of US 64	42,500	D/C		36,600	C	
SR 385 North of Donnelson	45,300	D		39,400	C/D	
SR 385 North of I-40	32,900	C		30,100	B	
SR 385 North of US 70	27,700	B		23,900	B	
SR 385 West of Stewart Road	29,700	B		25,900	B	
SR 385 West of N. Brunswick Rd.	38,900	B/C		36,400	B	
SR 385 West of Donnell Rd.	38,000	C		35,100	B	
SR 385 West of SR 14	36,500	B		34,300	B	
SR 385 West of Sledge Rd.	37,000	C		36,000	C	
SR 385 West of Bethuel Rd.	29,500	B		25,400	B	
SR 385 West of Singleton Pkwy.	29,900	B		25,200	B	
SR 385 West of Raleigh-Millington Rd.	44,300	C		40,000	C	
I-269 West of US 51	12,200	A		NA		

Note: The model network for the forecast year 2030 includes all of the future roadways that are included in the Long Range Transportation Plan of the Memphis Area Metropolitan Planning Organization. Many routes such as MS 304 are future roadways that are included in the base network for the No-Build Alternative.

From State Route 14 to Raleigh-Millington Road, traffic flow is projected at Level of Service B or C for both proposed I-269 and for No-build conditions. Between Raleigh-Millington Road and US 51, Level of Service C is expected.

West of US 51, proposed I-269 is to end with a new roadway connector to be constructed on new alignment. The alignment would continue west from the interchange of State Route 385 with US 51, and end at the proposed I-69 roadway. This portion of proposed I-269 is anticipated to operate at Level of Service B.

1.2.6 Safety

An accident analysis was performed on both the Tennessee and Mississippi portions of the study area. The analysis indicates safety problems exist on some of the existing freeways and arterial highways in the area.

1.2.6.1 Tennessee

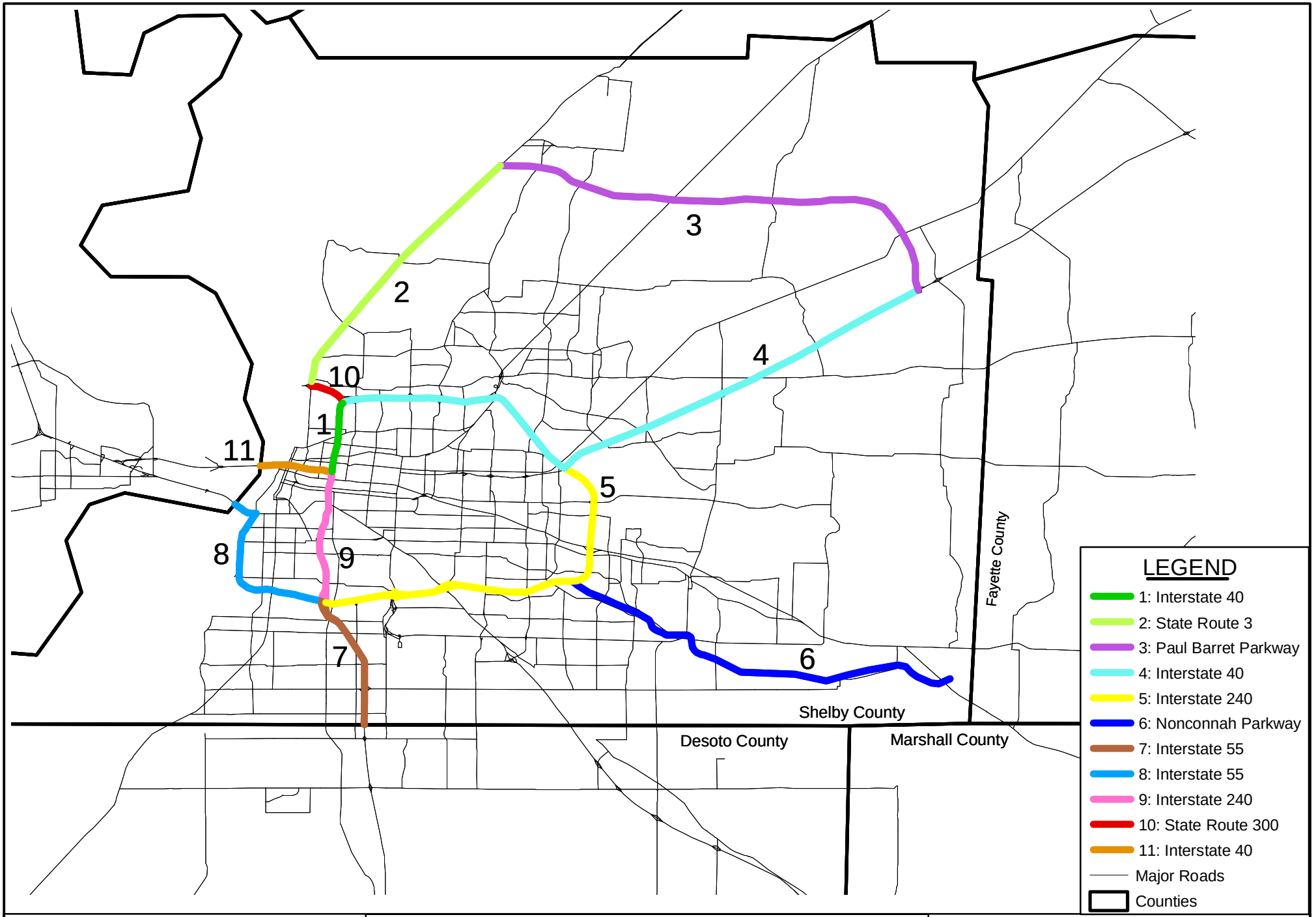
The Tennessee study covers the four-year period from 1997-2000. The accident study segments for Tennessee are shown in Figure 1-8. The 1997-1999 accident data for these eleven accident study segments is presented in Table 1-4. The latest year for which complete accident data was available was 2000. The 2000 accident data for Tennessee is also shown in Table 1-4; the units on the accident rate numbers are accidents per million vehicle-miles traveled. The Tennessee statewide average values are the average accident rates for 1994-1996, which were the most current at the time this report was issued. The statewide averages were developed according to the roadway type. US 51 (State Route 3), for example, is an urban divided highway segment as opposed to the other sections of roadway that are urban full-access freeway segments. The critical accident rate is an indication of how the actual accident rate differs from the statewide accident rate. It is used in this application primarily to calculate the A/C ratio, which is the actual accident rate divided by the critical accident rate. The ratio is a measure of the significance of the accident problem.

There are several sections in the 1997-1999 table that have A/C ratios in excess of one, which implies safety deficiencies. (This data was the best available at the time the DEIS was prepared.) These are I-40 from I-240 to State Route 300, I-55 from the Tennessee/Arkansas state line to I-240, the west section of I-240 from I-40 to I-55 and I-40 from the Tennessee/Arkansas state line to I-240. These same sections plus the section of I-55 from the Tennessee/Mississippi state line

to I-240 have A/C ratios over one in the 2000 table. However, this section has been improved recently by adding traffic lanes which will improve traffic flow and reduce accidents.

The proposed I-69 route will improve the accident rate on the section of US 51 (State Route 3) from State Route 300 to State Route 385, Paul Barrett Parkway. Not only will it relieve US 51 (State Route 3) of the through traffic, but it will also provide the through traffic with a safer alternative. The average accident rate for an urban divided highway segment in Tennessee is 2.98 accidents per million vehicle-miles traveled, whereas an urban full-access freeway segment in Tennessee has an average accident rate of 1.10 accidents per million vehicle-miles traveled.

The segments of roadway that will be most affected by the proposed I-269 route are the Nonconnah Parkway segment, the Paul Barrett Parkway segment, and the I-40 segment from I-240 to Paul Barrett Parkway. These segments all had accident rates below the statewide average. Memphis is rapidly growing southeastward, though. This area in eastern Shelby County is transitioning from a rural/suburban area to one more urban in nature. The accident rates for these sections will increase as the traffic volumes increase. The proposed I-269 route will provide through traffic with a high-quality access controlled facility that will help keep the accident rates on these sections of roadway below the statewide average.



Not To Scale

N W E S

Interstate 69 (S.I.U.#9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-8
Tennessee Accident Study Sections

TABLE 1-4

TENNESSEE ACCIDENT DATA

1997-1999	Start Log Mile	End Log Mile	Length (miles)	2000 ADT	Accidents	Fatal Accidents	Persons Killed	Injury Accidents	Persons Injured	Accident Rate	Statewide Average*	Critical Rate	A/C Ratio**
I-40: I-240 to SR 300	2.26	6.12	3.86	102463	552	2	2	141	200	1.27	1.1	1.22	1.04
US 51 (SR 3): SR 300 to SR 385	15.8	27.35	11.55	30380	647	7	7	198	335	1.68	2.98	3.19	0.53
Paul Barrett: US51 to Stewart Rd***	13	23.95	****10.95	6900	10	1	1	2	3	0.24	1.1	1.49	0.16
I-40: SR 300 to SR 385 (P. Barrett)	6.13	28.01	21.88	80128	2125	12	12	595	911	1.11	1.1	1.16	0.96
I-240: I-40 to I-55 (east)	5.94	19.27	13.33	144328	2375	13	17	704	1065	1.13	1.1	1.15	0.98
Nonconnah: I-240 to Bailey Station	0	10.5	****10.5	59377	481	3	4	136	187	0.7	1.1	1.19	0.59
I-55: TN/MS State Line to I-240	0	6.16	6.16	61340	449	5	5	117	179	1.09	1.1	1.22	0.89
I-55: TN/AR State Line to I-240	6.17	12.28	6.11	62629	636	9	9	200	309	1.52	1.1	1.22	1.25
I-240: I-40 to I-55 (west)	0	5.93	5.93	93300	1298	5	5	453	671	2.14	1.1	1.20	1.78
SR 300: SR 3 to I-40	0	1.66	1.66	27420	6	1	1	4	7	0.12	1.1	1.46	0.08
I-40: TN/AR State Line to I-240	0	2.25	2.25	52008	334	1	1	88	142	2.61	1.1	1.32	1.98
2000													
I-40: I-240 to SR300	2.26	6.12	3.86	102463	200	0	0	60	106	1.39	1.1	1.31	1.06
US 51 (SR 3): SR 300 to SR 385	15.8	27.35	11.55	30380	184	1	1	38	66	1.44	2.98	3.34	0.43
Paul Barrett: US51 to I-40	7.06	23.95	16.89	6900	4	0	0	1	1	0.09	1.1	1.49	0.06
I-40: SR 300 to SR 385 (P. Barrett)	6.13	28.01	21.88	80128	610	5	5	158	233	0.95	1.1	1.20	0.79
I-240: I-40 to I-55 (east)	5.94	19.27	13.33	144328	693	1	1	179	245	0.99	1.1	1.19	0.83
Nonconnah: I-240 to US72	0	14.48	14.48	59377	252	2	2	51	77	0.8	1.1	1.24	0.65
I-55: TN/MS State Line to I-240	0	6.16	6.16	61340	215	0	0	58	78	1.56	1.1	1.31	1.19
I-55: TN/AR State Line to I-240	6.17	12.28	6.11	62629	192	1	1	69	112	1.37	1.1	1.31	1.05
I-240: I-40 to I-55 (west)	0	5.93	5.93	93300	382	1	1	101	148	1.89	1.1	1.27	1.48
SR 300: SR 3 to I-40	0	1.66	1.66	27420	5	0	0	0	0	0.3	1.1	1.73	0.17
I-40: TN/AR State Line to I-240	0	2.25	2.25	52008	84	0	0	18	26	1.97	1.1	1.49	1.33

* These are for 1994-1996, which were the most current at the time of issue
*** Data only includes mid 1998-1999
** An A/C ratio in excess of one suggests safety deficiency
**** Section length is shorter than 2000 section length

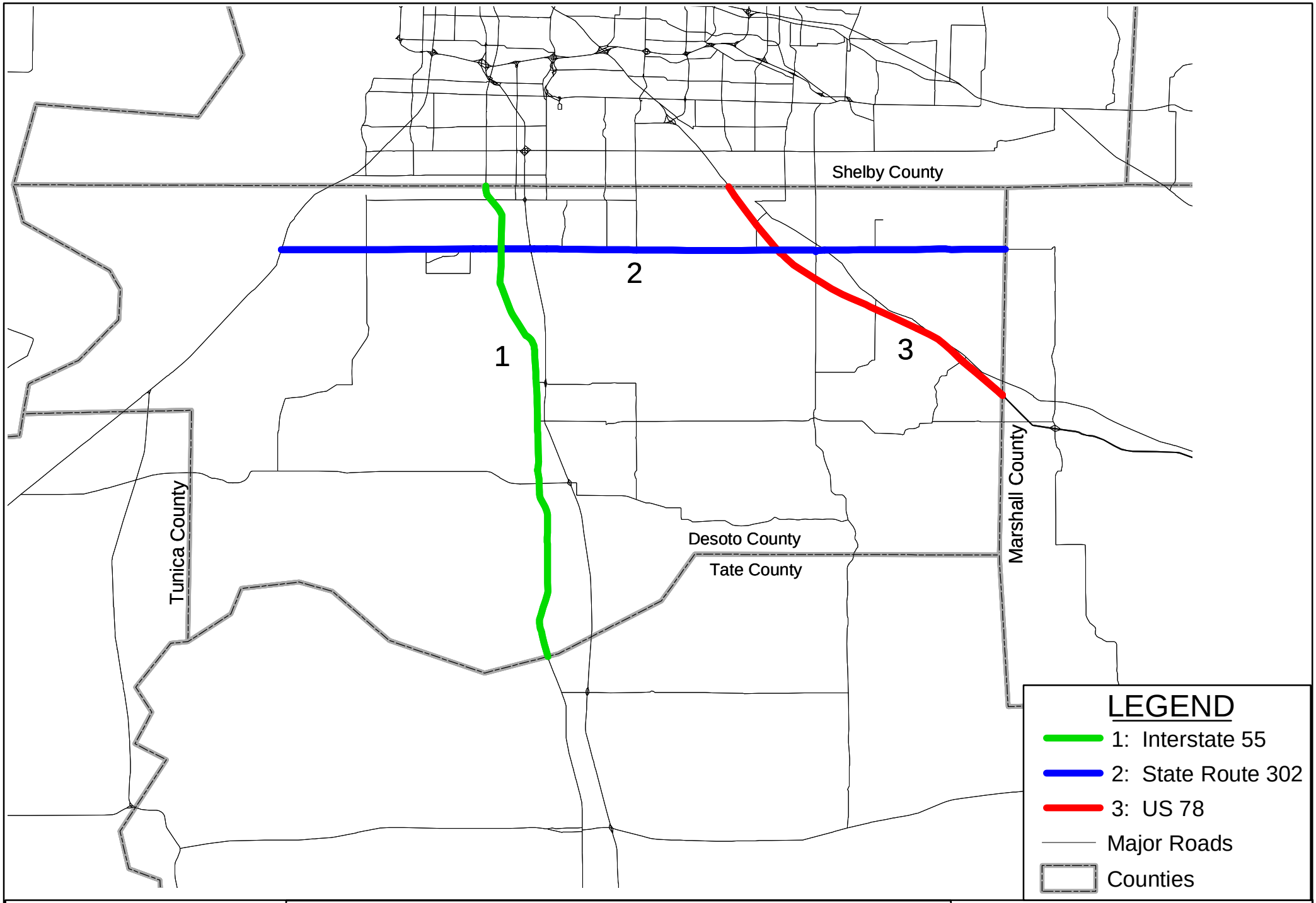
1.2.6.2 Mississippi

The Mississippi study covers the 2000-2001 time period. The accident study segments for Mississippi are shown in Figure 1-9. The accident data is presented in Table 1-5. Like the accident rates for Tennessee, the units on the accident rate numbers for Mississippi are accidents per million vehicle-miles traveled. Mississippi, however, does not have statewide average accident rates available for comparison. Without statewide averages, the critical rate and the A/C ratio cannot be calculated. For an approximate evaluation, the Mississippi accident rates can be compared to the Tennessee statewide average accident rates.

TABLE 1-5

MISSISSIPPI ACCIDENT DATA

2000-2001	**Approximate Length (miles)**	**2000 ADT**	**Accidents**	**Fatal Accidents**	**Persons Killed**	**Injury Accidents**	**Persons Injured**	**Accident Rate**
I-55: TN/MS state line to the DeSoto/Tate County Line	18.5	39000	275	6	15	82	146	0.52
US 78: TN/MS state line to the DeSoto/Marshall County Line	11.5	30778	117	4	5	47	76	0.45
SR 302: US61 to the DeSoto/Marshall County Line	24	23500	612	3	4	137	208	1.49



Not To Scale

N W E S

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 1-9
Mississippi Accident Study Sections

I-55 from the Tennessee/Mississippi state line to the DeSoto/Tate County line and the US 78 segment are considered urban full-access freeway segments, while the State Route 302 segment is regarded as an urban divided highway segment. All three segments in Mississippi have accident rates well below the corresponding statewide average for Tennessee. Again, Memphis is quickly expanding in a southeastern direction. This area, like eastern Shelby County, is transitioning from a rural/suburban setting to a more urban one. The accident rates for these sections will increase as the traffic volumes increase. The accident rate on the Mississippi section of I-55 can remain low with the implementation of the proposed I-69 route. The construction of the proposed I-269 route will assist in keeping the accident rates on all three sections well below the Tennessee statewide average by adding lanes and increasing capacity.

In summary, the **Systems Approach Alternative** will complement the existing freeway system of the Memphis Urbanized area and will contribute to improved operational efficiency and safety for motorists and commercial vehicles moving into and through the city.

1.2.7 Modal Coordination

The movement of freight in Memphis is a multi-billion dollar industry. This can be attributed to the city's prime central location and claim to the four major modes of transportation, highway, air, rail, and water. Because of the transportation options, Memphis offers several intermodal facilities that provide unrivaled logistical advantages. Several transportation improvements, such as I-69, will be needed to allow Memphis to remain a hub of multi-modal transportation and keep the title of "America's Distribution Center". The **Systems Approach Alternative** will be vital for the city to reach its goal of becoming a global leader in the goods movement industry.

1.2.7.1 Airports

The Memphis International Airport is served by six national passenger airlines and eight regional passenger airlines. With approximately 325 flights daily, it provides service to more than 85 cities. The airport is home to Northwest/KLM Royal Dutch Airlines passenger and cargo hub and FedEx's world headquarters and World Hub. Fifteen cargo airlines serve Memphis International along with FedEx. Airports Council International has named Memphis International Airport "The World's Busiest Cargo Airport" for the past nine years. According to the Memphis Chamber of Commerce, in 2000, over 1.1 million tons were shipped out of the

airport. The **Systems Approach Alternative** will add capacity to the interstate system and enhance the safe and efficient movement of freight and people to and from the Memphis International Airport.

In addition to Memphis International Airport, there are two general aviation airports owned by the Memphis-Shelby County Airport Authority, the Charles W. Baker Airport and the General DeWitt Spain Airport. They act as reliever airports for the Memphis International Airport. The General DeWitt Spain Airport is located approximately two miles north of downtown. The proposed I-69 route is in close proximity to the airport and will provide convenient access to the interstate system. The airport runways will be parallel with I-69 and will not affect the existing take off and landing patterns. The Charles W. Baker Airport is located on the south side of Millington and access could be provided by both the I-69 and I-269 routes. The general aviation airports in Tennessee are very important to the economy. They bring in approximately $3 billion each year to the state economy and support over 49,000 jobs. One-third of Tennessee businesses indicate that they rely on general aviation. There are four other smaller airports in and around the Memphis area that will also benefit from the **Systems Approach Alternative**. These airports are in Millington, Tennessee; Olive Branch, Mississippi; and West Memphis and Blytheville, Arkansas.

1.2.7.2 Ports

The International Port of Memphis is the fourth largest inland port in the United States. It covers 15 miles of the Tennessee and Arkansas sides of the Mississippi River. Within this 15-mile stretch, there are 68 water-fronted facilities. In 1999, the port received shipments of 16.8 million tons or 2.4 percent of the total moved on the Mississippi River. The average annual total economic impact of the port on the Memphis area is approximately 1.5 billion dollars. The **Systems Approach Alternative** will provide additional transportation capacity to support the current and future needs of the International Port of Memphis.

1.2.7.3 Railroads

The Super Terminal-Memphis is a proposed railroad-truck intermodal facility to be built in the Frank C. Pidgeon Industrial Park in southwest Memphis. It will serve five Class I intermodal

railroads: Burlington Northern and Santa Fe Railway Company, CSX Transportation, Illinois Central/Canadian National Railroad Company, Norfolk Southern Corporation, and Union Pacific Railroad Company (Memphis Chamber of Commerce). The principal function of the facility is the transfer of containers and trailers between rail and highway vehicles. A study done for the Port Commission reports the terminal is anticipated to bring 50,000 new jobs to the Memphis area over 20 years. It is expected to produce a 9.5 billion dollar impact on Memphis during that period. The Super Terminal-Memphis was designed for a capacity of one million annual lifts, making it one of the largest intermodal facilities in the country. The **Systems Approach Alternative** will expand the capacity of the interstate system and enhance the economic growth opportunities of the facility by providing a safe transportation system that is easily accessible to freight movers and the traveling public.

Amtrak's City of New Orleans is a passenger train that travels between Chicago and New Orleans. It stops in Memphis during the trip. Amtrak also provides train service from New Orleans to as far as Los Angeles in the west or Orlando in the east. The **Systems Approach Alternative** will make the Amtrak station in Memphis more accessible, which provides the people of the region another viable travel option.

1.2.8 Summary

The Memphis and Shelby County Office of Planning and Development has identified seven factors that must be addressed in the Memphis Metropolitan Area Long Range Transportation Plan. The **Systems Approach Alternative** alone addresses three of these factors in the area of modal coordination. I-69 (1) supports the economic vitality of the metropolitan area by enabling global competitiveness, productivity and efficiency, (2) increases the accessibility and mobility options available to people and to freight and (3) enhances the integration and connectivity of the transportation system across and between modes for people and freight. The **Systems Approach Alternative** is needed to sustain and improve its competitive position in the freight movement industry.

Based on the above discussion and traffic projections, it has been determined that there is a need for the proposed project. This project has logical termini, is of sufficient length to address

environmental matters on a broad scope, has independent utility, and will not restrict consideration of alternatives for other foreseeable transportation improvements. The proposed improvement is included in the current Long Range Transportation Plan.

CHAPTER 2
ALTERNATIVES

This section of the Final Environmental Impact Statement (FEIS) describes the preferred alternative for SIU 9 from Hernando, Mississippi to Millington, Tennessee, as well as the other alternatives that were considered but eliminated from further study and the reasons for their elimination.

The alternatives considered for this segment of I-69 were selected based on the results of eight public involvement meetings, field reviews using aerial photography and USGS topographic maps, review of documented environmentally sensitive areas and constraints, and input from other agencies as part of the scoping process. Detailed traffic studies and the evaluation of future growth patterns in the project impact area were also a factor in the selection of the preferred alternative.

Also, a Technical Advisory Committee (TAC) was formed consisting of representatives of the Tennessee and Mississippi DOT's, FHWA representatives of each state, and a representative of the Memphis MPO. The TAC was formed to evaluate information gained from the project studies and to make decisions regarding project development. The project alternatives carried forward for detailed study, including the No-Build Alternative and those eliminated, were approved by the TAC.

2.1 NO-BUILD ALTERNATIVE

The No-Build, or No-Action Alternative, involves not constructing SIU 9 and leaving the existing roadway system in place. Other planned improvements and programmed projects independent of this project would still be implemented. There are several advantages to the No-Build Alternative. One is present travel patterns would not be temporarily disrupted by the construction of this segment of I-69. Noise and construction impacts associated with the new location alternative alignments would not occur. There would be no temporary stream siltation, no impact to wildlife, wetlands, archaeological and historic resources and there would be no

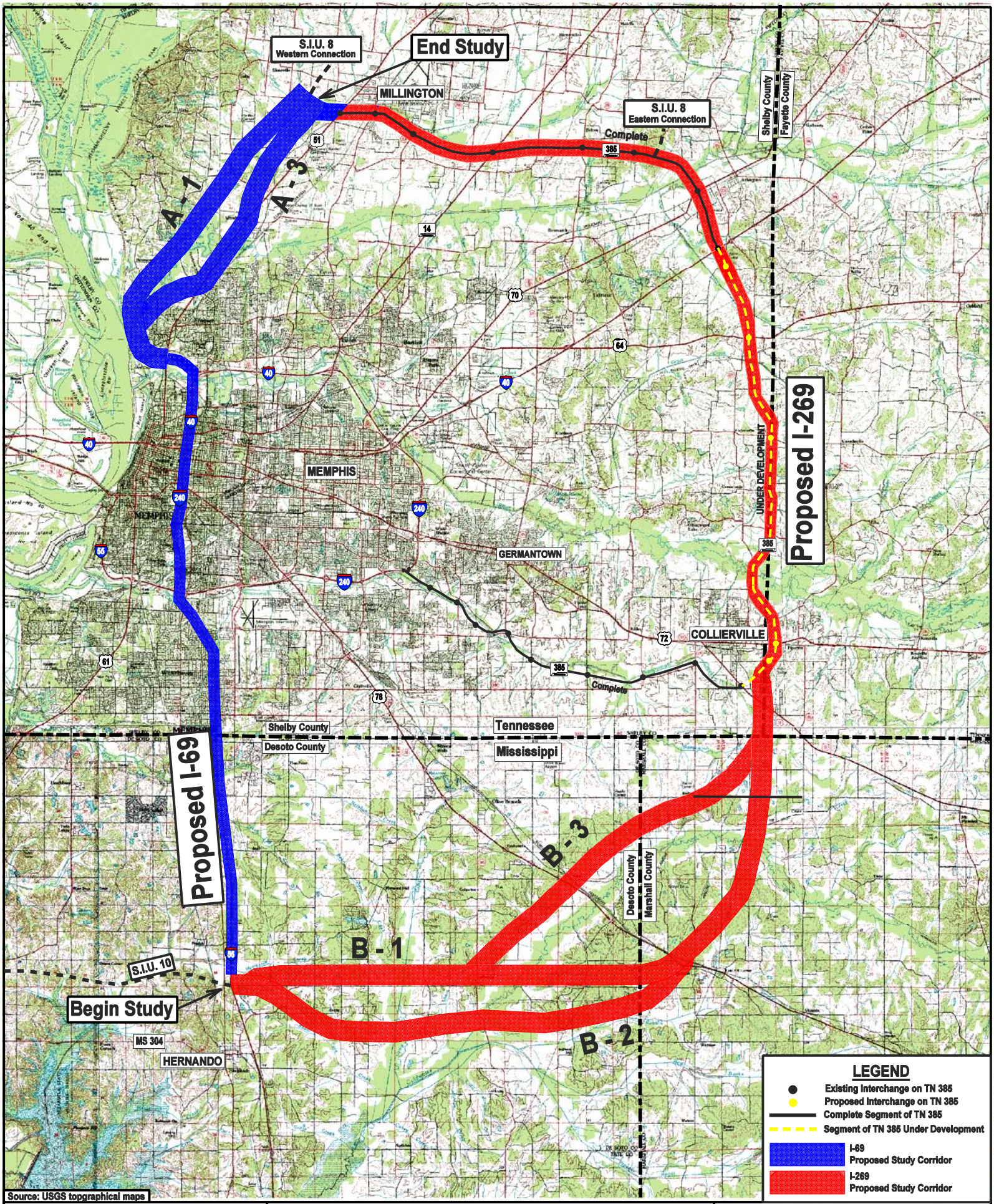
family and business relocations. The No-Build Alternative will have no direct impacts on the environment.

There are several disadvantages to the No-Build Alternative. The No-Build Alternative would not advance the completion of I-69. It would not meet the purpose and need of the project. It would not increase accessibility of the region; it would not provide Memphis and the northern sections of Mississippi with the connectivity needed to efficiently move people and freight and stimulate economic development. It would not support the projected growth patterns as adopted by the local governments in the project area. It would not accomplish the national objective of completing an interstate highway corridor connecting Canada to Mexico.

The increase in freight traffic coupled with significant growth in automobile traffic is straining the areas existing highway system. These trends have resulted in increased congestion in Memphis and the surrounding area. The No-Build Alternative will result in a continual increase in congestion and will not improve the safety for the traveling public. It could lead to a reduction in productivity, inflate transportation costs and reduce the ability to efficiently transport raw materials for production and finished products to markets. This will result in higher overhead rates, reduce profits and reduce the ability to attract and retain industry and jobs which will have an adverse affect on the economy of Memphis and the surrounding area.

2.2 BUILD ALTERNATIVE

The Build Alternative, which is the preferred alternative for this project, is a **Systems Approach Alternative** and involves constructing two routes, a primary route through Memphis (I-69) and a bypass route to the east (I-269). Each route utilizes existing interstates and existing and proposed highways built to interstate standards. There are also two new location sections, one along each route that will be constructed as part of this **Systems Approach Alternative**. Multiple alignments were studied for each new location section along each route. The alignment options are identified as A-1 and A-3 for the I-69 route and B-1, B-2, and B-3 for the I-269 route (See Figure 2-1, Proposed Study Corridors). A 300-foot wide footprint of the proposed interstate was identified for each alignment for impact evaluation purposes. However, the



Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 2-1
Proposed Study Corridors

exact centerline and right-of-way limits have not been finalized. The new location alignments were evaluated for social, economic and environmental impacts.

The **Systems Approach Alternative** will enhance the use of Intelligent Transportation Systems technology, which will be used to benefit motorists passing through the area by providing real time information on traffic conditions (i.e., construction, accidents, time delays) and allow them to make smart decisions on their routing options.

2.2.1 Systems Approach Alternative - I-69 Route

The proposed I-69 route begins at the new I-55/MS 304 Interchange in Hernando, Mississippi, which is currently under construction (and will eventually be incorporated into the next section of I-69, SIU 10), and extends along existing I-55 to the Tennessee/Mississippi state line south of Memphis. I-55 is currently a four-lane divided facility; however, MDOT has plans to widen it to eight lanes within the next few years. Some sections are currently under construction. The land use along this section is mixed and consists of agricultural, residential and commercial business. The density of residences and businesses increases as you approach the state line. Most of the MDOT improvement will be within existing right-of-way, with the exception of the interchange modifications near State Line Road. No residential displacements are anticipated, although some commercial property will be affected.

I-69 continues north along a recently improved section of I-55, which extends from the Tennessee/Mississippi state line to the I-55/240 Interchange. The cross-section along this section consists of eight 12-foot traffic lanes, with the inside lane in each direction signed as an HOV lane. The land use along this section is mostly residential with some commercial and industrial development.

At the I-55/240 Interchange, proposed I-69 will extend along I-240 to the I-40/240 Midtown Interchange. TDOT currently has plans underway to widen this six-lane section to eight lanes. The South Parkway Interchange will be modified to accommodate the additional lanes and improve the traffic flow onto I-240. The heaviest residential density is along this section of the roadway. There are historic districts, the Elmwood Cemetery and a golf course adjacent to the

existing right-of-way. Noise barriers will be constructed through this area as part of the I-240 improvement project.

The I-69 route passes through Memphis in an area that is densely developed and carries the largest traffic volumes. Widening I-240 to eight lanes from the I-55/240 Interchange to the I-40/240 Midtown Interchange and improving the interchanges will add capacity to the existing system. However, it will still only operate at a Level of Service F during peak traffic periods. Improving the level of service would require the construction of additional traffic lanes and the acquisition of additional right-of-way, through this densely developed area which would result in severe impacts to the community. It would displace hundreds of families, many businesses and several churches. The project would remove homes from a historic district, impact a historic cemetery, and a golf course. All of the side street bridges crossing the existing interstate would have to be replaced, as well as modifying all of the interchanges. The severe impacts caused by the construction of additional traffic lanes to achieve a satisfactory level of service may prove to be prohibitive. The environmental document for this section of I-240 is complete and awaiting final approval.

The I-69 route continues north along I-40/240 from the Midtown Interchange to State Route 300. TDOT has completed a Final Environmental Impact/Section 4(f) Statement and received location approval to add lanes to this six-lane section and modify the I-40/240 Midtown Interchange, the Jackson Avenue Interchange and the Chelsea Avenue Interchange. Construction is currently underway on this section of I-240. Noise barriers will be constructed through this area as part of the I-40/240 improvements project.

When the improvements to I-55, I-240 and I-40 are completed, an upgraded interstate facility consisting of eight traffic lanes will be in place that extends from the I-55/MS 304 Interchange in Hernando through Memphis to the junction of US 51 and State Route 300 south of Frayser. These interstate improvements as previously discussed are separate projects and not dependent upon the approval of I-69. The environmental impacts associated with these projects have been documented and appropriate mitigation and permits have been either received or are being applied for. No additional right-of-way along these segments will be required to incorporate

them into the I-69 project. The **Systems Approach Alternative** will take advantage of these committed federally funded projects by incorporating them into the I-69 design. The only changes to these roadways will be the interstate signing. Copies of the previously approved environmental documents are available at TDOT and MDOT offices.

At the junction of US 51 and State Route 300, the proposed I-69 route extends west on new location across open floodplain with associated wetlands and forested areas. It passes between the General Dewitt Spain Downtown Airport and the old International Harvester Plant (see Attachment 1). A potential connection to a local project, the proposed North Second Street project will be located in this vicinity. After passing the airport, the alignment extends north and passes through the Jimmy Wood demolition landfill. Two alternative alignments (A-1, A-3) were considered from this point to the end of the project in Millington.

2.2.1.1 Alternative Alignment A-1 – The Preferred Alignment

Alternative Alignment A-1 extends north and crosses over the Loosahatchie River and associated floodplain, it continues north through agriculture land and passes east of the New Testament Gospel Church and crosses over State Route 388. Continuing north, A-1 traverses mostly open farmland with scattered residential areas and parallels the Big Creek drainage canal. Interchanges are proposed at State Route 388, Cuba-Woodstock Road and Ward Road (Reference Table 2-1 for a complete list of interchanges and grade separations along Alternative Alignment A-1). The alignment passes south of the Shelby County Chickasaw Ordnance Landfill and ends at a proposed interchange with SIU 8 south of Shelby Road in Millington in the vicinity of the BFI Landfill. The proposed SIU 8/SIU 9 Interchange will connect to State Route 385 (proposed I-269) in Millington. In the event SIU 8 is not constructed, or the eastern alternative of SIU 8 is not selected, Alternative Alignment A-1 will be extended east and connect to the existing US 51/State Route 385 Interchange at Millington.

The cross-section for this alternative alignment consists of four 12-foot traffic lanes, separated by an 88-foot wide median within a minimum 300-foot right-of-way. Auxiliary lanes will be provided between the interchanges as needed (See Figures 2-2 and 2-3. Cross section

adjustments and details will be made in the project design phase as needed to reflect each state's standard drawings and specifications for full control of access facilities.).

Alternative Alignment A-1 is approximately 15.2 miles in length and will require approximately 739 acres of land. This alternative will displace approximately 21 residences and 2 businesses. No non-profit organization displacements are anticipated along this section. There will be 6 interchanges and 4 grade separations along the A-1 alignment. It will cross 21 blue-line streams and impact approximately 48 acres of wetland. The total cost for this alignment is estimated to be $200,600,000.

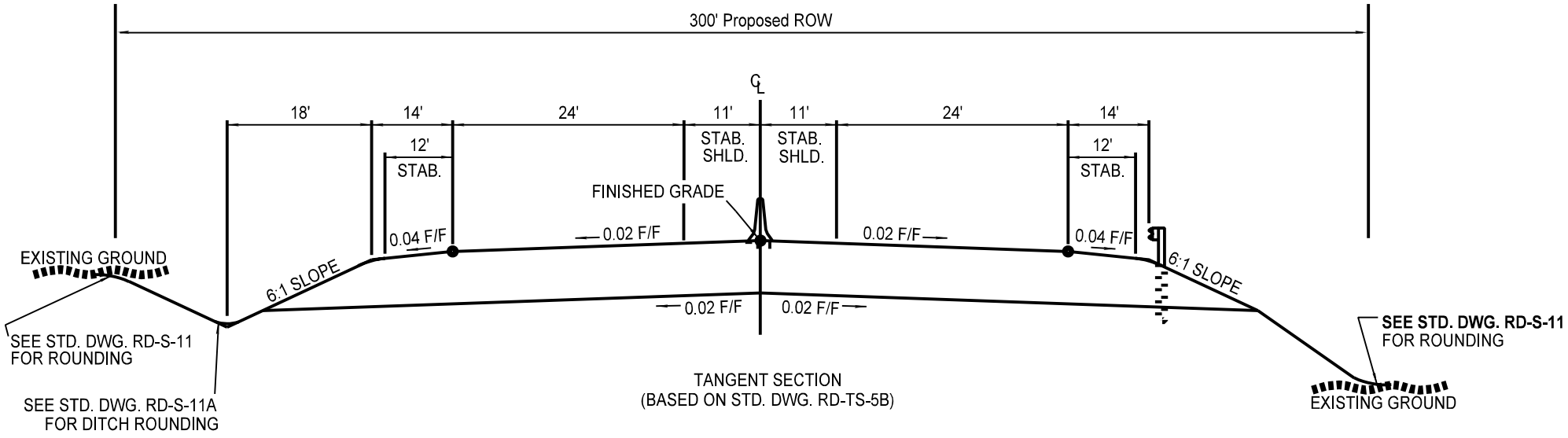
TABLE 2-1

ALTERNATIVE ALIGNMENT A-1 INTERCHANGES AND SEPARATIONS

Interchanges	Grade Separation Structures
U.S. 51/Thomas Boulevard	Whitney Avenue
Potential North 2nd Street	Klinke Avenue
State Route 388	Robertson Road
Woodstock Cuba Road	Fite Road
Ward Road	
State Route 385 and SIU 8/SIU 9	

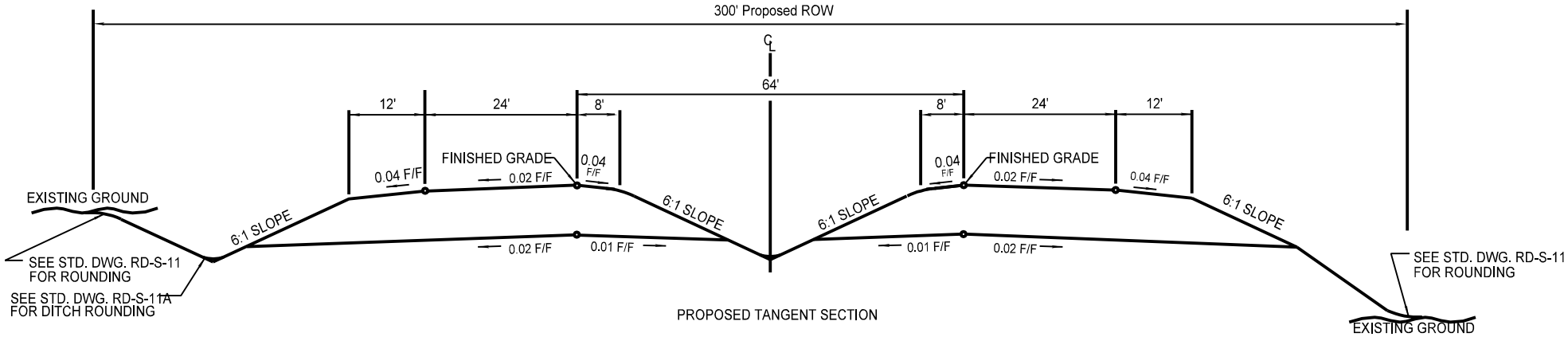
2.2.1.2 Alternative Alignment A-3

Alternative Alignment A-3 is coincident with Alternative Alignment A-1 to just south of the Loosahatchie River. A-3 does not cross the river at this point and remains to the east side. It extends north through mostly open agricultural land and forested area, passing west of a large residential area south of Benjestown Road. A proposed landfill is located in close proximity to the study corridor. The alignment continues north and passes through a mobile home park and passes just east of Firestone Park. Beyond Firestone Park, the A-3 Alignment continues north paralleling US 51 through a developed section of Frayser and crosses the Loosahatchie River and adjoining wetlands. The proposed I-69 roadway would be located in the center of the alignment to provide route continuity and auxiliary lanes would be provided on either side for access to local businesses along existing US 51. After crossing the river, A-3 shifts north away from US 51 and crosses over Fite Road and continues north through the Woodstock Community,



Note: Cross-section shown is for illustrative purposes only. Adjustments and details will be made in the project design phase as needed to reflect each state's standard drawings and specifications for full control of access facilities.

Not To Scale	Interstate 69 (S.I.U. #9) From Hernando, Mississippi to Millington, Tennessee	Figure 2-2 Proposed Typical 4-Lane Section



Note: Cross-section shown is for illustrative purposes only. Adjustments and details will be made in the project design phase as needed to reflect each state's standard drawings and specifications for full control of access facilities.

Not To Scale	Interstate 69 (S.I.U. #9) From Hernando, Mississippi to Millington, Tennessee	Figure 2-3 Proposed Typical 4-Lane Section

traversing farmland, forested areas and residential areas. A-3 crosses the corner of the BFI Landfill before re-joining the A-1 alignment. Alternative Alignment A-3 ends at a proposed alternative interchange connection with SIU 8 south of Shelby Road in Millington (Reference Table 2-2 for a complete list of interchanges and grade separations along Alternative Alignment A-3). In the event SIU 8 is not approved for construction, A-3 would extend east to connect with the US 51/State Route 385 Interchange.

TABLE 2-2

ALTERNATIVE ALIGNMENT A-3 INTERCHANGES AND SEPARATIONS

Interchanges	Grade Separation Structures
U.S. 51/Thomas Boulevard	Whitney Avenue
Potential North 2nd Street	Klinke Avenue
State Route 388	Benjestown Road
Woodstock Cuba Road	Millington Road
Ward Road	Fite Road
State Route 385 and SIU 8/SIU 9	

The cross-section for Alternative Alignment A-3 will begin at State Route 300 as a four-lane facility with two 12-foot traffic lanes in each direction separated by a 22-foot wide median with a New Jersey Barrier within a minimum right-of-way width of 300 feet. This cross-section will continue along US 51 through Frayser. After crossing the river the alignment shifts north on new location near Rust Road and continues on new location to the end of the project. The cross-section for this segment will be four 12-foot traffic lanes with an 88-foot wide median within a minimum 300-foot wide right-of-way (See Figures 2-2 and 2-3. Cross section adjustments and details will be made in the project design phase as needed to reflect each state's standard drawings and specifications for full control of access facilities.). Auxiliary lanes will be provided between the interchanges and through Frayser as needed.

Alternative Alignment A-3 is approximately 15.3 miles in length and will require approximately 798 acres of land. This Alternative Alignment will displace approximately 60 families and 5 businesses. No non-profit organizations will be displaced. Alternative Alignment A-3 will have

6 interchanges, 5 grade separations and will cross 20 streams. Approximately 53 acres of wetlands will be impacted by this alignment. The total cost is estimated to be $227,700,000.

TABLE 2-3

SUMMARY OF "A" ALTERNATIVE ALIGNMENTS

Alternatives	A-1	A-3
Project Length (miles)	15.2	15.3
New Right-of-Way (acres)	739	798
Family Displacements	21	60
Business Displacements	2	5
Non-Profit Displacements	0	0
Farmland (acres)	128	95
Stream Crossings	21	20
Potential Linear Feet of Stream Impacts (feet)	9,590	8,620
Wetlands (acres)	48	53
Historic Properties	0	0
Recorded Archaeological Sites	11	9
Hazardous Waste Sites	0	1
Landfill Sites	3	4
Impacted Noise Receptors	3	29
Total Cost ($ Millions)	200.6	227.7
Impacts calculated on 300-foot right-of-way.		

2.2.2 Systems Approach Alternative – I-269 Route

The proposed I-269 route begins at the new I-55/MS 304 Interchange currently under construction in Hernando, Mississippi and generally follows the future proposed MS 304 Corridor that has been previously evaluated by MDOT, although no formal environmental document has been prepared. The purpose and need of MS 304, as well as the proposed I-269 route is to connect I-55 in Hernando to the recently approved section of State Route 385 near Collierville, to improve access and to stimulate economic development, and to provide a safe transportation facility with the traffic capacity to adequately handle the present and projected growth in industrial, commercial and residential development in DeSoto and Marshall Counties.

Three alternative alignments were considered for this segment of the proposed I-269 Corridor (B-1, B-2, B-3). Proposed I-269 extends east from the I-55 Interchange on a new alignment for approximately 1.2 miles, traversing open pastures, farmland and forested areas. At this point the proposed corridor splits into two new location alignments (B-1, B-2). A 300-foot wide footprint of the proposed interstate was tentatively located for each alignment for evaluation purposes. The exact centerline and proposed right-of-way limits have not been finalized. The cross section for the I-269 route will consist of four 12-foot traffic lanes separated by a minimum 64-foot wide median within a minimum 300 feet of right-of-way (See Figure 2-3. Cross section adjustments and details will be made in the project design phase as needed to reflect each state's standard drawings and specifications for full control of access facilities.).

2.2.2.1 Alternative Alignment B-1 – The Preferred Alignment

Alternative Alignment B-1 continues in an easterly direction, crossing over Hurricane Creek and traversing mostly open farmland with scattered woodlands and residences. Alternative Alignment B-1 crosses Getwell Road approximately 3500 feet north of Byhalia Road. An interchange is proposed at this road crossing (Reference Table 2-4 for a complete list of interchanges and grade separations along Alternative Alignment B-1). The new alignment continues east for approximately 2.2 miles crossing over Douglas Road, Malone Road and Laughter Road. An interchange is proposed at Laughter Road. The original B-1 alignment was shifted north at this interchange to reduce impacts to eleven minority owned tracts of land then shifted south to avoid a proposed new school complex on the east side of Craft Road. Alternative Alignment B-1 continues east, traversing mostly open farmland, crossing over Bean Patch Creek, Camp Creek Canal and Craft Road, Ross Road and MS 305. Interchanges are proposed at Craft Road and MS 305. The alignment continues east, avoiding a future proposed residential area east of MS 305, traversing open farmland and forested areas before crossing the Coldwater River and associated wetlands approximately 1.8 miles east of MS 305. (See Attachment I, Project Constraints Map).

After crossing the Coldwater River, Alternative Alignment B-1 continues east approximately 2.0 miles and crosses over Red Banks Road. A future planned residential area is located in close proximity to the alignment west of Red Banks Road. Alternative Alignment B-1 continues east

from this point crossing open farmland, forested areas and crosses over Fairview East Road and US 78. Interchanges are proposed at Red Bank Road and US 78 (future proposed I-22). Continuing east, B-1 crosses over old MS 178 and the Burlington Northern/Santa Fe Railroad and passes through the corner of a residential area on Shenault Road. The alignment continues east and crosses over MS 309. An interchange is proposed at MS 309. The alignment continues east before shifting north, traversing farmland, forested areas, scattered residential properties and crosses over Bubba Taylor Road and Deer Creek Road. B-1 avoids a residential area south of the Deer Creek Road/Benny Davis Road intersection. The alignment continues north crossing over the Coldwater River, and associated wetlands, Dogwood Drive, Nonconnah Creek and MS 302. A new interchange will be constructed at MS 302.

TABLE 2-4

ALTERNATIVE ALIGNMENT B-1 INTERCHANGES AND SEPARATIONS

Interchanges	Grade Separation Structures
Interstate 55	Gravel Pit Road
Getwell Road	Douglas Road
Laughter Road	Malone Road
Craft Road	Ross Road
MS 305	Fairview East Road (first crossing)
Red Banks Road	Fairview East Road (second crossing)
US 78	MS 178/Railroad
MS 309	Mason Road
MS 302	Redbird Road
US 72	Shinalt Road
State Route 385 and SIU 8/SIU 9	Bubba Taylor Road
	Deer Creek Road
	Dogwood Drive
	Wingo Road

The alignment continues north for approximately 5.8 miles traversing more farmland, forested areas, impacting scattered residences, crossing over Wingo Road, the Mississippi/Tennessee State line, State Line Road, US 72 and tying into TDOT's proposed State Route 385 improvement in Collierville. Interchanges are proposed at US 72 and at the proposed connection

with State Route 385. Alternative Alignment B-1 follows the route identified in the approved FEIS for State Route 385, which extends north to the existing I-40 interchange with State Route 385 (Paul Barrett Parkway). TDOT is currently purchasing right-of-way on certain sections of proposed State Route 385 and two sections are currently under construction. The alignment then follows existing State Route 385 north and west to the US 51/State Route 385 interchange at Millington. This segment of Alternative B-1 which is the same for all the alternative alignments studied extends west across US 51 on new location traversing open land and crossing the corner of the BFI Landfill and ends at a proposed interchange with SIU 8 and proposed I-69 west of Millington. If the selected Alternative Alignment for SIU 8 is east of Millington, Alternative B-1 would then interchange with existing State Route 385.

Alternative Alignment B-1 has a length of approximately 28.6 miles and will require approximately 1479 acres of new right-of-way. This alternative will displace 64 families and 6 businesses. No non-profit organizations will be displaced. Alternative Alignment B-1 crosses 39 streams and impacts 69 acres of wetland. This alternative will have 11 interchanges and 14 grade separated crossings. The total cost estimate for this Alternative Alignment is approximately $358,000,000.

2.2.2.2 Alternative Alignment B-2

Alternative Alignment B-2 is coincident with B-1 for the first 1.2 miles. At this point it shifts south passing through the Southern Aggregate complex area over several settling ponds and passing just north of a residential area on Hickory Ridge Road traversing open land and forested areas. At this point, B-2 extends south for approximately 1.5 miles to Getwell Road passing through open land and the corner of a new subdivision currently under construction. An interchange is proposed at Getwell Road (Reference Table 2-5 for a complete list of interchanges and grade separations along Alternative Alignment B-2). The alignment shifts east traversing more farmland, forested areas and scattered residences and passing over Malone Road, Laughter Road, Camp Creek Canal, Craft Road, MS 305, Byhalia Creek Canal, Red Banks Road, and Parks Road before shifting north. Interchanges are proposed at Laughter Road, Craft Road, MS 305 and Red Banks Road. After crossing Red Banks Road the alignment passes south of a subdivision currently under development and continues north, traversing farmland, forested areas

and scattered residential sites. It crosses over Byhalia Road, passes south of a new subdivision on Fairview East Road and crosses over Byhalia Creek Canal and joins Alternative Alignment B-1 at the proposed US 78 (future proposed I-22) interchange at the DeSoto/Marshall County line. Alternative Alignment B-2 then follows the same alignment as B-1 to the end of the project in Millington.

This Alternative Alignment is approximately 30.6 miles in length and will require approximately 1552 acres of land. Fifty-three (53) existing family residences will be relocated along with 6 businesses; no non-profit organizations will be displaced. Alternative Alignment B-2 will have 11 interchanges and 14 grade separations. This alternative crosses 46 streams and will impact approximately 51 acres of wetland. The total estimated cost is $397,100,000.

TABLE 2-5

ALTERNATIVE ALIGNMENT B-2 INTERCHANGES AND SEPARATIONS

Interchanges	Grade Separation Structures
Interstate 55	Green T Road
Getwell Road	Jaybird Road
Laughter Road	Bright Road
Craft Road	Malone Road
MS 305	Byhalia Road
Red Banks Road	Fairview East Road
US 78	MS 178/Railroad
MS 309	Mason Road
MS 302	Redbird Road
US 72	Shinalt Road
State Route 385/SIU 8/SIU 9	Bubba Taylor Road
	Deer Creek Road
	Dogwood Drive
	Wingo Road

2.2.2.3 Alternative Alignment B-3

Alternative Alignment B-3 extends east on new location from the new I-55/MS 304 Interchange, currently under construction, and follows the same alignment as Alternative Alignment B-1 to the proposed MS 305 interchange, a distance of approximately 10.6 miles. At the proposed MS 305 Interchange, B-3 extends north for approximately 5.2 miles passing through mostly open farmland, some forested areas and scattered residential sites. The alignment crosses over Miller Road twice, US 78, the Burlington Northern/Santa Fe Railroad and MS 178. An interchange is proposed with US 78 (future proposed I-22) (Reference Table 2-6 for a complete list of interchanges and grade separations along Alternative Alignment B-3). After crossing US 78, the alignment passes through the Forest Hill Community a rapidly developing residential community consisting of over 1600± residential lots. The alignment passes between a recently constructed elementary school serving this residential area and several existing residential homes. There are many new homes currently under construction in this area. After passing through the Forrest Hill Community, the alignment crosses the northern corner of a new subdivision currently under development and continues on Center Hill Road north and east for approximately 5.5 miles traversing farmland and residential areas, crossing over Center Hill Road at two locations, Burton Road, DeSoto/Marshall County line, County Line Road, Durham Road and MS 309. An interchange is proposed at the MS 309 crossing, which is approximately 1.0 mile south of MS 302. B-3 continues east passing through another new subdivision under development on Smith Road. The alignment shifts north passing through farmland and residential areas crossing over MS 302. An interchange will be constructed at MS 302. Alternative B-3 joins Alternatives B-1 and B-2 approximately 3000 feet north of the MS 302 interchange and follows the same alignment to the end of the project at Millington.

Alternative Alignment B-3 is approximately 26.6 miles in length and will require 1,406 acres of land. It will displace 52 existing family residences and 1 business; no non-profit organizations will be displaced. Alternative Alignment B-3 will have 10 interchanges and 12 grade separated crossings. It will cross 37 streams and impact 6 acres of wetland. The total estimated cost is $317,000,000.

TABLE 2-6
ALTERNATIVE ALIGNMENT B-3 INTERCHANGES AND SEPARATIONS

Interchanges	Grade Separation Structures
Interstate 55	Gravel Pit Road
Getwell Road	Malone Road
Laughter Road	Ross Road
Craft Road	Fairview East Road
MS 305	MS 178/Railroad
U.S. 78	Miller Road (first crossing)
MS 309	Center Hill Road (second crossing)
MS 302	Burton Road
U.S. 72	Durham Road
State Route 385 and SIU 8/SIU 9	Farley Road
	Barringer Drive
	Wingo Road

TABLE 2-7
SUMMARY OF "B" ALTERNATIVE ALIGNMENTS

Alternatives	B-1	B-2	B-3
Project Length (miles)	28.6	30.6	26.6
New Right-of-Way (acres)	1479	1552	1406
Family Displacements	64	53	52*
Business Displacements	6	6	1
Non-Profit Displacements	0	0	0
Farmland (acres)	435	497	253
Stream Crossings	39	46	37
Potential Linear Feet of Stream Impacts (feet)	15,780	20,980	13,850
Wetlands (acres)	69	51	6
Historic Properties	0	0	0
Recorded Archaeological Sites	20	22	15
Hazardous Waste Sites	0	0	0
Landfill Sites	0	0	0
Impacted Noise Receptors	70	68	43†
Total Cost ($ Millions)	358.8	397.1	317.0

Impacts calculated on 300-foot right-of-way.
* Because of the recent residential development along this alignment, B-3 has the potential to displace several hundred new homes in the Forest Hill Community subdivision.
† Does not include future impacted residences in the Forest Hill Community subdivision that is currently under construction.

2.2.3 Comparison of Alternative Alignments

The systems approach alternative, which is the preferred alternative, involves selecting an alignment along the new location section of the I-69 route (A-1 or A-3), as well as, an alignment along the new location section of the I-269 route (B-1, B-2 or B-3) to connect the entire system. In order to further compare the alternative alignments under consideration for this project, the impacts associated with the various Alternative Alignment combinations of the I-69 route and the I-269 route have been evaluated (See Figure 2-1).

The combination of Alternative Alignments A-1 and B-1 is approximately 43.8 miles in length and will require approximately 2,218 acres of land. It will displace 85 families and 8 businesses; no non-profit organizations will be displaced. Alternative Alignment A-1/B-1 will have 18 interchanges and 18 grade separated crossings. It will cross 60 streams and impact 117 acres of wetland. The total estimated cost is $558,600,000.

The combination of Alternative Alignments A-1 and B-2 is approximately 45.8 miles in length and will require approximately 2,291 acres of land. It will displace 74 families and 8 businesses; no non-profit organizations will be displaced. Alternative Alignment A-1/B-2 will have 18 interchanges and 18 grade separated crossings. It will cross 67 streams and impact 99 acres of wetland. The total estimated cost is $597,700,000.

The combination of Alternative Alignments A-1 and B-3 is approximately 41.8 miles in length and will require approximately 2,145 acres of land. It will displace 73 families and 3 businesses; no non-profit organizations will be displaced. This alternative will have 17 interchanges and 18 grade separated crossings. It will cross 58 streams and impact 54 acres of wetland. The total estimated cost is $517,600,000.

The combination of Alternative Alignments A-3 and B-1 is approximately 43.9 miles in length and will require approximately 2,277 acres of land. It will displace 117 families and 11 businesses; no non-profit organizations will be displaced. This alternative will have 18 interchanges and 19 grade separated crossings. It will cross 59 streams and impact 122 acres of wetland. The total estimated cost is $585,700,000.

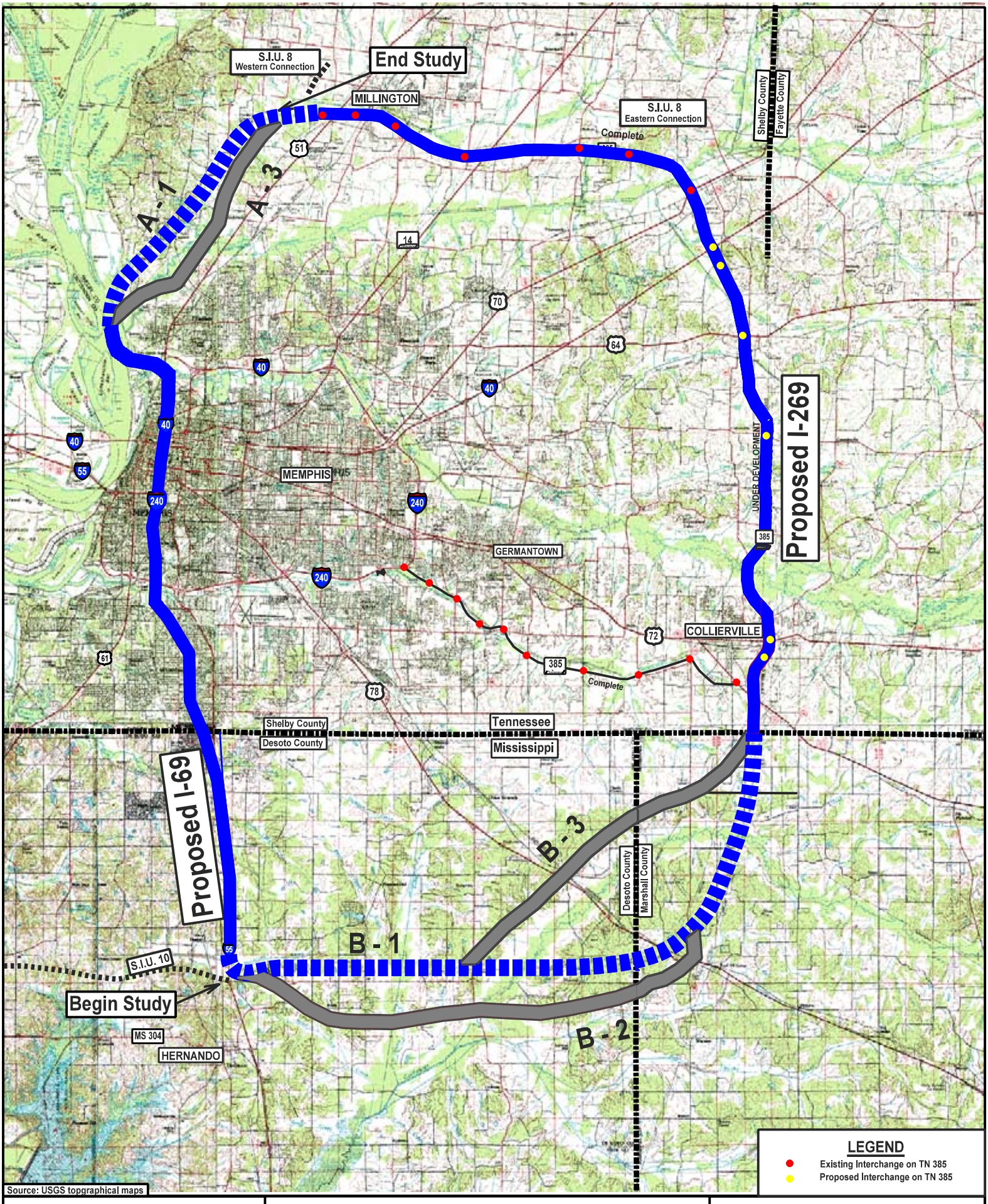
The combination of Alternative Alignments A-3 and B-2 is approximately 45.9 miles in length and will require approximately 2,350 acres of land. It will displace 113 families and 11 businesses; no non-profit organizations will be displaced. This alternative will have 18 interchanges and 19 grade separated crossings. It will cross 66 streams and impact 104 acres of wetland. The total estimated cost is $624,800,000.

The combination of Alternative Alignments A-3 and B-3 is approximately 41.9 miles in length and will require approximately 2,204 acres of land. It will displace 112 families and 6 businesses; no non-profit organizations will be displaced. This alternative will have 17 interchanges and 19 grade separated crossings. It will cross 57 streams and impact 59 acres of wetland. The total estimated cost is $544,700,000.

Table 2-8 is a comparison of the alternative alignments on new location. Since much of SIU 9 is on existing interstates and highways or on roadways previously approved for construction, the data presented is only for the new location alternatives.

2.3 SELECTION OF THE SYSTEMS APPROACH ALTERNATIVE ALIGNMENTS

During the project development process a wide range of locations were identified as possible alignments for this segment of I-69. These alignments were analyzed for their ability to meet the purpose and need, financial feasibility and potential social, economic, and environmental effects. As a result of extensive public involvement and agency coordination prior to publication of the DEIS and in consideration of comments on the DEIS and concerns raised by local residents attending the Corridor Public Hearings and evaluating several design options aimed at resolving local concerns expressed in comments at the Corridor Public Hearing, a preferred alignment for the northern I-69 segment and the southern I-269 segment have been selected (See the Preferred Alternative Location map, Figure 2-4).



BLUE: SYSTEMS APPROACH ALTERNATIVE
BLUE DASHED: PREFERRED ALTERNATIVE
GRAY: NON-PREFERRED ALTERNATIVE

FIGURE 2-4
Preferred Alternative Location Map

2.3.1 Proposed I-69 Preferred Alternative

Alternative alignment A-1 was selected as the preferred alignment for this segment of the **Systems Approach Alternative** for the following reasons:

- The alignment is slightly shorter and requires less right-of-way.
- A-1 displaces fewer families and businesses and is estimated to cost $20 million less than A-3.
- It avoids impacting the trailer park on Old Millington Road and is further away from concentrated neighborhoods in the Benjestown Road area.
- Alternative A-1 avoids construction impacts associated with providing ingress and egress to local businesses along US-51 through Frayser during the construction phases.
- Alternative A-1 avoids the construction congestion associated with building an interchange at the existing US 51/SR 388 (North Watkins Street) intersection in Frayser and maintaining local traffic through this busy intersection.
- It will not impact access to the Vietnam Memorial Park or access to Firestone Park during project construction.
- It is further away from the Woodstock Community which will result in less congestion along US 51 in the vicinity of Woodstock during construction.
- There are less noise impacts along the A-1 alignment.
- Alternative A-1 will impact less wetland acres.
- Alternative A-1 was preferred by local residents and received the most support at the Corridor Public Hearing.

2.3.2 Proposed I-269 Preferred Alternative

Alternative Alignment B-1 has been selected as the preferred alignment for the I-269 segment of the **Systems Approach Alternative**. The I-269 corridor is presently experiencing a significant increase in residential development and other infrastructure construction. Many new homes have been constructed since the beginning of this study which is directly related to the availability of developable land and the economic growth in this region.

Each of the alternative alignments studied has similar social, economic, environmental, and land use impacts. Alternative B-3 is the shortest route and follows the edge of the Coldwater River

floodplain. Because the land in this area is above the floodplain, it is the most desirable for residential development, and as a result it is undergoing rapid change. Since the beginning of this study, a 1,600 lot planned residential community has developed. A new elementary school and fire station have been constructed. The alignment was shifted to miss the school; unfortunately it separates the school from the community it is designed to serve. The on-going rapid development of this planned community places many of the new homes in the path of the B-3 alignment. This planned community will be completed before funding is available for I-69 and will result in several hundred residential displacements, which will significantly increase the cost of the project and divide this community, as well as cause significant noise impacts on the homes adjacent to the interstate. Shifting the alignment further south will impact other new subdivisions currently under construction and have a greater impact on the floodplain at Coldwater Creek (See Figures 2-5 and 2-6, the Forest Hill Community maps). Shifting the alignment further north would have a greater impact on existing residential development. B-3 also passes through a new subdivision under development south of Burke Road, as well as another new 200± lot subdivision under development on Smith Road. B-3 in this area would divide these residential areas, displace many homes and would have a noise impact on those left adjacent to the interstate. B-3 was opposed by a large majority of the public attending the Corridor Public Hearing, as well as local elected officials in the area. For these reasons B-3 was not selected as the preferred alignment. (The Corridor Public Hearing Summary is available at TDOT and MDOT offices.)

Alternative B-2 is the longest of the three alignments studied and has the highest estimated cost. B-2 also has the potential to adversely impact new residential development in the area. It passes through the corner of a new subdivision (estimated to be 100± lots) currently under construction on Getwell Road. It also passes just south of a new subdivision (estimated to be 50± lots) under development on Fairview East Road. These new housing developments will be completed before the construction of this segment of I-69 begins. B-2 would displace many of these new homes and subject those left adjacent to the highway to traffic noise impacts. For these reasons B-2 was not selected.

MASTER PLAN ILLUSTRATION WITH I-269 B3 ALIGNMENT

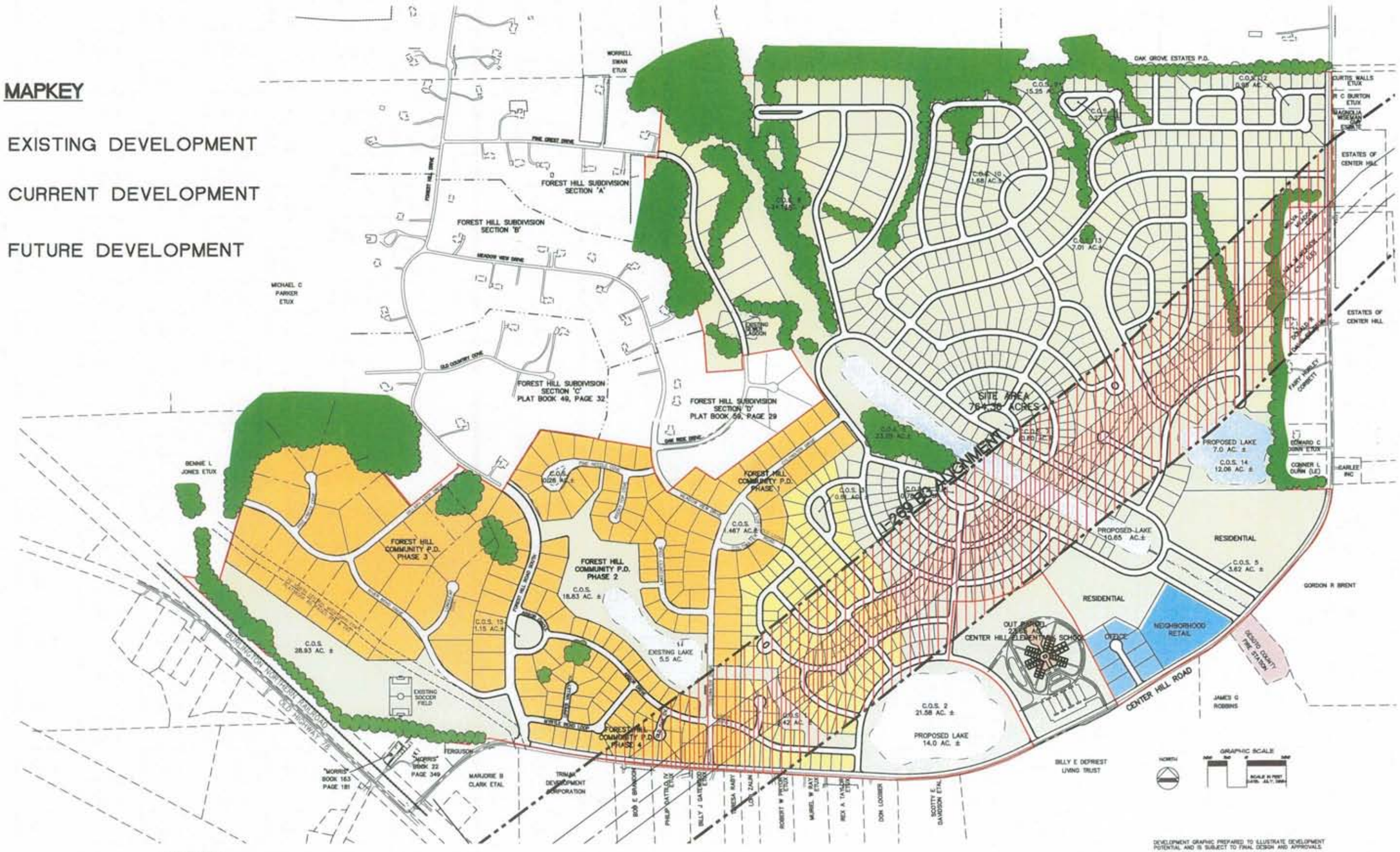
Forest Hill Community

A PLANNED RESIDENTIAL DEVELOPMENT

DESOTO COUNTY, MISSISSIPPI

MAPKEY

- EXISTING DEVELOPMENT
- CURRENT DEVELOPMENT
- FUTURE DEVELOPMENT



PREPARED FOR:
FOREST HILL PROPERTIES, INC.
955 RIDGE LAKE BOULEVARD SUITE 203, MEMPHIS, TN 38120

DEVELOPMENT GRAPHIC PREPARED TO ILLUSTRATE DEVELOPMENT POTENTIAL AND IS SUBJECT TO FINAL DESIGN AND APPROVALS.
BOUNDARY AND TOPOGRAPHY PROVIDED BY OTHERS.

DALHOFF ■ THOMAS ■ DAWS
PLANNING / LANDSCAPE ARCHITECTURE
9055 LEBON PARK DRIVE, SUITE 100, MEMPHIS TN 38018 PHONE 901.796.9000 FAX 901.796.9004

Forest Hill Community

A PLANNED RESIDENTIAL DEVELOPMENT

DESOTO COUNTY, MISSISSIPPI

EXISTING CONDITIONS

4 VIEW TO CENTERHILL ELEMENTARY FROM THE RESIDENTIAL COMMUNITY

5 CENTERHILL ELEMENTARY ENTRANCE

3 VIEW TO CENTERHILL ELEMENTARY THROUGH GREENBELT

6 FAIRHAVEN FIRE STATION

2 VIEW EAST TOWARDS THE COLDWATER ENTRANCE

1 SOUTH FOREST HILL ENTRANCE

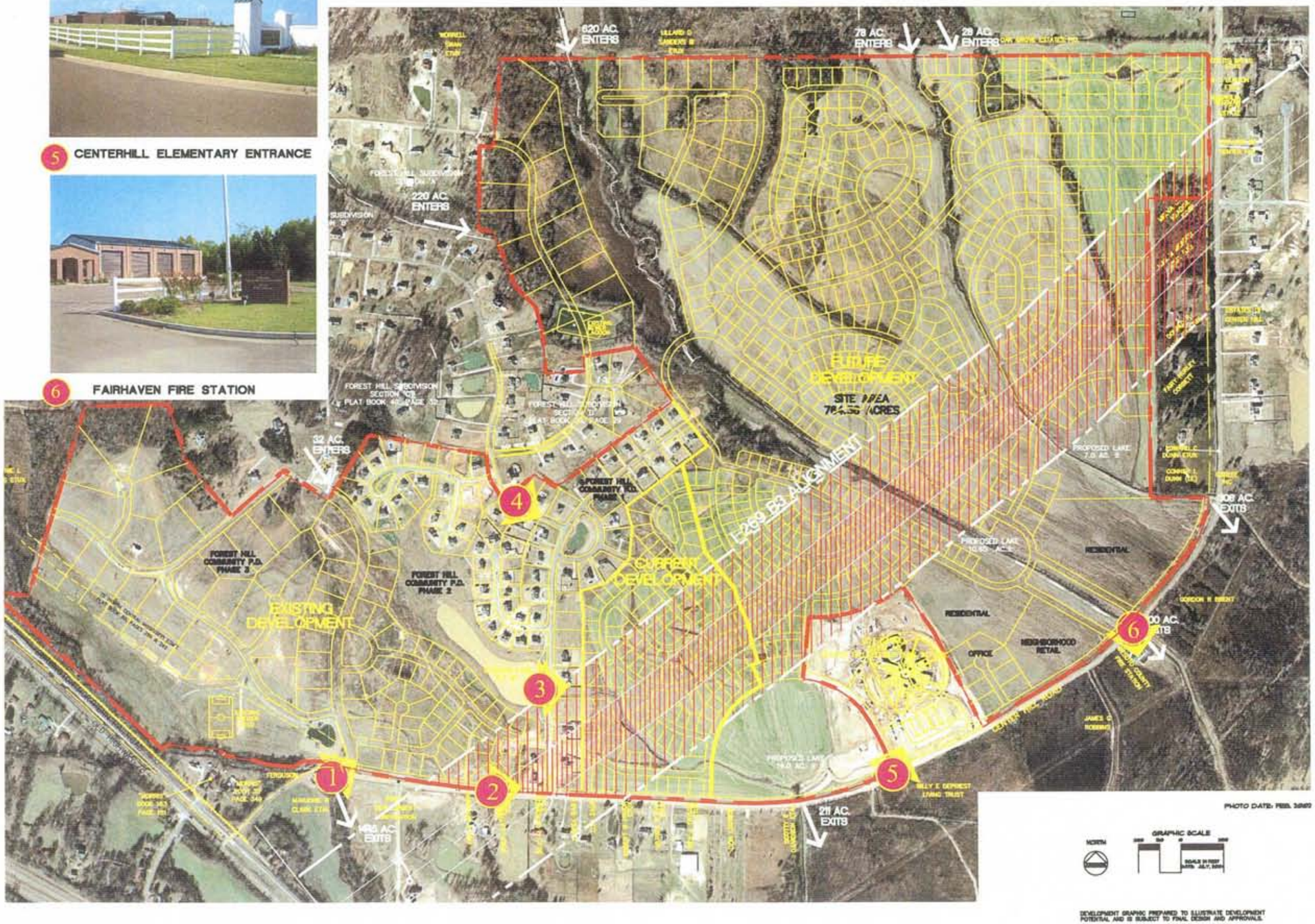


PHOTO DATE: FEB. 2010

NORTH

GRAPHIC SCALE

DEVELOPMENT GRAPHIC PREPARED TO ILLUSTRATE DEVELOPMENT POTENTIAL AND IS SUBJECT TO FINAL DESIGN AND APPROVALS. BOUNDARY AND TOPOGRAPHY PROVIDED BY OTHERS.

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DALHOFF ■ THOMAS ■ DAWS
PLANNING / LANDSCAPE ARCHITECTURE

In consideration of the on-going development in this region and the impacts associated with each alternative along with public comments made at the Corridor Public Hearings and support of local officials. Alternative Alignment B-1 is the preferred alignment for this section of proposed I-269.

Alignment B-1 closely follows MDOT's previously proposed MS 304 alignment that was presented at local public meetings. The three alignments proposed for the I-269 route were field located in an attempt to avoid as many existing environmentally sensitive areas, houses, businesses, churches, and other infrastructure as possible, to minimize the impact of this project. The alignments were shifted during the course of this study to avoid new development as it occurred. Although Alternative B-1 was initially estimated to displace 64 families which is slightly higher the Alternatives B-2 and B-3, there are no new subdivisions currently under development in the path of B-1. Alternatives B-2 and B-3 due to the previously discussed on-going development will displace significantly more houses and other infrastructure than the preferred B-1 alignment.

Alternative B-1 will displace more wetlands than Alternative B-3. The B-3 alignment was considered for this study because it was above the Coldwater River floodplain and avoided many wetlands. However, because of this desirable location new housing development is rapidly occurring. A new 1,600+ lot planned residential community is currently under construction in the path of Alternative B-3. Alternative Alignment B-3 has the potential to displace several hundred of these new homes. It would split the community and be very close to a recently constructed elementary school.

Alternative B-1 is more economically beneficial to the City of Byhalia and Marshall County. It will open up more land for local development projects and increase the tax base and improve the quality of life for area residents. It will provide better traffic service to existing industrial and residential development in the area. Alternative B-1 has been endorsed by the Northern Mississippi Industrial Development Association, Marshall County Industrial Development Authority, Marshall County Board of Supervisors, the Byhalia Chamber of Commerce and the town of Byhalia. It will provide much needed economic incentives to this area.

The following table is a comparison of the alternative alignments on new location. Since much of SIU 9 is on existing interstates and highways or roadways previously approved for construction, the data presented is only for the new location alternative alignments.

TABLE 2-8
SUMMARY OF ALTERNATIVES

Alternatives	A-1	A-3	B-1	B-2	B-3	A-1/ B-1	A-1/ B-2	A-1/ B-3	A-3/ B-1	A-3/ B-2	A-3/ B-3
Project Length (miles)	15.2	15.3	28.6	30.6	26.6	43.8	45.8	41.8	43.9	45.9	41.9
New Right-of-Way (acres)	739	798	1479	1552	1406	2218	2291	2145	2277	2350	2204
Family Displacements	21	60	64	53	52*	85	74	73*	117	113	112*
Business Displacements	2	5	6	6	1	8	8	3	11	11	6
Non-Profit Displacements	0	0	0	0	0	0	0	0	0	0	0
Farmland (acres)	128	95	435	497	253	563	625	381	530	592	348
Stream Crossings	21	20	39	46	37	60	67	58	59	66	57
Potential Linear Feet of Stream Impacts (feet)	9,590	8,620	15,780	20,980	13,850	25,370	30,570	23,440	24,400	29,600	22,470
Wetlands (acres)	48	53	69	51	6	117	99	54	122	104	59
Historic Properties Impacted	0	0	0	0	0	0	0	0	0	0	0
Recorded Archaeological Sites	11	9	20	22	15	31	33	26	29	31	24
Hazardous Waste Sites	0	1	0	0	0	0	0	0	1	1	1
Landfill Sites	3	4	0	0	0	3	3	3	4	4	4
Impacted Noise Receptors	3	29	70	68	43†	73	71	46†	99	97	72†
Construction Cost ($ million)	169.2	190.3	315.3	338.3	262.9	484.5	507.5	432.1	505.6	528.6	453.2
Right-of-Way Cost ($ million)	30.0	36.0	40.1	56.0	51.7	70.1	86.0	81.7	76.1	92.0	87.7
Utility Cost ($ million)	1.4	1.4	2.6	2.8	2.4	4.0	4.2	3.8	4.0	4.2	3.8
Total Cost ($ million)	200.6	227.7	358.0	397.1	317.0	558.6	597.7	517.6	585.7	624.8	544.7

Impacts are based on a 300-foot wide corridor.
* Because of the recent residential development along this alignment, B-3 has the potential to displace several hundred new homes in the Forest Hill Community subdivision.
† Does not include future noise impacted residences in the Forest Hill Community subdivision that is currently under construction.

2.4 ALTERNATIVES PREVIOUSLY CONSIDERED BUT REJECTED

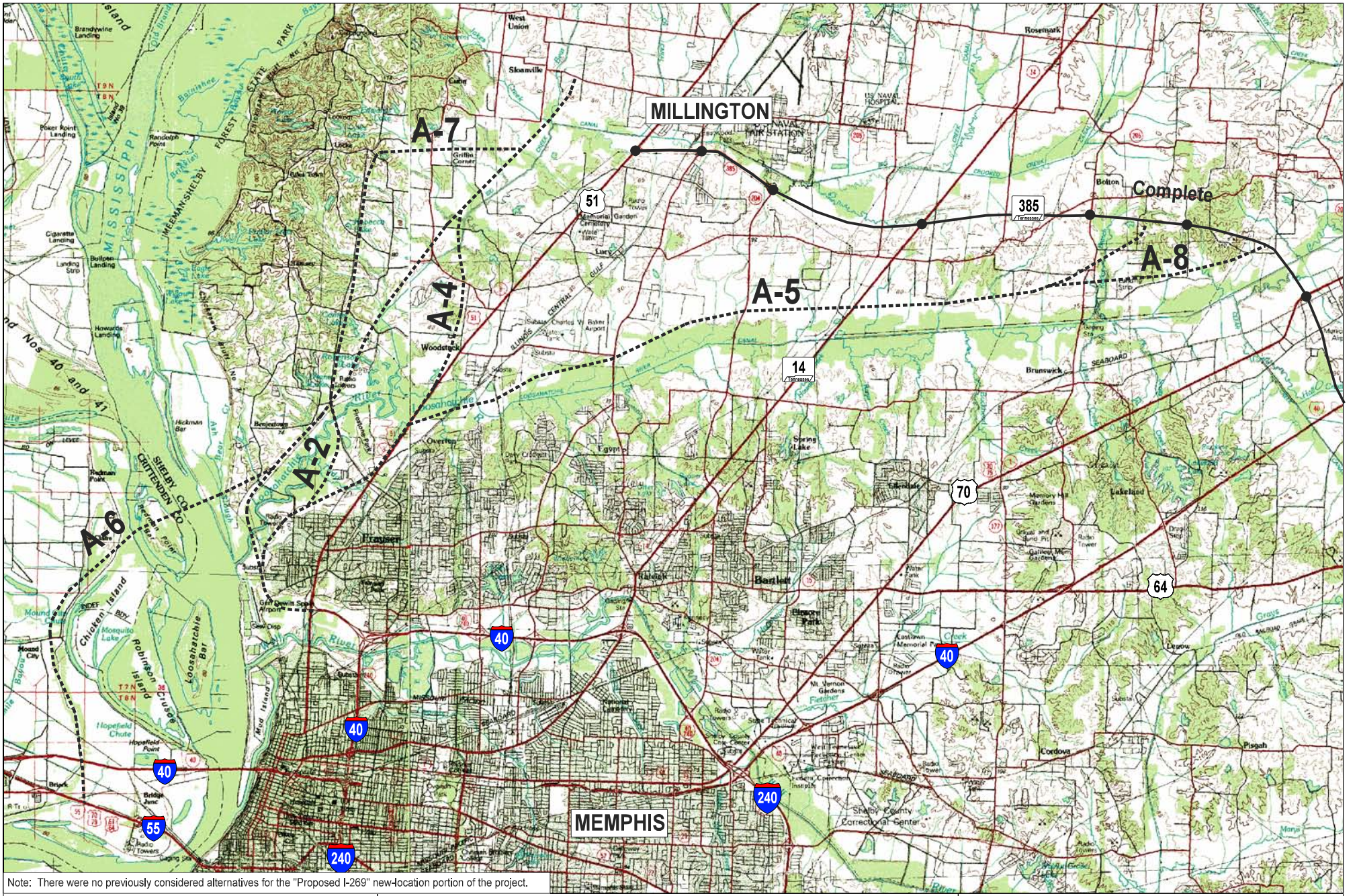
2.4.1 Alternative Corridor A

Alternative Corridor A was one of two main corridors initially considered for this project. It provided a single route through Memphis. As the study progressed and after evaluating traffic patterns and growth trends in and around Memphis it became apparent that a single route through town did not meet the purpose and need of I-69. The existing interstates through Memphis are already congested during peak traffic hours with local traffic and funneling additional traffic with destinations north, south or east of the city only exacerbates the existing congestion problems. Corridor A was eliminated because it cannot provide the connectivity and infrastructure needed to accommodate the anticipated growth of the Memphis area and meet the purpose and need of I-69, which is to provide an adequate route for the movement of freight between Canada and Mexico, as well as the freight movement in Memphis.

2.4.2 Alternative Alignments A-2, A-4, A-6 and A-7

Initially seven Alternative Alignments were identified within the Alternative A Corridor. Build Alternative A-1 through A-7 were presented to TAC representatives prior to the May 2001 public meetings. TDOT representatives made the decision to delete Alternative Alignments A-2, A-4, A-6 and A-7 and they were not presented to the public for comment. However, Alternative A-8 was added to the potential alignments as a possible connector to tie-in to SIU 8 further east of Millington. These alternative alignments are shown in Figure 2-7.

Alternative A-2, which was eliminated, followed Alternative A-3 to Benjestown Road, and then paralleled the south side of the Loosahatchie River to follow State Route 388 north to Alternative Alignment A-1. From this point, the A-2 followed Alternative A-1 north to SIU 8. Proposed Alternative A-2 was eliminated because it would involve building a new four-lane bridge adjacent to the existing State Route 388 Bridge across the Loosahatchie River, which TDOT determined would not be practical. Another reason was the amount of wetlands along the Loosahatchie River that would be crossed by the roadway.



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Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 2-7
Previously Considered Alternatives

Alternative A-4 was a crossover alignment between Alternative A-1 and A-3. The alternative followed Alternative A-3 to Cuba-Woodstock Road and veered northwest to cross the Big Creek Drainage Canal and intersect Alternative A-1. Alignment A-4 would have followed Alternative A-1 to the termination of the project. Since Alternative A-4 was very similar to A-1 and A-3 and shared common alignments, it was eliminated. The alternative would have divided the Woodstock community.

Alternative A-6 followed I-55 from the beginning of the project across the Mississippi River into Arkansas. The alternative alignment veered north from I-55, west of the Hopefield Chute, Mound City Chute and Chicken Island to travel northeast and cross the Mississippi River again at Redman Point Bar. This alignment was originally suggested for the study by the MPO. The northern bridge from Arkansas to Tennessee across the Mississippi River was estimated to cost $150 million and would traverse wetlands and other environmentally sensitive areas. This alignment was deleted from the study due to the cost of the proposed bridge and environmental issues.

Alternative A-7 followed Alternative A-1, A-2 or A-6 to the intersection of Alternative A-1 and A-2 at State Route 388, north of the Loosahatchie River. Alternative A-7 extended along State Route 388 to its terminus point, and then went east to Millington tying into the proposed SIU 8 interchange. Alignment A-7 was deleted from the study because the terminus was too far west to match the alignment of SIU 8. Improving State Route 388 is not feasible because of existing development. State Route 388 is an uncontrolled access highway with residential areas adjacent to the roadway. Alternative A-7 would have major relocation impacts and would eliminate the development along either side of State Route 388 in order to build an access controlled interstate facility. Several miles of frontage roads would be needed to serve the remaining development in the area.

2.4.3 Alternatives A-5 and A-8

Build Alternative A-5 and A-8 were presented to the attendees of eight public meetings in May and November 2001. Many attendees believed these alternatives too closely paralleled the proposed Loosahatchie Parkway and did not support them. The Loosahatchie Parkway is a

Priority 2 Roadway in the *Memphis Metropolitan Area Long Range Plan*. Alternative A-5 and A-8 followed A-3 to US 51 between Firestone Park and the Loosahatchie River crossing. In this area, the 1000-foot wide study Corridor extended east and crossed the Illinois Central Railroad tracks. These alternative corridors crossed several areas designated as wetland on the National Wetland Inventory (NWI) maps, paralleled the Loosahatchie River and extended in and out of the northern edge of the river floodplain. Alternative A-5 separated from A-8 after the proposed alternatives crossed State Route 14/Austin Peay Highway. Alternative A-5 extended north and ended at State Route 385/Paul Barrett Parkway. Alternative A-8 continued through farmland along the northern edge of the river floodplain to cross Brunswick Road and then north to end at State Route 385/Paul Barrett Parkway.

Due to the lack of public support and environmental issues, Alternatives A-5 and A-8 were deleted from the study. These alternatives were initially included in the study as a tie-in point for SIU 8 if it entered the area on the east side of Millington. Since these alternatives are no longer being considered, if SIU 8 enters the area on the east side of Millington, it will connect with the existing State Route 385/Paul Barrett Parkway, which is part of the proposed I-269 route. These alternatives are shown in Figure 2-7.

2.4.4 Alternative Corridor B

Alternative Corridor B was one of the original corridors under study in the early project development phase. It provided a single bypass route to the east of Memphis. Studies of projected I-69 traffic and freight movement show that a large proportion of the I-69 commercial traffic will have an origin or destination in Memphis. This alternative does not provide the traffic service needed to meet the purpose and need of I-69. It does not provide the needed highway link to the north or provide traffic service to the local interstate network (I-40, 55, and 240) particularly for the large volume of traffic destined from west to north. It does not improve access from the north to the I-40 and I-55 bridges across the Mississippi River. It was eliminated because it did not provide the traffic service needed to stimulate economic growth and meet the purpose and need of the project.

2.4.5 Design Consideration: Widening of I-40/240 through Memphis

Adding additional lanes to what is already proposed through Memphis was considered. Widening to ten lanes from the I-55/240 Interchange to the I-40/240 Midtown Interchange would require a considerable amount of new right-of-way. It would require replacing all the existing cross street structures, as well as modifying all of the existing interchanges. It would displace a large number of residences, two churches, take land from the Elmwood cemetery, encroach into two historic districts, and a golf course. This alternative was not considered feasible due to the severe community impacts.

2.4.6 Upgrading US 51

This alternative assumed I-69 would be routed along existing I-55, I-240, and I-40 through Memphis. The termini for this suggested alternative began at the interchange of US 51 and SR 300. Placing the alignment of I-69 along US 51 from State Route 300 through Frayser and Millington is not feasible due to the impact it would have on families and businesses located along the roadway. The majority of the roadway section from State Route 300 to Millington is four and five-lanes, non-access controlled, and divided by median and turn lanes. Construction of an interstate facility with a minimum 300 feet of right-of-way would not fit within the existing US 51 right-of-way. It would result in the removal of existing commercial and residential structures along one or both sides of US 51. Several miles of frontage roads would be required to facilitate traffic circulation. Constructing an interstate facility in this area would cause a moderate to substantial increase in noise levels for local residents.

2.4.7 Alternatives Presented by Public Meeting Attendees

Eight public meetings discussing this project were held in May and November 2001. Meeting attendees had the opportunity to comment on the proposed alternative corridors. Some attendees presented other alternative routes for the project.

One attendee of the May public meetings offered a new route through the downtown area. The proposed route comes north from the proposed SIU 11 alignment of proposed I-69 and follows US 61 to the Tennessee/Mississippi state line. I-69 would diverge with the existing alignment of US 61 south of Robco Lake around State Line Road and follow the existing Illinois Central

Railroad tracks northeast to I-55. The route would merge with I-55 south of the Mallory Avenue exit and follow I-55 north to Crump Boulevard. The alignment would follow Crump Boulevard east to the Southern Railroad Corridor and join the I-240 alignment just north of the Elmwood Cemetery and south of the Lamar Avenue interchange. The alternative would follow I-240 north to I-40/240 and on to State Route 300 to follow corridors A-1 or A-3. This proposed alternative route meets the northern project terminus point, but is outside the southern limits of the proposed corridor.

The alignment proposed by this attendee would eliminate SIU 10 from the project, which would not meet the Purpose and Need of the overall I-69 project. SIU 10 is located between I-55 and US 61 and is currently being constructed as MS 304. This proposed alternative was not included in the study because it does not meet the established SIU 9 terminus points, it eliminates SIU 10 and it introduces interchanges through a heavy rail corridor.

2.4.8 Alternatives Presented by Other Agencies

Another alternative was suggested by a resource agency during the coordination process. The suggestion was to follow I-55 from Hernando to the I-55/240 Interchange. The alternative would then follow I-240 east around the south side of Memphis to I-40, and would then follow I-40 east to State Route 385/Paul Barrett Parkway. The alternative would then follow State Route 385 to Millington. This proposed alternative would utilize existing roadways; it would not add capacity to the interstate system and has the potential of lowering the levels of service of those facilities. It would add additional truck traffic through an area that is already heavily congested. It would not meet the local purpose and need for the Mississippi segment of proposed I-269, which is to improve mobility and access to the northern Mississippi area.

I-240 and I-40 are much like the through route in that these routes are operating at or below their practical capacity during portions of the 24 hour period. Therefore, this alternative was not carried forward because it would not satisfy the purpose and need of I-69. It does not provide the needed access to the ongoing development in DeSoto and Marshall Counties in northern Mississippi or provide access to the Frayser area north of Memphis, which is vital to the

economy of these local areas. The **Systems Approach Alternative** provides access to both areas. It also provides capacity and offers alternative routes in the event of an emergency.

2.4.9 TSM, HOV lanes, Transit and Light Rail Alternatives

Transportation system management (TSM), high occupancy vehicle (HOV) lanes, transit, and light rail were considered in the context described in the Memphis Metropolitan Area Long Range Transportation Plan (LRTP). The build alternative for SIU 9 will complement the recommendations in the Memphis LRTP by reducing congestion, providing safer and more efficient travel, enhancing the area's HOV network, encouraging new investments in economic growth, and meeting the transportation demands of a growing population.

The Memphis LRTP addresses HOV lanes as a means to ease traffic congestion and make more efficient use of the freeway system by moving more people in fewer vehicles. Along the proposed I-69 route HOV lanes are identified as being "potentially feasible" on I-55 from I-240 to Coldwater, Mississippi. Also, the section of I-240 and I-40 through midtown Memphis is identified in the plan for further study of HOV lanes by the Engineering and Technical Committee as corridors experiencing congestion now and in the future.

Transit service improvements included in the LRTP call for improving bus service, including increased frequencies, increased route coverage, and promoting more park-and-ride utilization.

The LRTP has selected three corridors for the 2020 fixed guideway transit plan (light rail alternatives):

- Collierville to downtown
- Whitehaven/Mississippi to downtown
- Frayser/Millington to downtown

The Collierville to downtown route via Madison Avenue is currently under development.
A Regional Architectural Study for Intelligent Transportation Systems (ITS) in the Memphis area has been completed and design is underway. Traffic surveillance, a motorist information system, and a traffic operations center are planned to be implemented over the next five years.

Also, as a foundation to the ITS program, an Incident Management Program was begun in June 2000 with roving vehicles covering the freeway system of the urban area.

These highway alternatives and enhancements are necessary elements of any LRTP. However, for the LRTP in Memphis which is a large urbanized area; they cannot serve the need and purpose of an interstate highway facility between the logical termini of SIU 9 from Hernando, Mississippi to Millington, Tennessee. Also, these alternatives do not address the regional needs of improved access to Northern Mississippi and the connection of roadways around Memphis. Therefore, these alternatives were not carried forward through the EIS process for I-69.

CHAPTER 3
AFFECTED ENVIRONMENT

This chapter discusses the existing social, economic and environmental conditions in the study area.

3.1 PHYSICAL ENVIRONMENT

The project area is located within a large geographical unit referred to as the Mississippi Embayment of the Gulf Coastal Plain. The Mississippi Embayment, a large trough shaped land form with the Mississippi River flowing through its center extends approximately 350 miles from the southern tip of Illinois to Jackson, Mississippi. The topography is made up of gently rolling to steep hills dissected at various points by slow moving rivers and streams. Elevations within the project impact area range from 185 feet to 600 feet above mean sea level.

Shelby County in Tennessee encompasses an area of 485,680 acres or 759 square miles. Approximately ten percent of the county is in the Mississippi River floodplain. An additional 20 percent of the county lies in the floodplains of smaller rivers and streams. Within the project impact area in northern Mississippi, the major drainage ways are the Coldwater River, Camp Creek drainage canal and the Byhalia Creek drainage canal. In Tennessee, the major drainage ways are Nonconnah Creek, Wolf River, Loosahatchie River, and the Big Creek drainage canal. The proposed project crosses the floodplains of these major drainages and their tributaries. The major rivers in the project impact area, with the exception of the upper reaches of the Coldwater River and the Wolf River, have been channelized to control flooding. There are extensive wetlands associated with the crossing of the Wolf River, Loosahatchie River and the Coldwater River.

The soils in the project area are underlain by thick mantles of unconsolidated loess material deposited during periods of receding glaciers. Beneath the loess deposits are alluvial deposits of clay to gravel size particles. The residual soils of loessal deposits are relatively young soils and have been incompletely leached of soluble material.

Alluvial soils washed from upland loess deposits occur along the level flatlands along the major streams. The alluvial soils vary from well-drained, sandy deposits to very poorly drained clays. Soil units classified as poorly drained or very poorly drained are considered hydric and under normal conditions support jurisdictional wetlands. Hydrologic modification in the form of channel changes has converted a number of former wetlands in the project impact area to non-jurisdictional wetlands.

Channelization has allowed the drainage of groundwater and surface water throughout the watersheds in the project area. Channel modifications have allowed for the rapid removal of surface water and groundwater that would otherwise remain for long periods of time in low lands. The tributaries were altered to allow for agriculture in areas formerly too wet to farm. A majority of the alternative alignments on new location traverse open land and farmland. Given the reduction in farming in the project impact area, the population projections and the extension of urban service throughout unincorporated Shelby County and surrounding area, it is clear that some agricultural land will be absorbed for urbanization.

The proposed project is located within an area with high earthquake risk due to the proximity of the New Madrid Fault Line in southeast Missouri.

3.2 LAND USE

The study area encompasses two counties in southwest Tennessee and two counties in northwest Mississippi. In Shelby County, Tennessee, the cities/towns of Memphis, Collierville, Arlington, Germantown and Millington are in the study area. Only a very small portion of southwest Fayette County in Tennessee is in the project area. The cities/towns of Hernando, Southaven and Horn Lake are in the study area in DeSoto County, Mississippi. The town of Byhalia is in the study area in Marshall County, Mississippi.

The land use along the new location alternative alignments for the proposed I-69 route north of downtown Memphis has been evaluated and categorized as to land use type. The project area was categorized into five land uses: residential, open, commercial, public and agriculture. Just over 40 percent of the land was used for agricultural purposes. A little more than 25 percent was

open (forested) land. Approximately 14 percent of the land was being used commercially. Residents occupied about 12 percent of the land. Slightly less than 8 percent was accounted for by public land. Figure 3-1 shows the locations of each of these land uses.

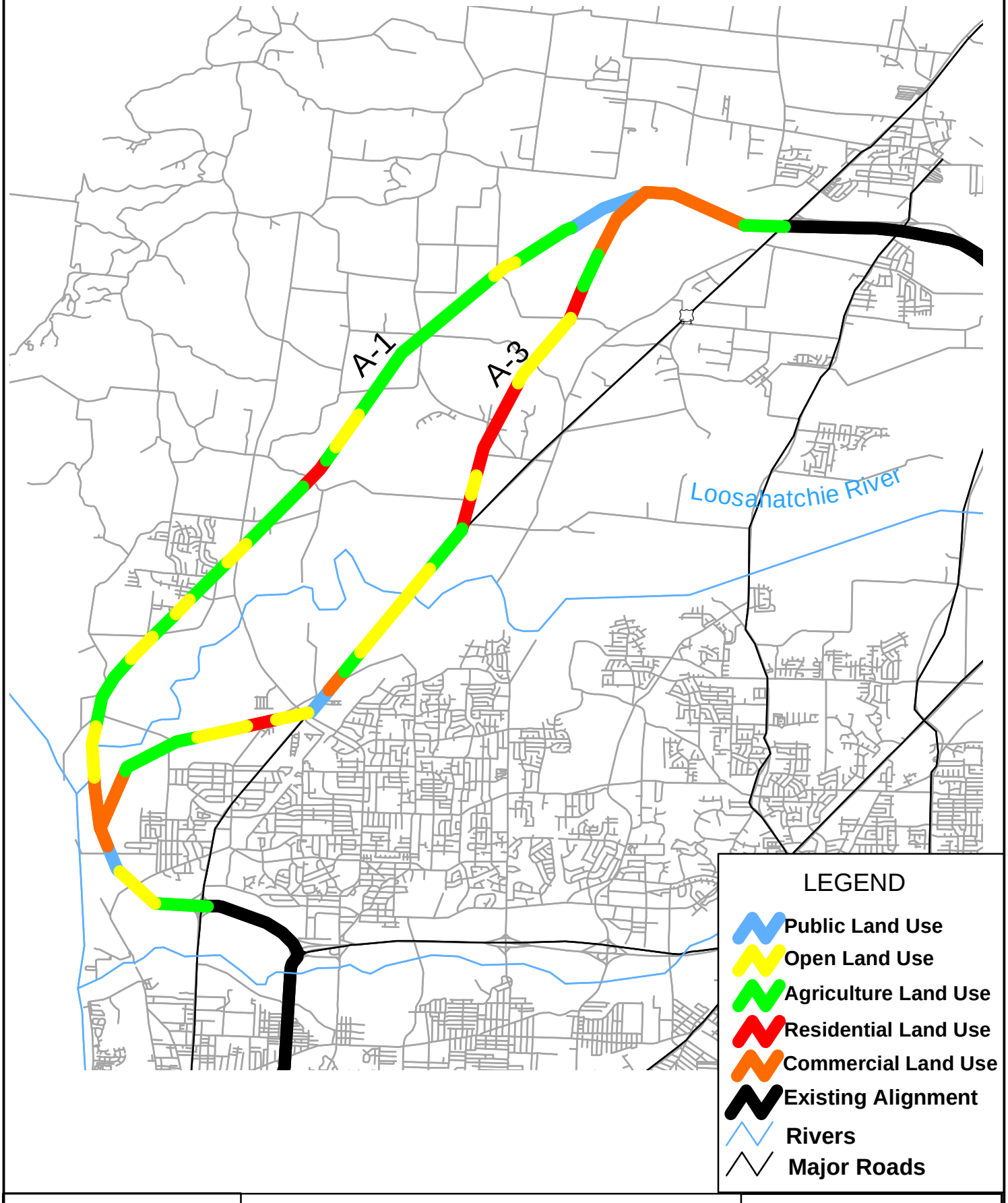
The land use along the proposed I-269 new location alignments has also been evaluated. The majority of the land in the I-269 corridor, approximately 41 percent of the area, was open land. Agricultural land accounted for just over 36 percent of the land use, 20 percent of the land was residential and 3 percent was commercial. No public land (parks, recreational areas, etc.) was identified along the new location alignments. Figure 3-2 displays a map of the land use locations.

3.3 SOCIAL AND ECONOMIC CHARACTERISTICS

3.3.1 Population Trends

From 1990 to 2000, Tennessee had a population growth rate of 16.7 percent, which brought the number of residents of the state to nearly 5.7 million. The two counties in the Tennessee portion of the study area, however, grew more slowly than the state. Shelby County's growth rate of 8.6 percent was only slightly more than half of the state rate. The growth rate for Fayette County, 12.7 percent, was higher than that of Shelby County, but was still considerably different than the statewide rate.

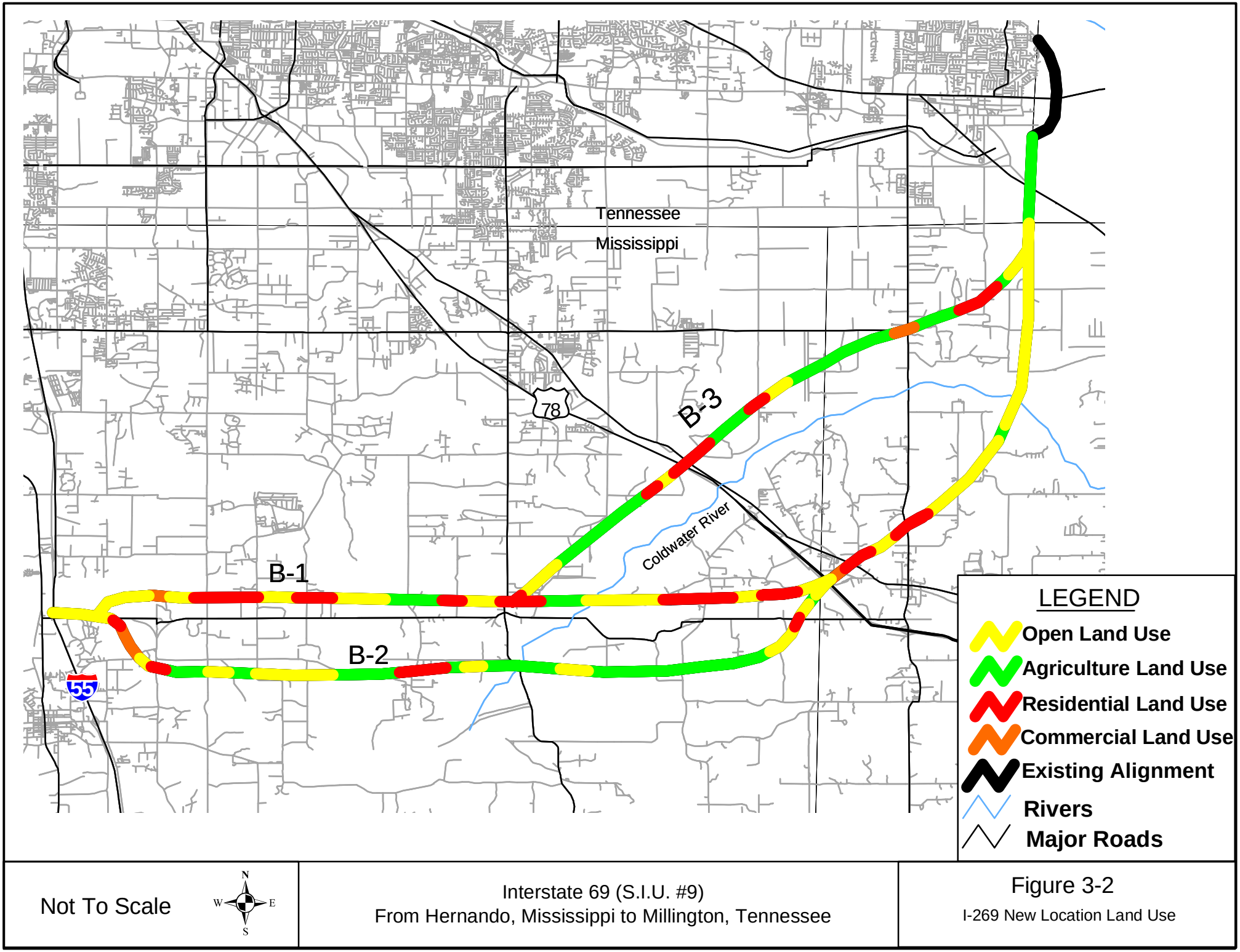
During the same ten-year period, Mississippi's population grew 10.5 percent to just over 2.8 million. Unlike the Tennessee counties in the study area, the two counties in the Mississippi region of the project grew faster than the statewide rate. DeSoto County grew more than five times faster than the state. Its substantial growth rate was 56.3 percent. The Marshall County growth rate of 15.0 percent was closer to the state rate, but was still significantly higher.



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 3-1
I-69 New Location Land Use


Tennessee
Mississippi
78
B-3
B-1
B-2
Coldwater River
55
LEGEND
Open Land Use
Agriculture Land Use
Residential Land Use
Commercial Land Use
Existing Alignment
Rivers
Major Roads
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Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee
Figure 3-2
I-269 New Location Land Use

Table 3-1 compares the population and growth rates by state and county from 1990-2000.

TABLE 3-1

POPULATION GROWTH 1990-2000

Geographic Area		1990	2000
Tennessee	Population	4,877,185	5,689,283
	Change		16.7%
Shelby County	Population	826,330	897,472
	Change		8.6%
Fayette County	Population	25,559	28,806
	Change		12.7%
Mississippi	Population	2,573,216	2,844,658
	Change		10.5%
DeSoto County	Population	68,596	107,199
	Change		56.3%
Marshall County	Population	30,436	34,993
	Change		15.0%

Source: U.S. Bureau of Census, Census of Population, 1980, 1990, and 2000

3.3.2 Population Characteristics

According to the 2000 Census, Tennessee and Mississippi have nearly the same percentage of the population aged 65 or over with 12.4 and 12.1 percent, respectively. Shelby County in Tennessee had a lower percentage of the population aged 65 or over (10.0 percent) than the state as a whole. Fayette County's percentage of 13.0 percent was slightly higher than that of Tennessee. Compared to Mississippi, DeSoto County had a smaller portion of the population aged 65 or over with 8.9 percent. The 65 years or older community in Marshall County was 11.1 percent of the population, which was lower than the state average.

The percentage of the population under age 18 in Tennessee was 24.6 percent in 2000. Shelby County and Fayette County had percentages higher than the statewide percentage with 28.2 percent and 25.7 percent, respectively. In 2000, the percentage of residents in Mississippi that were under age 18 was 27.3 percent. DeSoto County had a higher percentage (28.2 percent) than the statewide average. Marshall County's percentage of residents under 18 years old was 26.6 percent, which was less than the state average.

The percentage of the population of Tennessee that graduated from high school was 75.9 percent in 2000. For Mississippi, that percentage was 72.9 percent. It is important to note that only those 25 years or older were included in these percentages. In Shelby County, Tennessee, the percentage of high school graduates (80.8 percent) was above the state average. Germantown, in Shelby County, had a very significant 98.0 percent graduation rate from high school. Fayette County's percentage of 70.6 percent was below the statewide percentage. DeSoto County was above the Mississippi average with 81.6 percent. Marshall County's portion of the population that graduated from high school, 61.0 percent, was below the state as a whole.

In 2000, Tennessee and Mississippi had minority percentages that were very different. Tennessee's minority population made up 19.8 percent of the total population. Mississippi had a higher percentage of minorities with 38.6 percent. Shelby County had a much greater concentration of minorities than the state of Tennessee. Minorities comprise 52.7 percent of the county. The cities/towns of Shelby County had a wide range of percentages. They ranged from 65.6 percent in Memphis to 7.1 percent in Germantown. Fayette County's percentage of minorities, 37.5 percent, was higher than the statewide percentage. DeSoto County consisted of 14.2 percent minorities in 2000. Its cities/towns also have percentages lower than Mississippi as a whole. Southaven, for example, had a very low percentage of 9.7 percent. The percentage of minorities in Marshall County was 51.6 percent, which was higher than the statewide number.

Table 3-2 compares the population characteristics by state, county, and city.

TABLE 3-2

2000 POPULATION CHARACTERISTICS

Geographic Area	2000 Population	Population			
		Over Age 65 (%)	Under Age 18 (%)	High School Graduate (%)	Minority (%)
Tennessee	5,689,283	12.4	24.6	75.9	19.8
Shelby County	897,472	10.0	28.2	80.8	52.7
Arlington	2,569	8.0	26.1	67.3	25.8
Collierville	31,872	6.0	33.4	93.2	10.1
Germantown	37,348	9.2	28.0	98.0	7.1
Memphis	650,100	10.9	27.9	76.4	65.6
Millington	10,433	9.4	29.4	81.1	29.2
Fayette County	28,806	13.0	25.7	70.6	37.5
Mississippi	2,844,658	12.1	27.3	72.9	38.6
DeSoto County	107,199	8.9	28.2	81.6	14.2
Hernando	6,812	11.7	25.9	76.9	23.6
Horn Lake	14,099	4.8	32.6	81.0	17.0
Southaven	28,977	8.8	27.2	82.6	9.7
Marshall County	34,993	11.1	26.6	61.0	51.6
Byhalia	706	14.7	26.5	60.1	39.2

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

The following table, Table 3-3, gives the minority percentages for the census tracts in the Memphis area along the I-69 route. This area is of particular interest since it is very heavily populated and because it is inhabited by a high concentration of minorities. Minorities made up more than 99 percent of the population in several of these tracts. Refer to Figure 3-3 for a map of the 2000 census tracts.

SIU 8
Western Connection

SIU 8
Eastern Connection

Millington
Rosemark
Arlington
Lakeland
Ellendale
Bartlett
Eads
Frayser
Cordova
Memphis
Germantown
Collierville
Capleville
Southaven
Horn Lake
Olive Branch
Miller
Byhalia
Nesbit
Hernando
Cockrum

Proposed I-269
Proposed I-69

A-1
A-3
B-1
B-2
B-3

SIU 10

14
51
70
64
40
55
240
385
72
61
78

202.10
204
207
603
201
202.21
202.22
209
206.42
205.30
206.41
205.21
205.22
604
208.20
208.30
206.31
206.32
205.41
206.51
205.11
205.12
102.20
101.20
205.42
206.21
206.22
211.12
211.13
211.34
210.10
211.11
206.10
211.21
211.35
211.36
211.22
211.23
211.37
211.38
212
210.20
211.33
213.10
214.10
214.20
213.51
213.52
213.53
215.40
213.20
214.30
213.31
213.41
213.32
607
106.10
107.10
217.10
107.20
217.21
217.23
213.42
106.30
108.10
108.20
216.11
216.12
216.13
215.30
104.20
110.20
109
217.31
217.32
217.42
217.44
217.45
110.10
216.20
217.41
215.10
215.20
224.21
221.20
217.56
217.55
217.54
217.51
224.10
219
704.20
704.10
705.10
705.20
708.10
702.10
703.21
707.10
708.30
703.10
706.10
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701
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706.30
707.20
9502
711.10
712
710
709
711.20
9503

LEGEND

- Proposed I-69
- Proposed I-269
- Cities
- Rivers and Streams
- County Lines
- Census Tract
- Other SIU's
- Railroads
- Roads
- Major Roads

Not To Scale

N W E S

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 3-3
2000 Census Tracts

TABLE 3-3

MINORITIES BY 2000 CENSUS TRACTS

Census Tract	2000 Population	Percent Minority
101.2	6,274	75.0
4	2,397	95.7
5	852	98.7
18	1,990	99.5
19	2,230	99.3
24	3,357	97.3
25	3,161	67.2
36	3,016	66.8
37	1,262	80.3
38	1,742	63.0
46	1,845	91.0
47	2,655	99.5
57	3,183	99.6
59	3,911	93.4
60	2,399	99.8
75	1,819	99.7
78.1	3,645	99.5
78.21	6,864	98.7
78.22	1,808	87.0
103	2,055	97.0
220.21	8,477	94.6
220.22	7,822	96.7
221.12	6,705	95.2
221.2	9,266	90.5
221.3	6,448	92.8

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

3.3.2.1 Unemployment Rates

Marshall County in Mississippi and Fayette County in Tennessee are two of the region's economically depressed counties.

The 2000 U.S. Census reported that Tennessee had an unemployment rate of 5.5 percent. Shelby County had a rate that surpassed the statewide average, while Fayette County's rate was comparable. Memphis had the highest rate of unemployment in the Tennessee project area with 8.6 percent. The state of Mississippi had an unemployment rate of 7.4 percent in 2000. While DeSoto County's rate was less than the state rate, Marshall County's rate was considerably higher. Byhalia had a rate of unemployment of 10.8 percent, which was the highest in the study area.

According to preliminary labor force estimates for December 2001, the Memphis area had a labor force of 579,400. The number of people in the Memphis Metropolitan Statistical Area (MSA) employed was 553,300 and unemployed was 26,100.

3.3.3 Personal Income

In 2000, the median household income for Tennessee was $36,360. Both Shelby County and Fayette County had median household incomes above the statewide average at $39,593 and $40,279, respectively. Mississippi's median income per household was $31,330. DeSoto County had a value higher than the state median household income with $48,206. Marshall County's value of $28,756 was lower than the Mississippi average.

TABLE 3-4

LABOR RATES

Place	Labor Force	Employment	Unemployment	December 2001 Preliminary Unemployment Rate (%)
United States *	142,314,000	134,055,000	8,259,000	5.8
Tennessee *	2,884,800	2,742,300	142,500	4.9
Mississippi	1,318,000	1,240,900	77,100	5.8
Memphis MSA	579,400	553,300	26,100	4.5
Fayette County, TN	15,430	14,310	1,120	7.3
Shelby County, TN	458,770	438,290	20,480	4.5
DeSoto County, MS	58,160	56,250	1,910	3.3
Marshall County, MS	14,660	13,480	1,180	8.0

* Numbers Seasonally Adjusted

According to the 2000 United States Census, the poverty rate for the state of Tennessee was 13.5 percent. Both counties in the Tennessee region of the study area had rates that were above the state average. Memphis had the highest rate in the Tennessee project vicinity with 20.6 percent of the population living below the level of poverty.

In 2000, Mississippi had a poverty rate of 19.9 percent. Both of the counties in the Mississippi portion of the study area had rates that exceeded the statewide rate. The highest rate of poverty

in the project region, 26.4 percent, was in Byhalia in Marshall County. Table 3-5 presents the 2000 income data.

TABLE 3-5

2000 INCOME DATA

Geographic Area	Per Capita Income	Median Household Income	Percent Below Poverty Level
Tennessee	$19,393	$36,360	13.5
Shelby County	$20,856	$39,593	16.0
Arlington	$19,569	$52,870	11.3
Collierville	$30,252	$80,575	2.4
Germantown	$44,021	$94,609	2.1
Memphis	$17,838	$32,285	20.6
Millington	$17,348	$39,120	9.7
Fayette County	$17,969	$40,279	14.3
Mississippi	$15,853	$31,330	19.9
DeSoto County	$20,468	$48,206	7.1
Hernando	$20,731	$43,217	9.8
Horn Lake	$17,183	$40,396	6.7
Southaven	$20,759	$46,691	6.7
Marshall County	$14,028	$28,756	21.9
Byhalia	$15,156	$26,618	26.4

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

3.3.4 Housing

The housing units in the project area were between 86 and 97 percent occupied in 2000. The median value of housing in Tennessee was $93,000. Shelby County's median housing value of $92,200 was slightly less than the state average. Memphis had a median housing value of $72,800, while Germantown had a median value of housing of $216,500. The value for Fayette County was $100,100. In Mississippi, $71,400 was the median housing value, which was lower than the value for Tennessee. DeSoto County and Marshall County had median housing values of $103,100 and $67,400, respectively.

Table 3-6 compares housing characteristics by state, county, and city.

TABLE 3-6

2000 HOUSING CHARACTERISTICS

Geographic Area	Total Units	Percent Occupied	Housing Values	
			Median Value	Median Rent
Tennessee	2,439,443	92	$93,000	$505
Shelby County	362,954	93	$92,200	$566
Arlington	928	86	$160,100	$525
Collierville	10,770	96	$190,400	$757
Germantown	13,676	97	$216,500	$929
Memphis	271,552	92	$72,800	$548
Millington	4,019	90	$85,700	$494
Fayette County	11,214	93	$100,100	$383
Mississippi	1,161,953	90	$71,400	$439
DeSoto County	40,795	95	$103,100	$657
Hernando	2,720	91	$111,200	$462
Horn Lake	5,153	96	$75,700	$656
Southaven	11,462	96	$91,400	$675
Marshall County	13,252	92	$67,400	$375
Byhalia	306	90	$73,200	$288

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

3.4 COMMUNITY SERVICES

3.4.1 Schools

In Shelby County there are two public school systems: the Memphis City School System and the Shelby County School System. The Memphis City School System is comprised of 165 public schools. There are 46 schools that make up the Shelby County School System, which provides education for all students who live in the county beyond the Memphis city limits.

Although there are no public schools along the I-69 new location alternative alignments, there is a new private school. Lighthouse Academy is located along proposed SIU-8 of the I-69 corridor in Millington at the intersection of Shelby Road and Epperson Mill Road.

There are six schools of higher learning in Shelby County. They are the University of Memphis, Christian Brothers University, Rhodes College, University of Tennessee-Memphis, Lemoyne-

Owen College and Southwest Tennessee Community College. None of these institutions will be impacted by the proposed project.

The Fayette County School System offers seven public elementary schools, two junior high schools (that are presently being built), and a high school. There are two private K-12 schools in the county. None of these schools are in the project impact area.

The DeSoto County School System administers 11 elementary schools, seven intermediate or middle schools and five high schools. A new elementary school was opened for the 2002-2003 school year. Center Hill Elementary School is located on Center Hill Road in close proximity to Alternative Alignment B-3. Another new school is proposed west of Craft Road in the proximity of the common B-1 / B-3 alignment. Both the University of Mississippi and the Northwest Mississippi Community College have campuses in DeSoto County. Neither of these campuses will be affected by the project.

Marshall County operates two public school districts: the Holly Springs School District and the Marshall County School District. The Holly Springs School District consists of a high school, an intermediate school, a primary school and two specialty schools. The Marshall County School District operates a high school, an elementary school, a junior high school and three specialty schools. Rust College is located in Holly Springs. The proposed project will not affect any of the schools in Marshall County.

3.4.2 Parks

The Memphis Park Commission oversees 187 parks around the city. The Shelby County Conservation Board maintains 53 park and recreation sites in the unincorporated area. There are two state parks in Shelby County: T.O. Fuller State Park and Meeman-Shelby Forest State Park. There are two local parks in Shelby County located along Alternative Alignment A-3. Firestone Park, which is maintained by the Memphis Park Commission, is located at the intersection of Millington Road and Robertson Road. Vietnam Veterans Park is located at the intersection of US 51 and State Route 388. No land will be acquired from these parks.

The other three counties in the study area along the I-269 route also contain numerous parks and recreation areas. Marshall County contains Wall Doxey State Park, which is located in Holly Springs. None of these parks and recreation areas are in the proximity of the proposed project.

3.4.3 Other Community Services

There are many hospitals that serve Shelby County such as the Regional Medical Center, Baptist Memorial Hospital, Methodist Hospital, St. Francis Hospital, St. Jude Children's Research Hospital, LeBonheur Children's Hospital and Delta Medical Center. DeSoto County's major hospital is Baptist Memorial Hospital. Alliance Health Care System is the main hospital that serves Marshall County. Methodist Hospital is the hospital that serves Fayette County. All of these hospitals are outside the limits of the proposed new location alternative alignments, but are close enough to benefit from the I-69 systems approach alternative. The improved interconnectivity that this project offers will provide easier access to patients and visitors and will enhance ambulance services.

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CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

This chapter describes the environmental impacts of the preferred **Systems Approach Alternative,** the other build alternatives studied in the DEIS and the No-Build Alternative. Three types of impacts are discussed: direct, secondary (or indirect) and cumulative. Under 40 CFR 1508.8, *direct* effects are those which are "caused by the action and occur at the same time and place." *Indirect*, or *secondary*, effects are those that are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Cumulative* effect is the "impact on the environment which results from the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time."

The No-Build Alternative as previously discussed would have no direct impacts on the environment. It would not result in any land use changes, it would not displace any families or businesses, it would not convert agricultural land to interstate right-of-way, fill wetlands or cause any air, noise and wetland impacts normally associated with highway construction. It would not meet the primary purpose of completing this segment of I-69.

The No-Build Alternative means not constructing SIU 9. However, the previously discussed improvements to existing I-40/240, I-240, I-55, State Route 385, and the proposed section of MS 304 which are separate projects from I-69 and not dependent upon the approval of I-69 will go forward.

In order to compare the impacts associated with each new location alternative alignment, they have been further divided into sections for discussion purposes (See Location Maps 1-4A and 1-4B).

4.1 LAND USE IMPACTS

The sections of the proposed **Systems Approach Alternative** located along existing roadways are not expected to incur any additional land use changes as a result of SIU 9 since these facilities are already access controlled and interchanges with state routes presently exist. The land use along these existing roadways is a mixture of residential, commercial, recreational, open space and agriculture.

Construction of any of the alternative alignments on new location will convert land within the alignment into interstate right-of-way. Because the proposed roadway would be a full access-controlled facility, secondary development resulting from the proposed roadway is most likely to occur at the interchanges with state routes and other major roads it crosses. All of the state routes and major roads crossed by the new location alignments would have an interchange. Development pressure resulting from the proposed roadway would be focused on areas around the proposed interchanges. The proposed interchanges and grade-separated crossings are listed in Tables 2-1 through 2-6 in Chapter 2, Alternatives.

The land use along Alternative Alignments A-1 and A-3 is currently a mixture of agricultural, wetland, open space, wooded land, commercial, industrial and low density residential, there are also several landfills located in close proximity. Alternative Alignment A-3 runs between Firestone Park and an area of commercial development along US 51. The proposed interchanges will open up the land to development commonly found at interstate interchanges (i.e. gas stations, fast food franchises and hotels). Commercial and industrial areas located in close proximity to the interchanges will likely expand. Because of the availability of agricultural land, the change in land use from agricultural to commercial and residential is likely due to it's proximity to the proposed interchanges.

The land use along Alternative Alignments B-1, B-2, and B-3 is currently a mixture of agricultural, wetland, wooded land, industrial and low density residential. This land is already experiencing land use changes. A number of new subdivisions are either proposed or under construction along the proposed alignments. An electrical substation is being constructed on Green T Road along Alternative Alignment B-2. Additionally, a new school, Center Hill

Elementary School has recently been constructed along Alternative Alignment B-3 north of US 78 and MS 178. A new school is also proposed on Craft Road along the common B-1/B-3 alignment. This area is also experiencing an increase in residential development which is increasing the pressure to change the land use and further impact farmland, wetlands, and streams in the area. The proposed interchanges will open up the land to development commonly found at interstate interchanges (i.e. gas stations, fast food franchises and hotels).This project can accelerate these changes.

According to ***Recommendations for Planned Growth and Rural Areas, Shelby County Growth Plan***, the "highest residential densities" in Shelby County will be in the east, central, southern and southeastern portions of the county. North of Memphis, from US 51 and Covington Pike to the Tipton County line is also expected to experience a significant increase in population.

Cumulative impacts will occur as the population of the area grows. According to the ***Amendment to the City of Memphis Urban Growth Plan, Recommendation for Urban Growth Area***, December 13, 1999 (Reprinted November 13, 2000 with Updated Maps), Shelby County is expected to gain about 27 percent population to reach 1,106,610 people by the year 2020. The expected 2020 population in Memphis is approximately 848,500, a growth of about 32 percent. Arlington and Lakeland, both on the northeast side of the county near the proposed I-269 route, are expected to have the largest increase in population. "Arlington predicts that it will gain 30,000 persons over the next 20 years, a growth rate of almost 1500 percent. Lakeland is expecting to add 19,400 persons", a growth rate of approximately 346 percent.

On the northwest side of the county, Millington expects to gain approximately 15,000 residents, an increase of about 115 percent. Collierville, on the southeast side of the county, and Bartlett, located centrally within the county, each predict a growth rate of approximately 50 percent over the 20-year period. Germantown, on the southeast side of the county, expects to grow only 18 percent.

The ***Amendment to the City of Memphis Urban Growth Plan, Recommendation for Urban Growth Area*** indicates that the "present land area within the corporate limits of Memphis is 295

square miles. The gross amount of land in the annexation reserve area of the City is 209 square miles. When environmentally sensitive areas and Meeman Shelby State Forest are subtracted from the total, the net reserve area available for development is about 159 square miles." The available land area estimated for residential land use is approximately 53 percent, or 84 square miles. Open space and public facilities will account for about 15 percent, or 24 square miles of the net reserve acreage. The road system will make up 17 percent, or 27 square miles of the acreage and commercial and industrial uses will have 15 percent, or 24 square miles of the net reserve acreage.

According to the Final Draft of the *DeSoto 2010, Volume I Inventory, Analysis, and Alternatives, General Development Plan for DeSoto County, Mississippi*, DeSoto County was the most affluent county and the second most populous county. The county has progressed from a rural farming community to an urban community. Most of the proposed facility within DeSoto County is in an area zoned for Rural Residential and Residential Low Density (Zoning map printed September 21, 1995). The Rural Residential is defined by the plan as "a rural, agricultural area in which farm land preservation is paramount and residential uses and densities would be limited to no more than 1 unit per acre." The Low Density Residential is defined as "residential areas utilizing typical suburban housing patterns. Housing would be predominantly single family in nature, and densities would range from 1 to 3.5 units per acre in sewered areas and 1 unit per acre in non-sewered areas."

Marshall County is within the Northeast Mississippi Planning and Development District (NEMPDD). According to the *Comprehensive Economic Development Strategy, 2001 Report*, of the six counties within the NEMPDD planning area, Marshall County had the greatest change in population with a 15 percent increase in population from 1990 to 2000. The NEMPDD area is a rural, thinly settled area with, on average, only 51 persons per square mile. The average density for Mississippi is 60 persons per square mile.

The future projected growth in population of Memphis and the surrounding area will put pressure on the local communities to provide additional services that will result in the construction of more homes and the conversion of more agricultural land to residential, commercial, industrial

and public use. The **Systems Approach Alternative** will provide some of the needed infrastructure to effectively move people and goods through this region.

Construction of the **Systems Approach Alternative** will result in secondary impacts to the existing land use. Agricultural land, forested areas and possibly wetlands will be impacted by future development. The potential cumulative impact of the projected increase in population and growth trends on the environment is going to occur even if the proposed project is never constructed. Thousands of acres of agricultural and open land, some forested areas and some wetlands will be converted for social and economic reasons. The U.S. Army Corps of Engineers is the agency having jurisdiction over the wetlands in the project area and will be monitoring the wetland impacts during the construction phase.

The preferred **System Approach Alternative** (A-1/B-1) will convert approximately 2,218 acres of land in various land uses to Interstate right-of-way (see Table 2-8, Summary of Alternatives).

4.2 FARMLAND IMPACTS

The purpose of the Farmland Protection Policy Act of 1981 (FPPA) is "to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses and to insure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with state and local government, and private programs and policies to protect farmland". The build alternative was evaluated in accordance with this act.

In compliance with the regulations, Form 1006 was sent to the National Resource Conservation Service (NRCS) of the U.S. Department of Agriculture in both Tennessee and Mississippi for all the alternatives under consideration.

The assessment criteria for the build alternatives were weighed and assigned point values. The NRCS identified areas of prime and unique farmland and assigned point values. The NRCS and the DOT point values were combined to determine the total point value for the evaluation. When the total point value is 160 points or greater, other alternatives must be considered.

Using guidelines laid down by the FPPA, it was determined that since the total point rating is below 160 points for each of the new location alignments, the land to be converted is due minimal consideration for protection and no additional sites need to be evaluated.

The proposed **Systems Approach Alternative** will bisect some existing farms in Shelby, DeSoto and Marshall Counties. Attempts will be made to provide access between the bisected segments, unless the remnant of farmland in one segment is too small to continue use for agricultural purposes. In that case, the DOT would evaluate acquisition of the remnant.

The preferred **Systems Approach Alternative** (A-1/B-1) will acquire approximately 563 acres of agriculture land.

4.3 SOCIAL IMPACTS

There is an expected increase in population to the east and south of Shelby County. These increases are already occurring, as indicated by the development in the area. This development trend will continue with either the **Systems Approach Alternative** or No-Build Alternative.

4.3.1 Proposed I-69 Route

The proposed routing of I-69 from Hernando to north Memphis will be located along existing interstate right-of-way. When I-240 through Memphis was constructed, neighborhoods were divided and many residents and local businesses were displaced. A physical barrier and new neighborhood boundaries were created. Construction of the **Systems Approach Alternative** will have minimal adverse impact on existing neighborhoods or community cohesion since no right-of-way will be taken for SIU 9 in this area. There are however, several on-going projects in the area that require additional right-of-way. These projects have been previously discussed in Chapter 2, Alternatives. They have their own funding and environmental documents and are not dependent on the approval of I-69.

The new location alignments A-1 and A-3 pass through mostly rural areas. The residences for the most part are scattered along the corridor. Alternative Alignment A-3 goes through the

corner of a mobile home park on Millington Road just south of State Route 388. Trailer parks are located on both sides of Millington Road. Alternative A-3 crosses over Millington Road and will displace approximately 15 trailers on the southeast side of the roadway. Alternative Alignment A-3 extends along existing US 51 through the developed area of Frayser and will impact access to commercial development.

Construction of either alignment A-1 or A-3 will not cut off any community from services. Alternative Alignment A-1 will not split neighborhoods, nor pose a threat to neighborhood continuity or cohesion. Alternative A-3 does pass through an established mobile home park. The proposed project will not adversely alter the patterns of travel or accessibility to community services. It will aid local residents in their use of area schools, churches, hospitals, shopping areas and local seats of government.

Construction of either alignment A-1 or A-3 will not adversely affect any health or educational facility, sanitation or water system. Police, fire and ambulance services to the area will be enhanced by the use of an improved and safer highway. The preferred **Systems Approach Alternative** alignment A-1 will not disproportionately affect any elderly, handicapped, non-drivers, minority or ethnic groups. All people in the area will share equally the benefits of the proposed project.

4.3.2 Proposed I-269 Route

The proposed routing of I-269 from south of Collierville to Millington will be located along SR 385. Construction of the **Systems Approach Alternative** will have minimal adverse impact on existing neighborhoods or community cohesion since no right-of-way will be required for this segment of the proposed project.

Along the new location Alternative Alignments B-1, B-2 and B-3, much of the project area is currently rural in nature. Several new subdivisions are being developed along all of the Alternative Alignments. Where Alternative Alignments B-1 and B-2 converge near Byhalia, they cross between a mobile home park and industrial park and traverse the outside edge of a residential area.

The 300-foot wide footprints of the new roadway alignments were tentatively located to avoid or minimize impacts to subdivisions. Since the project study began, a new Center Hill Elementary School was constructed in the path of the B-3 alignment. The B-3 alignment was shifted to avoid the school. However, a new 1,600 lot Forest Hill Community residential area has developed in the path of the B-3 alignment. The B-3 alignment passes through an area of the subdivision currently under construction (see Figures 2-5 and 2-6).

Alternative Alignments B-1 or B-2 will not adversely impact or cut off any community from services. It will not split neighborhoods, nor pose a threat to neighborhood continuity or cohesion. However, due to the rapid residential development in the area, B-3 will split the new Forest Hill Community. The **System Approach Alternative** will not adversely alter the patterns of travel or accessibility to community services. The project will aid local residents in their use of area schools, churches, hospitals, shopping areas and local seats of government.

The construction of the **Systems Approach Alternative** will not adversely affect any health or educational facility, sanitation or water system. Police, fire and ambulance services to the area will be enhanced by the use of an improved and safer highway. The project will not disproportionately affect any elderly, handicapped, non-drivers, minority or ethnic groups. All people in the area will share equally the benefits of the proposed project.

A section of I-269 is proposed to follow the approved location of SR 385, which extends from Nonconnah Parkway to I-40. Sections of SR 385 are currently under construction. According to the SR 385 EIS, "Adverse impacts to neighborhood cohesion will be minimal as much of the project area is currently very rural in nature. Where development is already occurring, such as near Collierville, the project corridor flanks these areas to avoid impacts."

4.4 RELOCATION IMPACTS

The segments of the **Systems Approach Alternative** that use either existing routes or are along segments under development through independent projects will not require additional residential, business, or non-profit organization displacements as a result of this project. The relocations and displacements attributable to this project are for those segments of SIU 9 on new location.

Displacements are a potential adverse environmental effect associated with any proposed project. A Conceptual Stage Relocation Plan (CSRP) has been prepared to assess the effects of displacements and to determine the probability of successful relocation. Each build Alternative Alignment on new location will result in residential displacements. The relocatees are generally scattered along the entire route and are not concentrated in one particular area. The exceptions are Alternative Alignment A-3 where 15 relocations occur at one mobile home park, Alternative Alignment B-1/B-2 Section One where 7 mobile homes will be displaced, and Alternative Alignment B-3 where the alignment passes through the 1600 lot Forest Hill Community subdivision, currently under construction. Alternative Alignment B-3 has the potential to displace several hundred homes in the Forest Hill Community subdivision.

The A-3 alignment will result in the unavoidable displacement of 15 trailers located on the south side of Millington Road in Frayser. The major part of the trailer park is located on the north side of Millington Road. Shifting the alignment further north to completely avoid this trailer park would impact another larger trailer park, wetlands, and would result in a Section 4(f) impact to Firestone Park. Shifting the alignment to the south to avoid the trailer park would result in a Section 4(f) impact to Vietnam Memorial Park and locate the alignment in the middle of a major highway intersection (US 51/State Route 388), which would result in the displacement of several businesses.

Alternative Alignment B-1/B-2 Section 1 will unavoidably displace seven trailers located in the southern end of the mobile home park on MS 178. Because of the existing development in the area and the location of a proposed interchange with US 78, shifting to the north would result in a larger number of residential displacements and shifting to the south would also result in more residential and commercial displacements. The existing mobile home park has sufficient trailer sites to accommodate the seven trailers being displaced. The displacees will be able to relocate in their same community.

The survey revealed the potential displacees are mostly Caucasian single-family units. There will be some minority and low income displacements. According to the CSRP, the homes to be acquired will range in value up to $250,000.

In the majority of cases, the residential relocations are believed to be owner occupied by typical Tennessee/Mississippi families. Some of the residential relocations appear to be located on large tracts or farms, while others are in subdivisions. The typical displaced households on Alternative Alignments A-1 and A-3 consists of between two and four persons and has an annual household income of $12,000 to $50,000. Some displacees will be minority and low income families. The typical displaced household on the B-1, B-2, and B-3 Alternative Alignments consists of between two and six persons and has an annual household income of $6,000 in the older, less affluent sections up to $250,000 in the newer, upscale neighborhoods. Onsite inspections indicate from newly occupied to an estimated forty-year tenure of occupancy for these displacees.

The business relocations on Alternative Alignments A-1 and A-3 include a portion of a mobile home park, car parts business, western wear store, and convenience store and deli. There is a school and a church along these alternative alignments; however, they will not be displaced by this project. The business relocations along the proposed I-269 route include a portion of a mobile home park, two stables, kennel, possible auto repair, two drywall companies, racetrack, scrap metal dealer, day care center, auto sales and salvage, and a welding shop and crane rental. The business relocations are typically small businesses that employ one to ten persons. No sites with underground storage tanks were found to be impacted. Businesses to be relocated are typical of businesses in the area. None are of a nature that would present extraordinary difficulty in locating replacement property. The number of businesses is relatively small, and it is reasonable to expect most to relocate. Commercial property for sale is plentiful in the area. Most of the project area has no zoning, however there is plenty of vacant and improved commercial land that is already zoned appropriately.

TABLE 4-1

ESTIMATED NUMBER OF DISPLACEMENTS

PROPOSED I-69 ROUTE

Relocations	Section / Alternative Alignment			
	A-1 / A-3	A-1 / A-3	A-1	A-3
	Section 1	Section 2	Section 1	Section 1
Single-Family Units	0	0	21	45
Multi-Family Units	0	0	0	0
Mobile Homes	0	0	0	15
Businesses	0	2	0	3
Non-Profit Organizations	0	0	0	0
Farms	0	0	0	0

Reference Figure 1-4B for Section Break locations.

TABLE 4-2

ESTIMATED NUMBER OF DISPLACEMENTS

PROPOSED I-269 ROUTE

Relocations	Section / Alternative Alignments						
	B-1	B-2	B-3	B1, B2, B3	B1, B2	B1, B3	B1, B2, B3
	Sec. 1	Sec. 1	Sec. 1	Sec. 1	Sec. 1	Sec. 1	Sec. 2
Single-Family Units	5	21	30	2	30	20	0
Multi-Family Units	0	0	0	0	0	0	0
Mobile Homes	7	0	0	0	0	0	0
Businesses	0	0	1	0	6	0	0
Non-Profit Organizations	0	0	0	0	0	0	0
Farms	0	0	0	0	0	0	0

The preferred **Systems Approach Alternative** (A-1/B-1) will displace 85 families and 8 businesses along the entire route. No churches or schools will be displaced (See Table 2-8). The proposed project should have no adverse impact to established communities in the area. Families and businesses in the area, although impacted, will experience inconvenience but should experience no extraordinary difficulties in relocating. While it is not anticipated that any established communities will be divided, careful planning and consideration will be given to those displaced by this project in order to minimize the impact.

4.4.1 Availability of Replacement Housing and Commercial Property

4.4.1.1 Alternative Alignments A-1 and A-3

The search area for replacement housing for Alternative Alignments A-1 and A-3, in Shelby County, Tennessee, is bounded by the Mississippi River on the West, the Shelby/Fayette County line on the east, the Shelby/Tipton County line on the north, and the Loosahatchie River on the south.

TABLE 4-3

AREA HOMES FOR SALE

Number of Bedrooms	Price	Number Available
2	$15,000 to $ 85,000	3
3	$35,000 to $144,000	93
4	$56,000 to $178,000	8

There are nineteen building lots available, and a 30-acre tract that is suitable for subdividing. There are two large mobile home dealers in the project area.

TABLE 4-4

AREA HOMES FOR RENT

Number of Bedrooms	Price	Number Available
3	$600 to $650	2
4	$495	1

There are two apartment complexes with units for rent in the immediate project area, in addition to one mobile home.

Residential Housing Available

Residences for Sale	104	Lots for Sale	20
Residences for Rent	3	Mobile Homes for Rent	1
Multi-Family for Rent	0	Mobile Home Sites for Rent	35

Commercial Property Available

Improved Property	5	Vacant Land	4*

*****This consists of one 15-acre tract, one 39-acre tract, one 54-acre tract, and one 35-acre tract, all suitable for subdividing.

The Shelby County Real Estate market should be considered to be adequate to relocate displaced persons within reasonable proximity to the project area.

4.4.1.2 Alternative Alignments B-1, B-2 and B-3

There are 35 mobile homes and 15 mobile home sites for sale. There are five mobile home dealers in the project area.

TABLE 4-5

AREA HOMES FOR SALE

Number of Bedrooms	Price	Number Available
2	$43,500 to $159,900	31
3	$31,000 to $595,000	266
4	$63,000 to $1,400,000	54
5	$154,900 to $473,000	7

TABLE 4-6

AREA HOMES FOR RENT

Number of Bedrooms	Price	Number Available
2	$465	1
3	$655 to $1,475	11

There are seven apartment complexes with units for rent in the project area, and three mobile homes for rent.

The rental market is active and there are seldom more than a few single-family rentals on the market at any given time because of the close proximity to the casinos on the Mississippi River and the housing needs of their employees.

Residential Housing Available

Residences for Sale	351	Lots for Sale	150
Residences for Rent	12	Mobile Homes for Rent	3
Multi-Family for Rent	2	Mobile Home Sites for Rent	55

Commercial Property Available

Improved Property	20+	Vacant Land	42+

There are several large residential subdivisions under development in the immediate project area, primarily with large lots for sale. The DeSoto County and Marshall County Real Estate markets should be considered to be adequate to relocate displaced persons within reasonable proximity to the project area.

4.4.2 Relocation Assistance

The availability of replacement dwellings in the project area appears adequate and within the financial means of the displacees. Therefore, while there will be some disruption and inconvenience to displaced persons, the availability of comparable housing coupled with the benefits afforded all displaced persons under Federal Regulations 49 CFR 24 and state laws will minimize any long term impacts.

In order to minimize the unavoidable effects of right-of-way acquisition, the Mississippi and Tennessee Departments of Transportation will carry out a right-of-way and relocation program. This program will be in accordance with the Tennessee Uniform Relocation Assistance Act of 1972, Mississippi Senate Bill 1831, and the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646).

Relocation resources are available to all the displaced without discrimination. Relocation impacts to the displaced would include possible loss of neighbors, adjustment to new surroundings, and moving inconveniences. The provisions of suitable and acceptable replacement housing, combined with adequate relocation payments, can be expected to minimize relocation impacts. If any situation should exist where decent, safe, and sanitary housing within

the financial means of the displacees is not available, such housing will be made available under the replacement housing of last resort provisions.

Because sufficient replacement property appears to be available, the need for Last Resort Housing is not anticipated at this time. Last Resort Housing is used when there is no comparable housing available for sale or rent within TDOT's and MDOT's current limitations. Should Last Resort Housing become necessary, supplemental payments or other housing options, as determined by TDOT and MDOT, can be implemented through procedures provided for in the Uniform Relocation Assistance and Real Property Acquisition Act of 1970. The displacees will be interviewed on an individual basis during the acquisition phase, and more specific solutions will be made at the time all the facts are gathered.

No person lawfully occupying real property will be required to move without at least 90 days written notice of the intended vacation date, and no occupant of residential property will be required to move until decent, safe and sanitary replacement housing is made available. "Made available" means that either the affected person has by themselves obtained and has the right of possession of replacement housing or TDOT or MDOT have offered the relocatee decent, safe and sanitary housing that is within their financial means and is available for immediate occupancy.

TDOT and MDOT will each assign at least one relocation agent to the project to carry out the relocation assistance and payments program. A relocation agent will contact each person to be relocated to determine individual needs and desires and to provide information, answer questions, and give help in finding replacement property.

TDOT and MDOT will provide advance notification of impending right-of-way acquisition and, before acquiring right-of-way, have all properties appraised on the basis of comparable sales and land values in the area. Owners of property to be acquired will be offered fair market value for their property. Relocation services and payment are provided without regard to race, color, religion, sex, or national origin.

Brochures that describe in detail the right-of-way acquisition program and relocation assistance and payments program are distributed at all public hearings and are made available upon request to any interested person.

Implementation of the preferred **Systems Approach Alternative** (A-1/B-1) will not substantially change the basic social arrangement or character of the project area, nor have an adverse impact on any established minority community. The project will have the usual impact on the relocations but there are no known unusual circumstances or problems. The proposed project will not split neighborhoods or separate residences from community facilities. The displaced families will be able to relocate into similar areas.

4.5 ENVIRONMENTAL JUSTICE

A series of outreach efforts were conducted to complement the initial round of public meetings to solicit public input. The demographics of the study area were examined to assess the potential for disproportionately high and adverse impacts to minority and low-income populations. A series of meetings and individual interviews were used to ascertain whether or not there existed a potential for negative effects on the low income and minority population. The format of the meetings included a presentation and overview of the I-69 project with emphasis on SIU 9. A video regarding the history and purpose of I-69 was presented. Informational handouts and maps of the alternative corridors were distributed to facilitate citizen interaction and to serve as an educational tool. Citizens were shown large-scale aerial maps of the study corridors. The majority of the citizens had not participated in any of the early public involvement meetings. It was the first time most of them were made aware of the project and the potential impact to their neighborhood or community. Survey forms were completed by both the citizens attending the Environmental Justice meetings and by interviewers who conducted random interviews along the proposed corridors.

The highest potential for disproportionately high and adverse impacts to minority and low-income populations might be in Marshall County, Mississippi (for minorities and low-income); Shelby County, Tennessee (for minority concentrations); and Fayette County, Tennessee (for both minority and low-income concentrations). The least potential for environmental justice

impacts appear to be in DeSoto County, Mississippi. However, in general, the minority and low-income populations viewed SIU 9 as a positive measure to their community as a whole, bringing commerce, jobs, economic development, etc. Some were concerned and voiced opinions about additional noise and whether or not measures would be taken to mitigate noise attributable to the additional traffic. Others were concerned about the aesthetics of their neighborhood and community, as well as the value of the property. The complete Environmental Justice Study, along with the completed survey forms, is contained in Technical Appendix III and is available for viewing at TDOT and MDOT offices.

A map of the census tracts is contained in Chapter 3 as Figure 3-3. Based on available information, it appears the preferred **Systems Approach Alternative** (A-1/B-1) will not have a disproportionately high or adverse human health or environmental impact on minority or low-income populations. This project is consistent with Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low Income Populations.

4.6 ECONOMIC IMPACTS

An analysis was performed to determine the economic benefits that might be attributed to the completion of the I-69 system as it passes through a four county region anchored by the City of Memphis. The purpose of this analysis was to compare the economic and related consequences of the I-69 and I-269 routes, comparing each to a baseline, or base case, associated with the maintenance of the existing surface transportation system.

The baseline is comprised of situations, developments or outcomes that would occur in some form without the **Systems Approach Alternative**. It is dependent upon the network of major roads in various stages of planning or implementation. In other words, it is assumed the region will still experience some level of transportation improvements and achieve a certain level of growth even if the proposed project is not constructed.

The proposed I-69 route through Memphis is most advantageous to the area north of the urban core. For the most part, this part of the larger region has been underserved by social and physical infrastructure so the implementation of I-69 would provide an economic boost. The prospects

that Millington will be converted into some kind of employment center are good but its desirability will be enhanced by the proximity of I-69. It reinforces settlement patterns that have recently stimulated growth there.

The proposed I-269 route strongly reinforces the current settlement patterns favoring the east, southeast and south. The Chickasaw Trail Industrial Park is likely to develop more rapidly because of the transportation advantage. The completed link to I-55 facilitates not only freight and goods movement but also improves the area's desirability as a residential location.

The analysis drew on primary data, secondary data, field observations, interviews with local planning agencies and a series of case studies used to develop assumptions for I-69, I-269 and the base case. The output of this analysis is expressed in terms of incremental jobs and wages relative to the base case that might result as an outcome of these roads, the region's enhanced mobility and the presence of other infrastructure that accompanies the construction of such roads. The following tables, Table 4-7 and Table 4-8, show the incremental increase in jobs and wages for selected years for the I-69, I-269 and the base cases.

TABLE 4-7

TOTAL ESTIMATED EMPLOYMENT

	2000	**2010**	**2020**	**2025**
Base Case A (Total Employment)	90,000	99,000	112,000	120,000
Base Case B (Total Employment)	17,000	25,000	44,000	59,000
I-69 (Incremental Employment)	--	8,000	22,000	32,000
I-269 (Incremental Employment)	--	4,000	16,000	29,000
I-69 (Growth rate Over base case)	--	8.1%	19.6%	26.7%
I-269 (Growth rate Over base case)	--	16.0%	36.4%	49.2%

TABLE 4-8

TOTAL ESTIMATED WAGES

	2000	2010	2020	2025
Base Case A (Total Wages)	$3,102,674,000	$3,697,160,000	$4,484,170,000	$4,972,193,000
Base Case B (Total Wages)	$577,071,000	$950,853,000	$1,783,847,000	$2,507,958,000
I-69 (Incremental Wages)	--	$287,000,000	$872,000,000	$1,322,000,000
I-269 (Incremental Wages)	--	$132,000,000	$613,000,000	$1,159,000,000
I-69 (Growth rate over base case)	--	7.8%	19.4%	26.6%
I-269 (Growth rate over base case)	--	13.8%	34.4%	46.2%

As the table indicates, both routes show incremental growth in both jobs and wages for the project impact area. The construction of the **Systems Approach Alternative** has the potential to bypass some existing businesses. The type business that depends on highway traffic (i.e. gas stations, convenience stores, fast food restaurants, etc.) may relocate to future interchange areas. The effect on the local economy will be minimal given the projected growth of the entire region over the next few years. Over the course of the next 20 to 30 years, the preferred **Systems Approach Alternative** (A-1/B-1) can be expected to greatly influence the nature of development in the broader Memphis/Shelby County Region. The full Economic Development Report documenting the research effort in detail is contained in Technical Appendix III, which is on file at TDOT and MDOT offices.

4.7 PEDESTRIAN IMPACTS

Since bicycles and pedestrians are not permitted on the Interstate system, no pedestrian or bicycle access to the interstate highway or right-of-way will be provided. Pedestrian crossing overpasses are currently located in several places along the proposed I-69 route (existing interstate) through Memphis between I-55/240 and the I-40/240 Interchange with State Route 300. Sidewalks and shoulders will be provided on all bridges that cross over the interstate routes, as well as the sections of roadways that pass beneath the proposed interstate routes, within the proposed new right-of-way for pedestrian and bicycle traffic.

4.8 ECOLOGICAL IMPACTS

An ecological study was conducted from February to May of 2002 to characterize the existing terrestrial and aquatic habitat along all the new location alternative alignments to identify the potential for the presence of any endangered or threatened species, their critical habitat, wetland and stream crossings. Additional field surveys were conducted in November 2002 and June 2003. The ecological study also identified any caves, springs, sinkholes, waterfowl refuges, wildlife management areas, and natural areas in the project corridor and evaluated potential adverse environmental impacts to these resources. One-Thousand (1,000) foot wide study corridors were evaluated based upon the request of several resource and permitting agencies during the early scoping meetings. The complete Ecology Report is contained in Technical Appendix I, which is on file at TDOT and MDOT offices.

4.8.1 Water Body Modifications and Wildlife Impacts

Water Body Modifications

Surface waters within Alternative Alignments A-1 and A-3 include the Loosahatchie River, Big Creek Drainage Canal, numerous unnamed tributaries to these two systems, and a varying number of man-made impoundments. Surface waters within Alternative Alignments B-1, B-2, and B-3 include the Coldwater River, Camp Creek Canal, Bean Patch Creek, Dry Creek, Short Creek, Byhalia Creek Canal, Nonconnah Creek, numerous unnamed tributaries to these systems, and a varying number of man-made impoundments. The streams within each Alternative Alignment are further discussed in the Water Quality Impacts, and Wetlands and Streams sections of this document.

The 1,000-foot wide corridors were also reviewed for the presence of impoundments. There were 3 ponds within the A-1 study corridor, 12 ponds within the A-3 study corridor, 37 ponds within the B-1 study corridor, 51 ponds within the B-2 study corridor, and 33 ponds within the B-3 study corridor. All of the ponds within the project were man-made impoundments of varying sizes. Most of the impoundments were farm ponds for livestock, wildlife, and recreation. Several borrow pits were located in the A-3 Corridor along US 51 and two gravel pit impoundments were found in the B-2 corridor. Not all of the impoundments listed above would necessarily be impacted. Alignment shifts may avoid or minimize impacts to streams and

impoundments. The proposed project will result in some unavoidable stream alterations. Impacts to wetlands and streams are further discussed in Section 4.8.3 of this document.

Wildlife Impacts

The study corridors provide a diversity of wildlife habitats. All of the new location alternative alignments traverse through some open pasture and agriculture fields, bottomland forest, upland forest, and buffer-edge transitional areas. The buffer-edge transitional areas are known to provide ample cover, forage, and nesting habitat to native fauna that include such species as white-tailed deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), wild turkey (*Meleagris galopavo*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), various song birds, reptiles, etc.

The conversion of undeveloped lands to road right-of-way will negatively affect many native wildlife species. In particular, the placement of culverts and associated fill will result in a permanent loss of wetland, stream, and riparian buffer habitat. Vegetation clearing will provide opportunity for invasive plant and animal species to out-compete native species. Vegetation clearing within the proposed right-of-way and the placement of culverts and fill may also cause many terrestrial species to relocate varying distances from their normal home range, affecting their normal movement patterns. The vegetation clearing will be limited to the minimum area required for construction of the project and disturbed areas will be re-vegetated with native species as soon as practical, to minimize impacts to wildlife.

4.8.2 Water Quality Impacts

The unavoidable fill of wetlands and streams, as a result of this project, will adversely impact water quality. In addition to the permanent loss of wetlands and streams, stormwater runoff from the site during construction and operation will result in a lowering of the water quality in the immediate area. The roadway will result in increased siltation to surface waters, including wetlands and streams. However, the implementation of Best Management Practices can minimize impacts to water quality. Mitigation measures to protect water quality will be in conformance with the appropriate water quality permits.

Measures to minimize harm to water quality include:

- Preservation of roadside vegetation beyond the limits of construction where possible;
- Early re-vegetation of disturbed areas to hold soil movement to a minimum;
- The use of oversized drain, detention/retention structures, surface, subsurface, and cross drains designed as appropriate or needed so that discharge would occur in locations and in such a manner that surface and subsurface water quality would not be affected (the outlets may require aprons, bank protection, silt basins, and energy dissipaters);
- Inclusion of features for the control of predicted erosion and water pollution in the construction plans, specifications, and contract pay items as specified in MDOT and TDOT Standard Specification for Road and Bridge Construction; and
- Prohibiting the dumping of chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful waste into or alongside of streams or impoundments, or into natural or manmade channels leading thereto.

Stream Quality

The streams throughout the project study corridors were, for the most part, similar in nature. Some of the streams were found to be perennial, while others were found to be intermittent. Perennial streams typically sustain flowing water for at least 90 percent of the year, while intermittent streams generally only flow during the wet season. Most of the streams had a relative broad floodplain, a low to moderate gradient, and a mixture of silt, clay, gravel, and sand as the substrate. A majority of these streams have been deeply dredged and channelized causing increased sedimentation to the streams. Riparian buffers have also been cleared along some of the streams, which have reduced the water quality as well. Heavy industrial and residential growth in some areas has also contributed in reducing the water quality.

Some of the large perennial streams in the A-1 and A-3 corridors include: the Loosahatchie River, Big Creek Drainage Canal, Todd Creek, Jakes Creek and Bear Creek. The large perennial streams in the B-1, B-2, and B-3 corridors include: Bean Patch Creek, Short Fork Creek, Camp Creek Canal, Coldwater River, Byhalia Creek Canal, and Nonconnah Creek. A portion of the

streams run parallel with the alternative alignments and may be longitudinally encroached upon, depending on design of the actual roadway.

Some of these major streams and the larger tributaries are on the *Year 2004 303(d) List.* The 303(d) list is a compilation of streams and lakes that are "water quality limited" or are expected to exceed water quality standards due to pollution or sedimentation. Water quality limited streams are those that have one or more properties that violate water quality standards. Some of the other tributaries in the project impact area are listed in the *2004 305(b) Report* and will be surveyed within the next few years. The major pollutants to these streams and waterways are caused by agriculture and sediments. TDOT and MDOT will work with the state water pollution control agencies to insure proper controls are in place and that the Total Maximum Daily Loads (TMDLs) are considered in the design and construction phase of the proposed project. Since the TMDL plan for channelized streams and sediments is not complete for the impaired rivers and streams in the project area, the implementation of BMPs and compliance with construction storm water permits will be utilized to minimize impacts to the area streams and rivers.

4.8.3 Wetlands and Streams

The 1,000-foot wide study corridors for each of the new-location alternative alignments (A-1, A-3, B-1, B-2 and B-3) were surveyed for the presence of U.S. Army Corps of Engineers (USACE) jurisdictional wetlands and streams as required by the provisions of Executive Order 11990, "Protection of Wetlands" and subsequent federal regulations. The project area was delineated in accordance with the method described in the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual. The impacts to wetlands and streams, as a result of this project, will be in the form of fill, stream alterations, and culverts. The results of the survey are contained in Technical Appendix I, which is on file in the TDOT and MDOT offices.

Wetlands

Numerous USACE jurisdictional wetlands were located along the proposed new-location alternative corridors. Each of these wetlands varied in size and type. Some of the wetlands were large bottomland forested wetlands, while others were smaller herbaceous/farmed wetlands. Most of the wetlands in the project area have been altered by past agricultural-related activities.

The forested wetlands in the study corridors are remnants of the larger forested wetlands that dominated the low-lying landscape in the past. Table 4-9 summarizes the wetlands within the 1,000-foot corridors for Alternative Alignments A-1 and A-3, and Table 4-10 summarizes the wetlands within the 1,000-foot corridors for Alternative Alignments B-1, B-2, and B-3. The location of each wetland is depicted on the attached aerial maps (Reference Attachment 1).

A Hydrogeomorphic (HGM) analysis of each wetland was performed using the Low Gradient, Riverine Wetlands Assessment Modified Method (LGRWAMM), a method approved by the USACE for wetland evaluation in the study corridor. The results of the LGRWAMM analysis are further discussed in the Ecology Report, contained in Technical Appendix I, and on file at the TDOT and MDOT offices. The following summarizes the wetlands found within the 1,000-foot study Corridor for each alternative alignment:

- *Alternative Alignment A-1 – 21 wetlands (108.5 acres, moderate HGM functional value)*
- *Alternative Alignment A-3 – 20 wetlands (145.4 acres, moderate HGM functional value)*
- *Alternative Alignment B-1 – 19 wetlands (227.5 acres, moderate to high HGM functional value)*
- *Alternative Alignment B-2 – 23 wetlands (189.1 acres, moderate HGM functional value)*
- *Alternative Alignment B-3 – 6 wetlands (21.6 acres, moderate to high HGM functional value)*

Note: Standards and definitions for the HGM modeling protocol:

Within the HGM Guidebook of Assessing Wetland Functions in West Tennessee: Wetlands are assessed and given a quantitative value as well as a qualitative value. The indices range from 0.0 to 1.0 from a functional standpoint. When a wetland is assessed and given a value (e.g. 0.45), this value represents the overall functional value of the wetland compared to the Standard Protocol used for the assessment model. When assessing the wetlands for the I-69 project, ranges within the values were set to define how each wetland compared functionally to the Standard Protocol.

For example:	Ranges =	0.0 to 0.45	Low
		0.46 to 0.75	Moderate
		0.76 to 1.0	High

The definitions do not necessarily make a wetland low, moderate, or high in functional value, they only assess the values compared to the Standard Protocol.

TABLE 4-9

ALTERNATIVE ALIGNMENT A-1 AND A-3 WETLANDS

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W1-A	Wolf River	good	good	good	3.8	9.5	sand-clay loam clay loam	Sharkey	knotweed, smartweed, cattail, arrow arum, soft rush, alder, bald cypress, black willow saplings	PSSV2C	A-1/A-3
W2-A	Wolf River	fair	poor	good	4.4	10.8	sand-clay sand-clay	Sharkey	wild onions, soybeans, etc. (farmed wetland)	PEM1C-f	A-1/A-3
W3-A	Wolf River	fair	fair	fair	5.5	13.7	silt clay	Sharkey	various bottomland oaks, sweetgum, red maple, ironwood, slippery elm	PFO6C	A-1/A-3
W4-A	Mississippi River	fair	poor	fair	0.9	2.3	clay	Sharkey	hackberry, black willow, sweetgum, grape vine, greenbrier, etc.	PFO6C	A-1/A-3
W5-A	Loosahatchie River	fair	fair	fair	6.4	15.9	clay	Sharkey-Tunica	various goldenrods, various sedges, sweetgum saplings, giant cane, honey locust, etc.	PSS1A	A-1
W6-A	Loosahatchie River	fair	good	good	3.0	7.5	silt clay	Grenada-Henry-Memphis	black willow, red maple, greenbrier, etc.	PFO1A	A-1
W7-A	Loosahatchie River	poor	fair	poor	0.3	0.8	silt clay	Calloway-Memphis	black willow, red maple, etc.	PFO1A	A-1
W8-A	Loosahatchie River	fair	fair	good	1.0	2.4	silt clay	Falaya	black willow, red maple, brook-sided alder	PFO6C	A-1
W9-A	Loosahatchie River	poor	poor	good	4.6	11.5	silt clay loam	Memphis-Waverly	soft rush, various sedges, soybeans (farmed wetland)	PEM1C-f	A-1
W10-A	Loosahatchie River	fair	fair	good	0.3	0.7	silt-sand loam sand-clay loam	Memphis-Waverly	black willow, red maple, hackberry, European privet, etc.	PFO6C	A-1
W11-A	Loosahatchie River	good	good	good	2.1	5.2	clay clay	Memphis-Waverly	bald cypress, tupelo gum	PFO1/2A	A-1
W12-A	Loosahatchie River	fair	fair	fair	0.3	0.7	silt clay clay	Falaya	sugar berry, hackberry, slippery elm, brook-sided alder, bald cypress, grape vine, etc.	PFO1/2A	A-1
W13-A	Loosahatchie River	fair	poor	poor	0.3	0.8	silt clay silt clay	Collins	sycamore, brook-sided alder, unknown aster, sugar berry	PFO1A	A-1
W14-A	Loosahatchie River	poor	poor	poor	0.3	0.7	silt loam silt-clay loam	Collins-Calloway	boxelder, sweetgum, black willow, yellow poplar, green ash, red maple, brook-sided alder, etc.	PFO1A	A-1
W15-A	Loosahatchie River	fair	poor	poor	0.3	0.7	silt clay silt clay	Collins	hackberry, black willow, sweetgum, slippery elm, green ash, black willow, cottonwood, etc.	PFO1A	A-1

TABLE 4-9 cont. (2)

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W16-A	Loosahatchie River	good	fair	poor	1.4	3.6	silt clay silt clay	Falaya	sycamore, sweetgum, cottonwood, cherrybark oak, etc.	PFO1A	A-1
W17-A	Loosahatchie River	fair	poor	poor	0.2	0.4	silt-clay loam silt-clay loam	Falaya	cottonwood, sycamore, red maple, knotweed, soft rush	PFO1A	A-1
W18-A	Loosahatchie River	fair	fair	fair	4.2	10.4	clay silt-clay loam	Falaya-Henry	black willow, sweetgum saplings, sycamore, European privet, Johnson grass, boneset, etc.	PSS1A	A-1
W19-A	Loosahatchie River	fair	fair	fair	0.4	1.0	clay loam	Henry	boneset, flat sedge, knotweed, smartweed, sweetgum saplings	PSS1A	A-1
W20-A	Loosahatchie River	poor	poor	poor	0.1	0.3	silt-clay loam	Henry	black willow, sweetgum, sycamore	PFO1A	A-1
W21-A	Loosahatchie River	good	good	good	3.9	9.6	silt-clay silt-clay	Henry-Falaya	knotweed, smartweed, giant cane, black willow, sweetgum saplings	PSS1A	A-1
W22-A	Loosahatchie River	good	poor	good	1.4	3.4	sand-clay loam	Sharkey-Tunica	black willow saplings, young planted oaks, planted green ash, soft rush, flat sedge, etc.	PSS1C	A-3
W23-A	Loosahatchie River	good	good	good	9.0	22.2	silt clay silt clay	Waverly	various bottomland oaks, pignut hickory, hackberry, red maple, sweetgum, greenbrier, etc.	PFO1C	A-3
W24-A	Loosahatchie River	good	fair	fair	0.9	2.2	silt clay	Waverly	loblolly pine, white pine, southern dewberry, broomsedge, soft rush	PSS1/2B	A-3
W25-A	Loosahatchie River	poor	poor	poor	1.1	2.6	silt clay	Falaya	black willow saplings, smartweed, knotweed, soft rush, panic grass, rusty flat sedge, sweetgum saplings	PEM1C	A-3
W26-A	Loosahatchie River	good	good	good	10.5	26.0	silt loam silt clay loam	Waverly	black willow, red maple, brook-sided alder, knotweed, grape vine, ironwood	PFO1A	A-3
W27-A	Loosahatchie River	good	good	good	8.5	21.0	clay loam silt-sand loam	Waverly	black willow, red maple, hackberry, ragweed	PFO1A	A-3
W28-A	Loosahatchie River	good	good	good	7.8	19.2	silt clay clay	Henry-Calloway-Waverly	red maple, river birch, swamp white oak, black willow, sweetgum, green ash	PFO1A	A-3
W29-A	Loosahatchie River	good	poor	fair	0.5	1.2	silt loam silt clay	Henry-Calloway-Waverly	smartweed, knotweed, unknown hibiscus	PEM1C	A-3
W30-A	Loosahatchie River	good	poor	fair	0.5	1.3	silt loam silt-clay loam	Henry-Calloway-Waverly	red maple, river birch, hackberry, sycamore, cottonwood	PFO1A	A-3
W31-A	Loosahatchie River	fair	poor	poor	0.1	0.2	silt-clay loam	Falaya	cattail, soft rush, Kentucky fescue, flat sedge	PEM1C	A-3

TABLE 4-9 cont. (3)

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W32-A	Loosahatchie River	fair	poor	poor	0.2	0.5	silt-clay loam	Falaya	cattail, soft rush, Kentucky fescue, smartweed, black willow saplings	PEM1C	A-3
W33-A	Loosahatchie River	fair	poor	poor	0.7	1.6	silt-clay loam	Falaya	soft rush, black willow, smartweed, Kentucky fescue	PEM1C	A-3
W34-A	Loosahatchie River	good	fair	poor	2.4	6.0	silt loam silt clay loam	Collins	sycamore, sweetgum, hackberry, southern red oak, white oak, swamp beggar tick, smartweed	PFO1A	A-3
W35-A	Loosahatchie River	poor	fair	poor	0.1	0.2	silt silt clay loam	Falaya	European privet, hackberry, swamp beggar ticks, osage orange	PFO1C	A-3
W36-A	Loosahatchie River	poor	poor	poor	0.1	0.3	clay loam clay loam	Falaya-Grenada	swamp white oak, sycamore	PFO1A	A-3
W37-A	Loosahatchie River	poor	fair	poor	0.4	0.9	silt loam	Falaya	sweetgum and red maple saplings, ragweed	PSS1A	A-3

TABLE 4-10

ALTERNATIVE ALIGNMENT B-1, B-2 AND B-3 WETLANDS

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W1-B	Coldwater River	good	fair	fair	2.6	6.4	silt-sand loam silt-clay loam	Loring	sweetgum, soft rush, giant cane, Japanese honeysuckle, river birch, flat sedge	PFO1A	B-1/B-3
W2-B	Coldwater River	poor	poor	poor	0.2	0.6	sand-silt loam clay-silt loam	Collins-Falaya	soft rush, black willow saplings, plume grass	PEM1E	B-1/B-3
W3-B	Coldwater River	poor	poor	poor	0.2	0.6	silt loam silt loam	Falaya-Waverly	black willow, soft rush, European privet, Kentucky fescue	PSS6E	B-1
W4-B	Coldwater River	fair	poor	fair	0.3	0.8	clay	Falaya-Oliver-Waverly-Collins	soft rush, black willow, etc.	PSS6E	B-1
W5-B	Coldwater River	poor	poor	fair	9.6	23.8	silt-clay loam	Falaya	area has been manipulated for agricultural purposes	PEM1C-f	B-1
W6-B	Coldwater River	poor	poor	fair	8.0	19.7	silt-clay loam	Falaya	area has been manipulated for agricultural purposes	PEM1C-f	B-1
W7-B	Coldwater River	fair	fair	fair	0.4	1.1	clay	Falaya	soft rush, black willow saplings	PSS6C	B-1
W8-B	Coldwater River	poor	poor	fair	0.5	1.2	silt-clay loam	Falaya	area has been manipulated for agricultural purposes	PEM1C-f	B-1
W9-B	Coldwater River	poor	poor	fair	1.1	2.8	silt-clay loam	Falaya	area has been manipulated for agricultural purposes	PEM1C-f	B-1
W10-B	Coldwater River	good	good	good	7.3	18.1	silt loam clay loam	Falaya	pin oak, scarlet oak, shagbark hickory, Ohio buckeye, hackberry, giant cane	PFO1C	B-1
W11-B	Coldwater River	good	good	good	4.5	11.2	clay loam	Falaya-Collins	red maple and sweetgum saplings, young bald cypress, pondweed, arrow arum, water spinach	PSS1C	B-1
W12-B	Coldwater River	good	good	good	10.8	26.8	silt clay	Falaya-Collins	mature bald cypress, tupelo gum, red maple, slippery elm, sweetgum, and water oak	PFO1/2C	B-1
W13-B	Coldwater River	fair	poor	fair	2.6	6.5	silt clay clay loam	Falaya-Collins-Oliver	soft rush, various sedges, spring cress, buttercup, Kentucky fescue	PEM1E	B-1
W14-B	Coldwater River	fair	fair	poor	0.7	1.7	sand-silt loam silt-clay loam	Falaya	various sedges, soft rush, sweetgum, sycamore, broom sedge	PFO1C	B-2
W15-B	Coldwater River	fair	poor	fair	0.9	2.3	clay loam	Falaya	various sedges, buttercup, soft rush, spring cress, broom sedge	PEM1C	B-2
W16-B	Coldwater River	fair	poor	fair	1.5	3.8	clay loam	Falaya	various sedges, bulbous buttercup, soft rush, spring cress, broom sedge	PEM1C	B-2

TABLE 4-10 cont. (2)

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W17-B	Coldwater River	fair	good	good	1.8	4.4	clay loam clay loam	Falaya	giant cane, Kentucky fescue, swamp white oak, swamp chestnut oak, water oak, willow oak, sweetgum.	PFO1A	B-2
W18-B	Coldwater River	fair	poor	fair	0.5	1.2	clay loam clay	Collins	red maple, bald cypress, box elder, brooksided alder, sweetgum	PFO1/2A	B-2
W19-B	Coldwater River	good	poor	fair	0.4	1.1	silt-clay loam clay loam	Falaya-Collins	red maple, grape vine, tupelo gum, bald cypress	PFO1/2A	B-2
W20-B	Coldwater River	fair	poor	fair	0.2	0.6	clay loam clay loam	Falaya-Collins	brooksided alder, red maple, sweetgum, greenbrier, swamp white oak, soft rush	PFO1A	B-2
W21-B	Coldwater River	fair	poor	fair	0.5	1.3	clay loam clay loam	Falaya	bald cypress, pin oak, tupelo gum, swamp privet	PFO1/2A	B-2
W22-B	Coldwater River	fair	fair	fair	0.9	2.3	silt loam clay	Falaya	soft rush, black willow saplings, cattails, brook-sided alder, sweetgum	PSS1C	B-2
W23-B	Coldwater River	fair	fair	fair	0.2	0.4	clay	Falaya-Waverly	bald cypress, tupelo gum, buttonbush	PFO1/2A	B-2
W24-B	Coldwater River	good	good	good	9.7	23.9	clay	Falaya-Collins	swamp chestnut oak, willow oak, water oak, ironwood, sweetgum	PFO1A	B-2
W25-B	Coldwater River	fair	fair	fair	1.3	3.3	silt clay	Collins	soft rush, curly dock	PEM1A	B-2
W26-B	Coldwater River	good	good	good	10.9	26.8	silt-clay	Collins	black willow, sycamore, sweetgum	PFO1A	B-2
W27-B	Coldwater River	fair	poor	poor	0.6	1.4	silt-clay loam	Collins	black willow, grape vine	PFO1A	B-2
W28-B	Coldwater River	poor	poor	poor	0.1	0.3	sand-clay loam clay loam	Falaya-Collins	sweetgum saplings	PSS1A	B-2
W29-B	Coldwater River	good	fair	fair	2.3	5.6	clay-silt loam	Falaya-Collins-Waverly	sweetgum, sycamore, springcress, cottonwood, red maple	PFO1/2A	B-2
W30-B	Coldwater River	fair	poor	poor	0.3	0.8	clay loam	Collins-Falaya	sweetgum, black willow	PFO1A	B-2
W31-B	Coldwater River	good	good	good	1.6	3.9	silt-clay loam silt-clay loam	N/A	young red maple, black willow, sycamore, river birch, and soft rush	PFO1A	B-1/B-2
W32-B	Coldwater River	good	good	good	11.1	27.4	silt-clay loam silt-clay loam	N/A	various bottomland oaks, green ash, black willow, red maple, river birch, greenbrier, poison ivy	PFO1A	B-1/B-2
W33-B	Coldwater River	good	good	good	14.5	35.8	sand clay sand clay	N/A	bald cypress, tupelo gum, black willow, brook-sided alder, buttonbush	PFO1/2A	B-1/B-2

TABLE 4-10 cont. (3)

Wetland Number	Watershed	Estimated Functional Values			Area within corridor		Soil Texture	Soil Series	Dominant Vegetation	Cowardin Classification	Alternative
		Water Quality	Wildlife Habitat	Flood Control	Hectares	Acres	A Horizon B Horizon				
W34-B	Coldwater River	good	good	good	14.3	35.4	sand clay sand clay	Grenada-Collins	buttonbush, alder, cattail, young willow oak, arrow arum, swamp privet, young bald cypress	PSS1/2A	B-1/B-2
W35-B	Coldwater River	fair	fair	good	1.4	3.5	sand clay sand clay	Collins	box elder, slippery elm, green ash, river birch, sensitive fern, bugleweed	PFO1A	B-3
W36-B	Coldwater River	good	good	good	2.4	5.9	clay clay	Falaya	red maple, river birch, slippery elm, green ash, trumpet creeper, poison ivy.	PFO1A	B-3
W37-B	Nonconnah Creek	poor	poor	poor	0.5	1.3	clay loam	Loring	willow oak, poison ivy, bugleweed, slippery elm, black willow	PFO1A	B-1/B-2/B-3
W38-B	Nonconnah Creek	fair	good	fair	1.6	3.9	silt-clay loam	Loring-Falaya	red maple, boxelder, brook-sided alder, swamp white oak, swamp chestnut oak	PFO1A	B-1/B-2/B-3

Streams

There were numerous USACE jurisdictional streams located within the 1,000-foot wide study corridors for each alternative alignment. The streams, for the most part, are depicted on the USGS Quadrangle as blue-line streams. (A blue-line stream is a classification feature on a USGS topographical quadrangle map that represents a flowing water body (stream). Perennial streams are those that are depicted on a USGS map with a solid blue line. Intermittent streams are those that are depicted on a USGS map with a dotted blue line. Any blue-line stream on a USGS map is under federal jurisdiction unless otherwise determined by USACE, usually determined by a field inspection.) The streams located within the project area usually had a relative broad floodplain, a low to moderate gradient, and a substrate mixed between silt, sand, gravel, and clay. Some of the streams, depending on the actual layout of the roadway, may require a channel change. Mitigation measures will be taken, including shifting the alignment, spanning streams, and special design measures (diversion ditches), in order to minimize and possibly avoid longitudinal impacts to many of the streams within the project area. Table 4-11 summarizes the streams found along the 1,000-foot wide corridors for the Alternatives Alignments A-1 and A-3, and Table 4-12 summarizes the streams found along the 1,000-foot wide corridors for the Alternative Alignments B-1, B-2, and B-3. The locations of the streams are shown on the aerial maps. The following summarizes the number of stream crossings that were located within each 1,000-foot study corridor:

- *<u>Alternative Alignment A-1</u> – 21 stream crossings (21,970 linear feet)*
- *<u>Alternative Alignment A-3</u> – 22 stream crossings (21,220 linear feet)*
- *<u>Alternative Alignment B-1</u> – 47 stream crossings (58,125 linear feet)*
- *<u>Alternative Alignment B-2</u> – 49 stream crossings (73,320 linear feet)*
- *<u>Alternative Alignment B-3</u> – 43 stream crossings (48,705 linear feet)*

TABLE 4-11

ALTERNATIVE ALIGNMENT A-1 AND A-3 STREAMS IN 1000 FOOT CORRIDORS

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S1-A	Mississippi River	yes	13.4	97.2	170.2	7.79	8	intermittent	SI, CL, SA, GR	51.8	170	C6	R4SBCx	A-1/A-3
S2-A	Lower Loosahatchie	yes	12.3	78	59.5	7.09	100	perennial	SI, SA, CL, GR	30.5	100	C6	R2OWH	A-1
S3-A	Lower Loosahatchie	yes	10.2	87.8	120.5	6.86	4	perennial	SI, CL, SA, GR	335.3	1100	C6	R2UBC	A-1
S4-A	Lower Loosahatchie	yes	9.0	90.2	60.1	6.21	15	perennial	SI, CL, SA	332.2	1090	C6	R2UBC	A-1
S5-A	Lower Loosahatchie	yes	10	9	378.1	7.17	8	perennial	SI, CL, SA	326.1	1070	C6	R2UBC	A-1
S6-A	Lower Loosahatchie	yes	**Insufficient Flow**				2	intermittent	SI, SA, CL	344.4	1130	C6	R4SBC	A-1
S7-A	Lower Loosahatchie	yes	10.3	99.1	325	8.17	8	perennial	SI, CL, SA	91.4	300	C6	R2UBC	A-1
S8-A	Lower Loosahatchie	yes	**Insufficient Flow**				8	intermittent	SI, SA, CL	198.1	650	C6	R4SBC	A-1
S9-A	Lower Loosahatchie	yes	10.3	99.1	325.0	8.17	8	perennial	SI, SA, CL	893.1	2930	C6	R2UBC	A-1
S10-A	Lower Loosahatchie	no	**Insufficient Flow**				5	intermittent	SI, CL, SA	268.2	880	C6	R4SBC	A-1
S11-A	Lower Loosahatchie	yes	8.1	94.8	324.1	7.9	5	perennial	SI, CL, SA, GR	390.1	1280	C6	R2UBC	A-1
S12-A	Lower Loosahatchie	no	**Insufficient Flow**				3	intermittent	SI, CL, SA	277.4	910	C6	R4SBCx	A-1
S13-A	Lower Loosahatchie	yes	6.5	115.2	343.9	8.2	10	perennial	CL, SI, SA, GR	487.7	1600	C6	R2UB3C	A-1
S14-A	Lower Loosahatchie	yes	7.8	118	222.8	7.33	6	perennial	SI, CL, SA, GR	640.1	2100	C6	R2UB3C	A-1
S15-A	Lower Loosahatchie	yes	4.9	N/A	250.8	8.11	5	perennial	SI, CL, GR	521.2	1710	C6	R2UB3C	A-1
S16-A	Lower Loosahatchie	yes	**Insufficient Flow**				5	intermittent	SI, CL, SA	234.7	770	C6	R4SBCx	A-1
S17-A	Lower Loosahatchie	yes	**Insufficient Flow**				4	intermittent	SI, CL, SA, GR	381.0	1250	C6	R4SBC	A-1
S18-A	Lower Loosahatchie	no	8.7	59.8	84.3	7.22	2	intermittent	SI, SA, CL	94.5	310	C6	R4SBCx	A-1
S19-A	Lower Loosahatchie	yes	11.2	92.8	206.2	7.75	6	perennial	SA, GR, SI, GR	256.0	840	C5	R2UBCx	A-1
S20-A	Lower Loosahatchie	yes	13.4	95.1	176.6	7.98	4	perennial	SI, SA, CL, GR	414.5	1360	C6	R2UBCx	A-1
S21-A	Lower Loosahatchie	yes	9.1	89.7	181	7.1	30	perennial	SI, SA, CL, GR	128.0	420	C6	R2OWH	A-1
S22-A	Lower Loosahatchie	no	7.9	94.1	66.8	6.5	10	perennial	SI, CL	115.8	380	C6	R2UBC	A-3
S23-A	Lower Loosahatchie	yes	8.7	110.2	135.7	7.13	5	perennial	CL, SI, SA, GR	140.2	460	C6	R2UBC	A-3
S24-A	Lower Loosahatchie	yes	**Insufficient Flow**				1	intermittent	SI, SA, CL, GR	265.2	870	C6	R4SBCx	A-3
S25-A	Lower Loosahatchie	no	16.3	93.2	95.2	7.44	3	intermittent	SI, SA, GR	125.0	410	C6	R4SBCx	A-3
S26-A	Lower Loosahatchie	yes	12.3	78	59.5	7.09	100	perennial	SI, SA, CL, GR	350.5	1150	C6	R2OWH	A-3
S27-A	Lower Loosahatchie	no	**Insufficient Flow**				1	intermittent	SI, SA, GR	210.3	690	C6	R4SBC	A-3
S28-A	Lower Loosahatchie	yes	**Insufficient Flow**				2	intermittent	SI, SA, GR, CL	341.4	1120	C6	R4SBC	A-3
S29-A	Lower Loosahatchie	yes	**Insufficient Flow**				5	intermittent	SI, SA, GR, CL	792.5	2600	C6	R4SBC	A-3

TABLE 4-11 cont. (2)

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S30-A	Lower Loosahatchie	yes	10.3	70.8	44.8	6.78	3	intermittent	SI, CL, SA	170.7	560	C6	R4SBC	A-3
S31-A	Lower Loosahatchie	yes	9.8	77.3	41.8	6.95	2	intermittent	SI, CL	167.6	550	C6	R4SBC	A-3
S32-A	Lower Loosahatchie	no	**Insufficient Flow**				2	intermittent	SI, SA, CL	298.7	980	C6	R4SBC	A-3
S33-A	Lower Loosahatchie	yes	17.9	80.7	314.3	6.58	3	perennial	SI, SA,	414.5	1360	C6	R2UBC	A-3
S34-A	Lower Loosahatchie	yes	**Insufficient Flow**				5	intermittent	SI, SA, CL	231.6	760	C6	R4SBC	A-3
S35-A	Lower Loosahatchie	yes	**Insufficient Flow**				0.5	intermittent	SI, SA	356.6	1170	C6	R4SBC	A-3
S36-A	Lower Loosahatchie	no	**Insufficient Flow**				3	intermittent	SI, SA	231.6	760	C6	R4SBC	A-3
S37-A	Lower Loosahatchie	yes	**Insufficient Flow**				1	intermittent	SI, SA	338.3	1110	C6	R4SBC	A-3
S38-A	Lower Loosahatchie	yes	8.5	110.9	309.5	7.72	5	perennial	CL, SI, SA, CO	320.0	1050	C6	R2UBC	A-3
S39-A	Lower Loosahatchie	yes	9.1	89.7	181	7.1	30	perennial	SI, SA, CL, GR	304.8	1000	C6	R20WH	A-3
S40-A	Lower Loosahatchie	yes	6.7	82.5	150.7	6.68	6	intermittent	SI, SA, CL, GR	493.8	1620	C6	R4SBC	A-3
S41-A	Lower Loosahatchie	no	**Insufficient Flow**				3	intermittent	SI, SA, CL, GR	45.7	150	C6	R4SBC	A-3
S42-A	Lower Loosahatchie	yes	**Insufficient Flow**				4	intermittent	CL, SI, GR	701.0	2300	C6	R4SBC	A-3

Note: Substrate is listed from left to right as the most dominant to least dominant.
Substrate Legend
CO = Cobble, SA = Sand, SI = Silt, GR = Gravel, CL = Clay

TABLE 4-12

ALTERNATIVE ALIGNMENT B-1, B-2 AND B-3 STREAMS IN 1000 FOOT CORRIDORS

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within Corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S1-B	Coldwater River	Yes	11.7	94.5	70.0	6.52	8	intermittent	GR, SA, CL, SI	792.5	2600	C4	R4SBC	B-1/B-2/B-3
S2-B	Coldwater River	Yes	13.6	93.2	56.5	6.46	3	intermittent	SA, GR, SI, CL	457.2	1500	C5	R4SBC	B-1/B-3
S3-B	Coldwater River	Yes	**Insufficient Flow**				10	intermittent	GR, SA, SI, CL	533.4	1750	C4	R4SBC	B-1/B-3
S4-B	Coldwater River	Yes	12.2	91.4	35.1	6.25	6	intermittent	GR, SA, CL, CO, SI	1082.0	3550	C4	R4SBC	B-1/B-3
S5-B	Coldwater River	No	Insufficient Flow				3	intermittent	SA, SI, CL, GR	61.0	200	C6	R4SBC	B-1/B-3
S6-B	Coldwater River	Yes	12.3	90.7	50.5	6.06	8	intermittent	GR, SA, CL, SI	243.8	800	C4	R4SBC	B-1/B-3
S7-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	GR, CL, SA, SI	256.0	840	C4	R4SBC	B-1/B-3
S8-B	Coldwater River	Yes	**Insufficient Flow**				20	intermittent	SI, CL, SA	615.7	2020	C6	R4SBC	B-1/B-3
S9-B	Coldwater River	Yes	13.6	94.4	59.2	6.18	20	perennial	GR, SA, CL, SI	399.3	1310	C4	R2UBC	B-1/B-3
S10-B	Coldwater River	Yes	13.5	84.2	94.1	6.53	40	perennial	CL, GR, SI, SA	307.8	1010	C6	R2UBC	B-1/B-3
S11-B	Coldwater River	No	**Insufficient Flow**				1	intermittent	SI, CL, SA	137.2	450	C6	R4SBC	B-1/B-3
S12-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	SI, CL, SA	381.0	1250	C6	R4SBC	B-1/B-3
S13-B	Coldwater River	Yes	15.7	91.3	53.6	6.76	8	intermittent	SA, CL, SI, GR	384.0	1260	C5	R4SBC	B-1/B-3
S14-B	Coldwater River	Yes	12.6	83.6	21.3	5.65	1	intermittent	SI, CL, SA, GR	152.4	500	C6	R4SBC	B-1/B-3
S15-B	Coldwater River	No	12.6	83.6	21.3	5.65	1	intermittent	SI, SA, CL, GR	115.8	380	C6	R4SBC	B-1/B-3
S16-B	Coldwater River	No	12.9	80.5	21.5	5.68	1	intermittent	SI, SA, CL, GR	36.6	120	C6	R4SBC	B-1/B-3
S17-B	Coldwater River	Yes	12.9	79.1	20.5	5.6	1	intermittent	SI, SA, GR, CL, CO	307.8	1010	C6	R4SBC	B-1/B-3
S18-B	Coldwater River	Yes	12.9	81.3	22.0	5.6	10	intermittent	SI, SA, GR, CL	335.3	1100	C6	R4SBC	B-1/B-3
S19-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, CL	307.8	1010	C6	R4SBC	B-1
S20-B	Coldwater River	Yes	**Insufficient Flow**				6	intermittent	SI, CL	243.8	800	C6	R4SBCx	B-1
S21-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	SI, CL, SA	189.0	620	C6	R4SBCx	B-1
S22-B	Coldwater River	Yes	**Insufficient Flow**				4	intermittent	SI, SA, CL	1127.8	3700	C6	R4SBCx	B-1
S23-B	Coldwater River	Yes	23.3	70.9	65.8	6.26	35	perennial	SI, CL, SA	640.1	2100	C6	R2UBH	B-1
S24-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	SI, CL, SA	463.3	1520	C6	R4SBCx	B-1
S25-B	Coldwater River	Yes	**Insufficient Flow**				2.5	intermittent	Cl, SI, SA, GR	164.6	540	C6	R4SBC	B-1
S26-B	Coldwater River	Yes	15.6	98.1	36.9	5.74	8	perennial	GR, SA, CL	289.6	950	C4	R3UBC	B-1
S27-B	Coldwater River	Yes	**Insufficient Flow**				2.5	intermittent	SI, CL, GR, SA	329.2	1080	C6	R4SBCx	B-1

TABLE 4-12 cont. (2)

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within Corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S28-B	Coldwater River	Yes	17.2	97.1	26.1	5.75	2	intermittent	CL, SA, GR	76.2	250	C6	R4SBCx	B-1
S29-B	Coldwater River	Yes	16.2	91.9	38.3	5.9	3	intermittent	SA, CL, SI, GR	265.2	870	C5	R4SBCx	B-1
S30-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	CL, SA, GR	335.3	1100	C6	R4SBC	B-1
S31-B	Coldwater River	Yes	**Insufficient Flow**				10	perennial	SA, SI, CL, GR	350.5	1150	C5	R2UBC	B-1
S32-B	Coldwater River	Yes	20.5	91.4	62.5	6.7	3	intermittent	GR, SI, SA, CL	365.8	1200	C4	R4SBC	B-2
S33-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	SA, CO, CL, GR, SI	304.8	1000	C5	R4SBC	B-2
S34-B	Coldwater River	Yes	11.8	91.2	70.2	6.3	10	perennial	CL, GR, SI, SA, CO	374.9	1230	C6	R2UBC	B-2
S35-B	Coldwater River	Yes	11.9	89.2	44.4	6.32	5	perennial	CL, GR, SA, SI, CO	640.1	2100	C6	R2UBC	B-2
S36-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	SI, SA	140.2	460	C6	R4SBCx	B-2
S37-B	Coldwater River	Yes	12.6	67.7	28.9	5.95	4	intermittent	SI, SA, GR	1432.6	4700	C6	R4SBC	B-2
S38-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	GR, SA, SI, CL	121.9	400	C4	R4SBC	B-2
S39-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	SA, GR, SI	167.6	550	C5	R4SBC	B-2
S40-B	Coldwater River	Yes	153	86.8	94.3	6.53	30	perennial	SA, GR, CO, SI	307.8	1010	C5	R2OWC	B-2
S41-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI	306.3	1005	C6	R4SBCx	B-2
S42-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI	579.1	1900	C6	R4SBCx	B-2
S43-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, CL, GR, SA	637.0	2090	C6	R4SBCx	B-2
S44-B	Coldwater River	Yes	14.3	91.5	51.9	6.55	3	intermittent	SI, SA, GR, CL	405.4	1330	C6	R4SBCx	B-2
S45-B	Coldwater River	Yes	14.5	99.6	60.1	6.44	8	perennial	SI, SA, GR, CL	309.4	1015	C6	R2UBCx	B-2
S46-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, SA, CL, GR	307.8	1010	C6	R4SBCx	B-2
S47-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	SI, CL, SA, GR	313.9	1030	C6	R4SBC	B-2
S48-B	Coldwater River	Yes	12.2	84.7	44.7	5.81	3	intermittent	SI, SA, CL	306.3	1005	C6	R4SBCx	B-2
S49-B	Coldwater River	Yes	12.7	89.1	47.3	5.94	12	perennial	SI, SA, CL	408.4	1340	C6	R2UBCx	B-2
S50-B	Coldwater River	Yes	13.3	84.6	37.6	5.34	50	perennial	SI, SA, CL, GR	521.2	1710	C6	R2OWC	B-2
S51-B	Coldwater River	Yes	13.4	83.9	36.9	5.41	25	intermittent	SI, CL, SA	563.9	1850	C6	R4SBCx	B-2
S52-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	SI, CL	335.3	1100	C6	R4SBCx	B-2
S53-B	Coldwater River	No	13.4	83.9	36.9	5.41	25	intermittent	SI, CL, SA	515.1	1690	C6	R4SBCx	B-2
S54-B	Coldwater River	Yes	13.8	84.3	38.4	5.56	3	perennial	SI, CL, SA	762.0	2500	C6	R2UBCx	B-2
S55-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, CL, SA, GR	393.2	1290	C6	R4SBCx	B-2
S56-B	Coldwater River	Yes	14.3	81.2	35.1	5.56	50	perennial	SA, SI, GR	1408.2	4620	C5	R2OWCx	B-2
S57-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SA, SI, CL	332.2	1090	C5	R4SBCx	B-2

TABLE 4-12 cont. (3)

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within Corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S58-B	Coldwater River	Yes	**Insufficient Flow**				4	intermittent	SA, SI, CL, GR	359.7	1180	C5	R4SBCx	B-2
S59-B	Coldwater River	Yes	**Insufficient Flow**				4	intermittent	SA, SI, CL, GR	472.4	1550	C5	R4SBCx	B-2
S60-B	Coldwater River	No	**Insufficient Flow**				3	intermittent	SI, CL, SA	917.4	3010	C6	R4SBCx	B-2
S61-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	CL, SI, SA, GR, CO	765.0	2510	C6	R4SBC	B-2
S62-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	GR, SA, CL	304.8	1000	C4	R4SBCx	B-2
S63-B	Coldwater River	Yes	**Insufficient Flow**				15	perennial	SA, SI, CL, GR	140.2	460	C5	R2UBC	B-2
S64-B	Coldwater River	Yes	18.4	75.9	49.4	5.97	15	perennial	SI, GR, SA, CL	1645.9	5400	C6	R2UBC	B-1/B-2
S65-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	CL, SI, SA, GR	405.4	1330	C6	R4SBC	B-1/B-2
S66-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SA, GR, CL, SI	390.1	1280	C5	R4SBC	B-1/B-2
S67-B	Coldwater River	Yes	**Insufficient Flow**				10	intermittent	SI, SA, GR	277.4	910	C6	R4SBC	B-1/B-2
S68-B	Coldwater River	No	**Insufficient Flow**				8	intermittent	SI, SA, GR	115.8	380	C6	R4SBC	B-1/B-2
S69-B	Coldwater River	No	**Insufficient Flow**				3	intermittent	SA, CL, GR, SI	121.9	400	C5	R4SBC	B-1/B-2
S70-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	CL, SA, SI, GR	317.0	1040	C6	R4SBC	B-1/B-2
S71-B	Coldwater River	No	**Insufficient Flow**				3	intermittent	GR, SA, SI, CL	344.4	1130	C4	R4SBC	B-1/B-2
S72-B	Coldwater River	Yes	**Insufficient Flow**				4	intermittent	GR, SA, SI, CL	454.2	1490	C4	R4SBC	B-1/B-2
S73-B	Coldwater River	Yes	18.2	61.4	94.1	6.7	5	perennial	SI, CL, SA	463.3	1520	C6	R2OWC	B-1/B-2
S74-B	Coldwater River	Yes	**Insufficient Flow**				6	perennial	SA, CL, SI, GR	326.1	1070	C5	R2UBC	B-1/B-2
S75-B	Coldwater River	Yes	**Insufficient Flow**				10	perennial	SA, SI, CL, GR	320.0	1050	C5	R2UBC	B-1/B-2
S76-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	SA, SI, CL, GR	442.0	1450	C5	R4SBC	B-1/B-2
S77-B	Coldwater River	No	**Insufficient Flow**				4	intermittent	SI, CL, SA	48.8	160	C6	R4SBC	B-1/B-2
S78-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	SI, CL, SA, GR	259.1	850	C6	R4SBC	B-3
S79-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	GR, CL, SI, SA	533.4	1750	C4	R4SBC	B-3
S80-B	Coldwater River	No	**Insufficient Flow**				2	intermittent	CL, SI, SA, GR	121.9	400	C6	R4SBC	B-3
S81-B	Coldwater River	Yes	17.7	90.2	65.5	6.51	6	perennial	GR, SA, SI	481.6	1580	C4	R3UBCx	B-3
S82-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SA, GR, SI, CL	189.0	620	C5	R4SBCx	B-3
S83-B	Coldwater River	Yes	17.9	66.8	2.4	7.23	6	perennial	GR, SA, CL, SI	306.3	1005	C4	R2UBCx	B-3
S84-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	GR, SA, CL, SI	310.9	1020	C4	R4SBCx	B-3
S85-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, SA, GR	256.0	840	C6	R4SBCx	B-3
S86-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	SI, SA, CL, GR	307.8	1010	C6	R4SBC	B-3
S87-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SI, SA, CL, GR	310.9	1020	C6	R4SBC	B-3
S88-B	Coldwater River	Yes	18.4	61.2	107.5	6.7	5	perennial	GR, SA, CL	329.2	1080	C4	R2UBCx	B-3

TABLE 4-12 cont. (4)

Stream Name	Watershed	USGS Blue Line	Temp. (C°)	Dissolved Oxygen (%)	Conductivity (mS/cm)	pH	Average Width (feet)	Stream Type	Substrate	Length within Corridor		Rosgen Classification	Cowardin Classification	Alternate
										meters	feet			
S89-B	Coldwater River	Yes	**Insufficient Flow**				4	intermittent	SI, CL, SA	306.3	1005	C6	R4SBCx	B-3
S90-B	Coldwater River	Yes	**Insufficient Flow**				1	intermittent	SI, SA, CL, GR	310.9	1020	C6	R4SBCx	B-3
S91-B	Coldwater River	Yes	**Insufficient Flow**				5	intermittent	SA, GR, CL, SI	362.7	1190	C5	R4SBC	B-3
S92-B	Coldwater River	Yes	**Insufficient Flow**				6	intermittent	GR, SA, SI, CL	307.8	1010	C4	R4SBC	B-3
S93-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	SA, SI, CL	304.8	1000	C5	R4SBCx	B-3
S94-B	Coldwater River	Yes	**Insufficient Flow**				5	intermittent	SI, SA, CL	307.8	1010	C6	R4SBCx	B-3
S95-B	Coldwater River	Yes	**Insufficient Flow**				5	intermittent	GR, SA, SI, CO	195.1	640	C4	R4SBC	B-3
S96-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	GR, SA, CO, SI	307.8	1010	C4	R4SBCx	B-3
S97-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	GR, SA, CL, CO, SI	304.8	1000	C4	R4SBCx	B-3
S98-B	Coldwater River	Yes	**Insufficient Flow**				2	intermittent	GR, SA, CL, CO, SI	304.8	1000	C4	R4SBCx	B-3
S99-B	Coldwater River	Yes	**Insufficient Flow**				3	intermittent	SA, GR, SI, CL	661.4	2170	C5	R4SBC	B-3
S100-B	Coldwater River	Yes	**Insufficient Flow**				5	intermittent	CL, SI, SA, GR	502.9	1650	C6	R4SBC	B-3
S101-B	Nonconnah Creek	Yes	18.6	64.5	94.2	6.6	6	perennial	SI, SA, CL	306.3	1005	C6	R2UBCx	B-1/B-2/B-3
S102-B	Nonconnah Creek	Yes	**Insufficient Flow**				2	intermittent	CL, SI, SA, GR	356.6	1170	C6	R4SBCx	B-1/B-2/B-3

Note: Substrate is listed from left to right from most dominant to least dominant.

Substrate Legend

CO = Cobble, SA = Sand, SI = Silt, GR = Gravel, CL = Clay

Potential Impacts

Since the time of the original ecological study, a 300-foot wide footprint of the proposed interstate has been tentatively identified within the 1,000-foot wide corridors for each alternative alignment. The alignments were laid out to avoid or minimize to the extent practicable the impact to the wetland areas. These footprints were used to calculate potential impacts of each alternative alignment. The exact centerline and right-of-way limits of the footprint, however, have not been finalized. Some portions of the footprint around the interchanges had to be expanded outside the 1,000-foot wide study corridors to accommodate right-of-way requirements. These areas were also field delineated for the presence of wetlands and streams. The footprint for each Alternative Alignment is depicted on the attached aerial maps. Tables 4-13 and 4-14 summarize the linear feet of streams that are present within the right-of-way footprint for each alternative alignment.

TABLE 4-13

STREAMS WITHIN THE ALTERNATIVE A-1 and A-3 FOOTPRINTS

Section	**Streams within ROW**	**Total Linear Feet**
A1/A3-Section 2	S1-A	300
A1-Section 1	S2-A, S3-A, S4-A, S5-A, S6-A, S8-A, S9-A, S11-A, S12-A, S13-A, S14-A, S15-A, S16-A, S17-A, S18-A, S19-A, S20-A, S41-A, S42-A, S45-A	9,290
A3-Section 1	S22-A, S23-A, S24-A, S26-A, S27-A, S28-A, S29-A, S31-A, S33-A, S35-A, S36-A, S37-A, S19-A, S20-A, S41-A, S42-A, S43-A, S44-A, S45-A	8,320
Alternative	**Sections within Each Alternative**	**Total Linear Feet**
A1	A1/A3-Section 2, A1-Section 1	9,590
A3	A1/A3-Section 2, A3-Section 1	8,620

TABLE 4-14

STREAMS WITHIN THE ALTERNATIVE B-1, B-2 and B-3 FOOTPRINTS

Section	Streams within ROW	Total Linear Feet
B1/B3-Section 1	S1-B, S2-B, S3-B, S6-B, S7-B, S8-B, S9-B, S10-B, S11-B, S13-B, S14-B, S16-B, S17-B, S18-B	5,510
B1-Section 1	S19-B, S20-B, S21-B, S22-B, S23-B, S25-B, S26-B, S27-B, S29-B, S30-B, S31-B	4,190
B2-Section 1	S1-B, S32-B, S33-B, S34-B, S35-B, S36-B, S37-B, S38-B, S39-B, S40-B, S41-B, S42-B, S43-B, S44-B, S45-B, S46-B, S47-B, S48-B, S49-B, S50-B, S51-B, S52-B, S53-B, S54-B, S55-B, S57-B, S58-B, S59-B, S60-B, S61-B, S62-B, S63-B	14,900
B1/B2-Section 1	S64-B, S65-B, S66-B, S69-B, S70-B, S71-B, S72-B, S73-B, S74-B, S75-B, S76-B, S77-B	5,460
B1/B2/B3-Section 1	S101-B, S102-B	620
B3-Section 1	S78-B, S80-B, S81-B, S82-B, S83-B, S84-B, S86-B, S87-B, S88-B, S89-B, S90-B, S91-B, S92-B, S93-B, S94-B, S95-B, S96-B, S97-B, S98-B, S99-B, S100-B	7,720
Alternative	**Sections within Each Alternative**	**Total Linear Feet**
B1	B1/B3-Section 1, B1-Section 1, B1/B2-Section 1, B1/B2/B3-Section 1	15,780
B2	B2-Section 1, B1/B2-Section 1, B1/B2/B3-Section 1	20,980
B3	B1/B3-Section 1, B3-Section 1, B1/B2/B3-Section 1	13,850

Tables 4-15 and 4-16 summarize the acres of wetlands that are present within the right-of-way footprint for each alternative alignment. The Ecology Report, contained in Technical Appendix I is on file at the TDOT and MDOT offices and provides a more detailed analysis of the potential wetland and stream impacts of each alternative alignment.

The preferred alternative alignment (A-1) for the I-69 segment of the **Systems Approach Alternative** will cross 21 streams and has the potential to impact approximately 10,000+ linear feet of stream channel, depending on the final design of the project. The preferred alternative alignment (B-1) for the I-269 segment of the **Systems Approach Alternative** will cross 39 streams and could potentially impact 16,000+ linear feet of stream channel.

TABLE 4-15

WETLANDS WITHIN THE ALTERNATIVE A-1 and A-3 FOOTPRINTS

Section	Wetlands within ROW	Total Acres
A1/A3-Section 2	W1-A, W2-A, W3-A, W4-A, W39A, W40A, W41A	34.7
A1-Section 1	W5-A, W17-A, W18-A, W21-A	13.2
A3-Section 1	W22-A, W23-A, W24-A, W25-A, W26-A, W27-A, W28-A, W29-A, W30-A, W34-A, W21-A, W38-A	18.5
Alternative	**Sections within Each Alternative**	**Total Acres**
A-1	A1/A3-Section 2, A1-Section 1	47.9
A-3	A1/A3-Section 2, A3-Section 1	53.2

TABLE 4-16

WETLANDS WITHIN THE ALTERNATIVE B-1, B-2 and B-3 FOOTPRINTS

Section	Wetlands within ROW	Total Acres
B1/B3-Section 1	W1-B	1.83
B1-Section 1	W5-B, W6-B, W8-B, W9-B, W10-B, W11-B, W12-B, W13-B	35.41
B2-Section 1	W16-B, W18-B, W19-B, W20-B, W21-B, W22-B, W24-B, W25-B, W26-B, W27-B, W28-B, W30-B	19.37
B1/B2-Section 1	W31-B, W32-B, W33-B, W34-B	30.80
B1/B2/B3-Section 1	W38-B	1.10
B3-Section 1	W35-B, W36-B, W37-B	2.86
Alternative	**Sections within Each Alternative**	**Total Acres**
B1	B1/B3-Section 1, B1-Section 1, B1/B2-Section 1, B1/B2/B3-Section 1	69.14
B2	B2-Section 1, B1/B2-Section 1, B1/B2/B3-Section 1	51.27
B3	B1/B3-Section 1, B3-Section 1, B1/B2/B3-Section 1	5.79

Potential Mitigation

For the purposes of this document, mitigation is the action taken to offset the adverse impacts to the Waters of the United States. The first mitigation step is to avoid and minimize adverse impacts to the maximum extent practicable. If impacts to the Waters of the United States are still deemed necessary after all avoidance and minimization measures have been performed, mitigation measures such as stream and wetland restoration or enhancement should be

undertaken. Restoration is the action taken to restore something to a prior state. In this case, restoration of stream habitat is the preferred form of mitigation to compensate stream losses and restoration of wetland habitat is the preferred form of mitigation for the wetland losses. Restoration activities may include planting native vegetation, restoring hydrology of a wetland, thinning invasive vegetation, restoring buffers, fencing out livestock, and restoring stream channel structure.

The wetlands and streams located within the **Systems Approach Alternative** occur in three river watersheds: the Coldwater River, Loosahatchie River, and the Wolf River. All of these rivers eventually flow into the Mississippi River. Mitigation for the impacts to streams and wetlands should, when possible, be performed within the respective watersheds. Analysis of the 300-foot wide footprint gives a fairly accurate prediction of the amount of impacts that will result from each alternative alignment. However, due to adjustments in alignments and the design of clear span bridges instead of culverts to minimize flood plain impacts, the calculation of impacts will be re-evaluated during the design and permitting phases. The Structures Division will determine the type of structures required once the hydraulics study is completed and flow rates are known. It is during the permitting process with the USACE and the DOT's that the appropriate compensatory mitigation for the unavoidable impacts of this project will be determined. The overall **Systems Approach Alternative** is located within two USACE jurisdictional districts (Memphis, Tennessee and Vicksburg, Mississippi). All of the I-69 new-location alternates are located within the Memphis District, while most of the I-269 new-location alternates are located within the Vicksburg District. The method of determining appropriate mitigation will follow the guidance of the permitting district the impacts are located within. The Vicksburg District has previously stated that the Standard Operating Procedure (RB-SOP-96-01) should be utilized to determine the appropriate mitigation to offset the wetland impacts in their district. During the permitting process, an analysis of "on-site" mitigation verses "off-site" mitigation will occur. For purposes of this document, potential "on-site" mitigation areas for streams and wetlands were noted if they were observed while conducting the fieldwork and are documented in Technical Appendix I, Ecology Report on file in the TDOT and MDOT offices.

In Tennessee, there were some areas located within the Wolf River, Loosahatchie River and Big Creek Drainage Canal floodplains that may offer suitable wetland restoration sites. One area in particular is the agricultural area located within the Wolf River floodplain just west of the US 51/State Route 300 interchange. This area offers the potential to provide wetland enhancement and preservation credits. TDOT also has several wetland mitigation banks located in Western Tennessee that may be used as a source of mitigation for the impacts to wetlands in Tennessee. The Obion Wetland Mitigation Bank, located in Obion County, which was approved in October 2002, specifically identifies mitigating the I-69 wetland impacts in this bank. This bank currently has 155 pre-wetland bank credits with a potential for an additional 185 credits as the bank develops. The bank can be used for all types of wetland impacts, including forested, emergent, and open water. The mitigation ratio for projects outside the watershed is 4:1. The Mitigation Bank Resource Team (MBRT) made up of representatives from EPA, USACE, U.S. Fish and Wildlife Service (USFWS), Tennessee Wildlife Resources Agency (TWRA), and the Tennessee Department of Environment and Conservation (TDEC) operating under the agreed terms of the wetland banking agreement will make the final determination on the use of this bank. Use of the wetland mitigation banks verses on-site mitigation will be discussed with the federal and state permitting agencies as stipulated in the banking agreement during the design phase of the project when more detailed information is available, and prior to entering the permitting process.

There are several streams within and near the original study corridor for the A-1 and A-3 Alternative Alignments that have been impaired by channelization and canopy removal. Most of these streams are located in the northern portion of the Alternative Alignments. The Big Creek Drainage Canal (tributary to the Loosahatchie River) has also been impaired by channelization and riparian buffer removal. Restoring natural vegetated buffers and hydrodynamics to these streams may be an acceptable form of mitigation to offset the stream impacts for the Tennessee portion of the project. The approximate mitigation cost of a typical 500 foot on-site channel change that includes restoring vegetation is estimated to be $15,000 ($30 per linear foot). The stream mitigation cost for the A-1 alignment based on preliminary line drawings is estimated to be $300,000.

In the event on-site stream mitigation is not possible, TDOT will work through the Tennessee Stream Mitigation Program (TSMP) to mitigate stream impacts. The Tennessee Wildlife Resources Foundation (TWRF), a non-profit organization founded to support the interests of the TWRA is the sponsor of the TSMP. A Stream Mitigation Review Team (SMRT), an interagency committee of resource managers from USACE, TDEC, EPA, TVA, USFWS, and TWRA was instrumental in setting up the TSMP. The TSMP was created as an option for permittees that are required to provide compensatory mitigation for physical impacts to Tennessee streams that are regulated by both state and Federal agencies. Through this program permittees pay a fee to TSMP to provide the required compensation stream mitigation. The advantage of this mitigation option is that the work is performed by experienced professionals with the knowledge and expertise to implement mitigation projects that adequately off-set permitted physical impacts. Currently, the typical in-lieu fees are as follows: $200 per linear foot of impact for encapsulation of 200 feet or more of stream length loss, $150 per linear foot of impact for rip-rapped lined channels, and $100 per linear foot of impact for channel modifications with riparian canopy loss. The mitigation cost for a typical 500 foot channel change using the $100 per linear foot in-lieu fee program would be $50,000. The cost for the A-1 alignment based on preliminary line drawings using the in-lieu program would be approximately $1,000,000. The appropriate level of mitigation will be determined through consultation with USACE and TDEC during the design phase of the project.

The Mississippi segment of the **Systems Approach Alternative** (I-269) is located within the Coldwater River Basin, which is part of the larger Yazoo River Basin. MDOT will work closely with the Vicksburg District of the Corps of Engineers to determine the best way to mitigate for unavoidable adverse ecological impacts of the project.

In Mississippi, a potential wetland mitigation site is located along the Camp Creek Canal floodplain around Alternative Alignment B-1 that appears to be an old wetland area that was ditched and drained. Restoring the hydrology in this section and planting native wetland trees may be an appropriate form of mitigation. There are also several farmed areas located around the Coldwater River crossings of B-1 that may provide wetland restoration opportunities.

MDOT currently has seven wetland banks throughout Mississippi, three banks in the Yazoo River Basin and is in the process of developing five new banks. Unavoidable impacts could be mitigated through MDOT's Tallahatchie wetland bank (Tallahatchie County), Dahomey wetland bank (Bolivar County), or through a proposed mitigation bank located at the O'Keefe Wildlife Management Area (Quittman County). MDOT has purchased 280 acres in the O'Keefe Wildlife Management Area to mitigate wetland impacts in the Coldwater River Basin. A concerted effort is being made by MDOT to acquire additional property in the Dahomey bank area that has an expansion boundary that extends west to connect with the Mississippi River and will result in several hundred additional wetland credits. The "Charleston Method", developed by the Charleston, South Carolina USACE office and adopted by the Vicksburg, Mississippi office, will be used to determine the success criteria for the wetland mitigation. It is anticipated that a 4:1 ratio will be required. If additional credits are needed, there are over 700 credits available in the Tallahatchie wetland bank. It is anticipated that USACE General Permit #46 may be the appropriate permit for the mitigation of wetland impacts. The appropriate mitigation and credit ratios will be determined through coordination with the USFWS and USACE when more detailed plans are available.

Most of the streams found within and around the study corridor for Alternative Alignments B-1, B-2, and B-3 have been impaired by channelization and buffer removal. The streams in this section are tributaries to the Coldwater River. Camp Creek Canal and the Byhalia Creek Canal are the two main tributaries that have been severely impaired by channelization. It is possible to restore natural conditions to some of these streams as an acceptable form of mitigation to offset the impacts to Mississippi jurisdictional streams. Based on current construction costs, the estimated stream rechannelization cost using preliminary line drawings and no survey would be approximately $480,000 for the B-1 alignment. MDOT does not have an in-lieu fee program, but is currently pursuing a stream mitigation credit plan that will be developed under the guidance of the Corps of Engineers, Vicksburg District.

A more definitive plan of mitigation will be developed as the design portion of the project progresses.

4.8.4 Only Practicable Alternative Finding

All of the new location alternatives studied for this project involved the unavoidable filling of wetlands. In the early phases of project development, each alternative alignment was field located to avoid wetlands to the fullest extent possible in compliance with Executive Order 11990 (23 CFR 771.125(a)(1)).

The major wetland areas are located along the Coldwater River, Loosahatchie River, Wolf River and their larger tributaries. Tables 4-9 and 4-10 identify the watershed, functional values, and classification of all the impacted wetlands along each alternative alignment.

The preferred A-1 alignment along the I-69 segment of the **Systems Approach Alternative** impacts the least number of wetlands in the corridor. It crosses the Loosahatchie River floodplain at the narrowest point. The proposed structures over the Loosahatchie River will be designed to minimize impacts to wetlands.

Efforts were made in the selection of the preferred alternative to avoid and minimize wetland impacts. While Alternative B-3 along the I-269 segment involves the least number of wetland acres, it will impact the largest number of residential displacements. This alternative was selected for study because it was above the Coldwater River floodplain on higher ground. Because of the rapid residential development in the project corridor and this favorable building location above the floodplain, a large 1600+ lot planned community is currently under construction in the path of the B-3 alignment. Since the beginning of this study, a new school and fire station along with 100+ homes have been constructed. This development will be complete before this segment of I-69 is designed and funded. It has the potential to displace several hundred of these new residences and would split the community. Shifting the alignment was evaluated; however, any adjustments to the alignment will impact other residential developments currently under construction in this corridor. Efforts were made in establishing the preferred B-1 alignment along the I-269 segment of the **Systems Approach Alternative** to cross the Coldwater River wetlands at a narrow point. The structures through this area and all wetland areas crossed by the proposed project will be designed to minimize the wetland impact as much as practicable.

The preferred alternative for the I-69 segment of the **Systems Approach Alternative** (A-1) will result in the unavoidable filling of approximately 48 acres of wetlands. The preferred alternative for the I-269 segment (B-1) will result in the unavoidable filling of approximately 69 acres of wetlands.

The No-Build Alternative is the only alternative that would not involve wetland areas. The No-Build Alternative, as previously discussed, would not meet the purpose and need of I-69 (SIU 9).

The wetlands impacted by the proposed project will be mitigated at an approved wetland mitigation site in consultation and cooperation with Federal and state permitting and resource agencies.

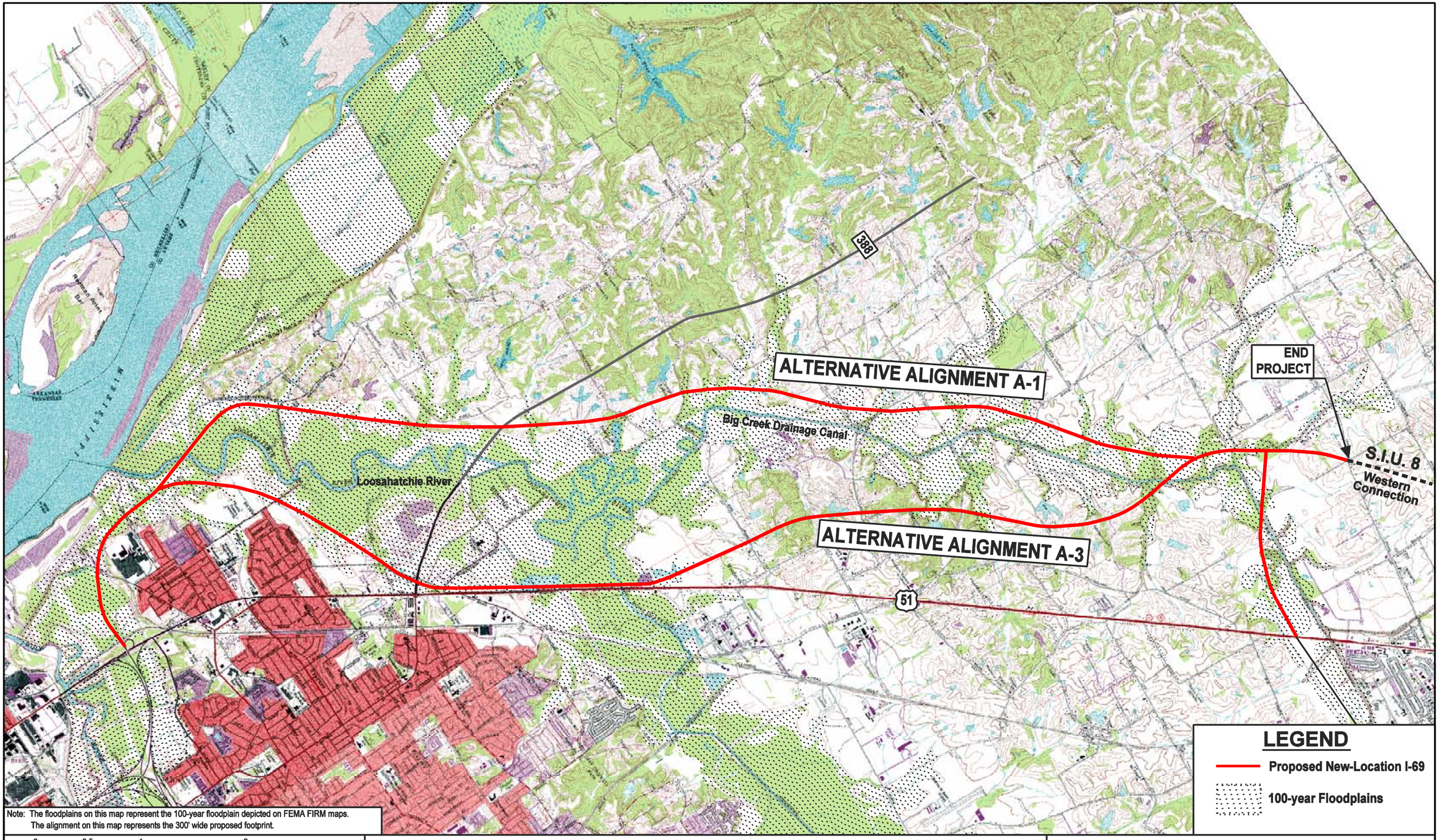
Based on the results of the environmental studies conducted for this segment of I-69, it is determined that there is no practicable alternative to the proposed construction in wetlands. The proposed action will include all practical measures to minimize harm to wetlands, such as avoiding, minimizing or mitigating unavoidable impacts by bridging rather than placing fill in the wetland. Specific details will be developed during the design phase and coordinated with resource and permitting agencies.

4.8.5 Floodplain Impacts

In accordance with Executive Order 11988 "Flood Plain Management," Federal Emergency Management Agency (FEMA) floodplain maps were examined to determine the project's potential for impact or encroachment on designated 100-year floodplains. The following paragraphs summarize the floodplains that occur within each Alternative Alignment (See Figures 4-1 through 4-3, Floodplain Maps).

Alternative Alignment A-1 (I-69 Preferred alignment)

The new location portion of Alternative Alignment A-1 includes (from south to north) the floodplains associated with the Wolf River, Loosahatchie River, Big Creek Drainage Canal, Jakes Creek, and Bear Creek. Alternative Alignment A-1 longitudinally encroaches upon the Big Creek Drainage Canal floodplain.



Note: The floodplains on this map represent the 100-year floodplain depicted on FEMA FIRM maps.
The alignment on this map represents the 300' wide proposed footprint.

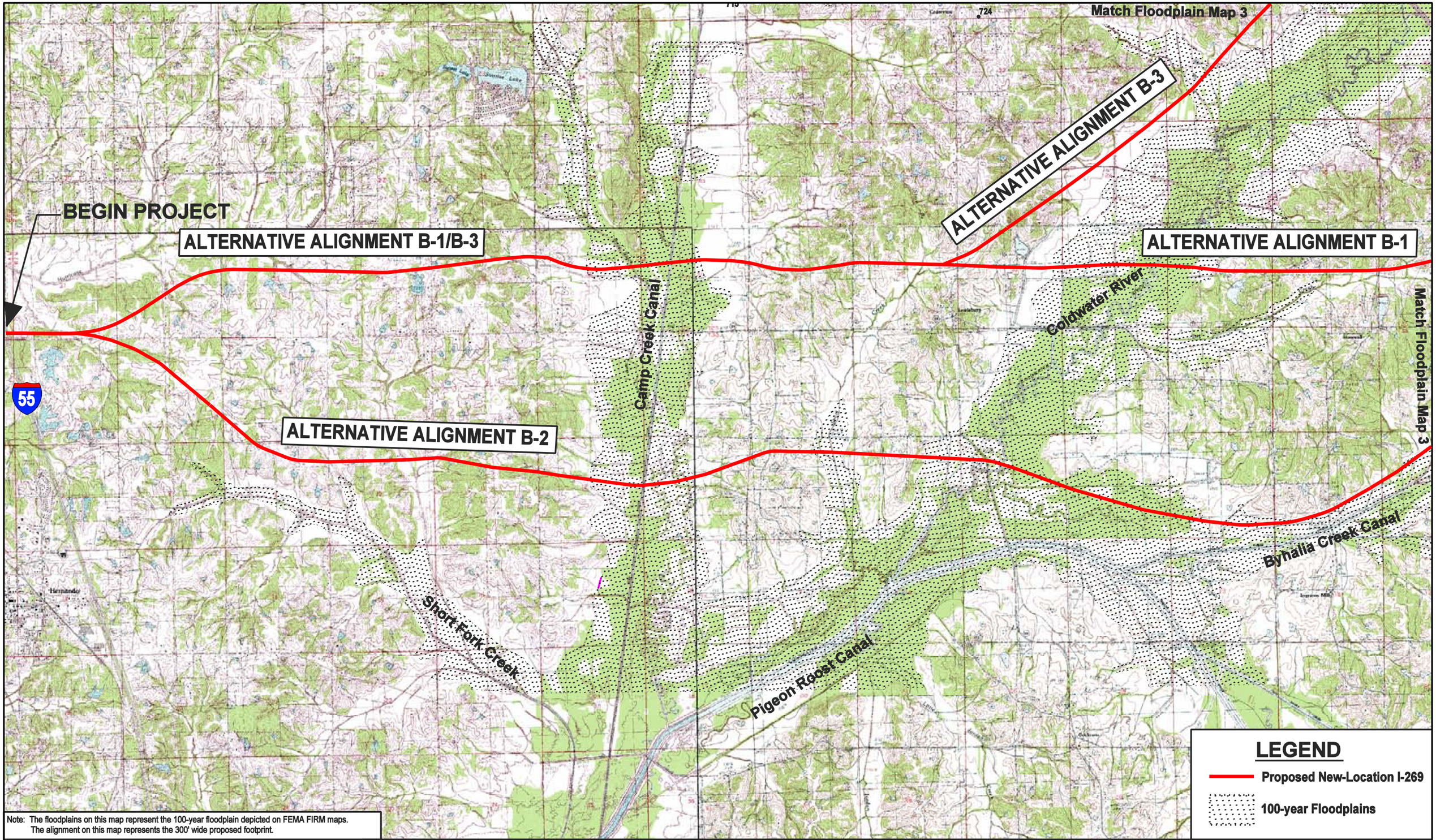
0 0.5 1 2
Scale in Miles

0 0.5 1 2
Scale in Kilometers

N NE E SE S SW W NW

Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-1
Floodplain Map 1



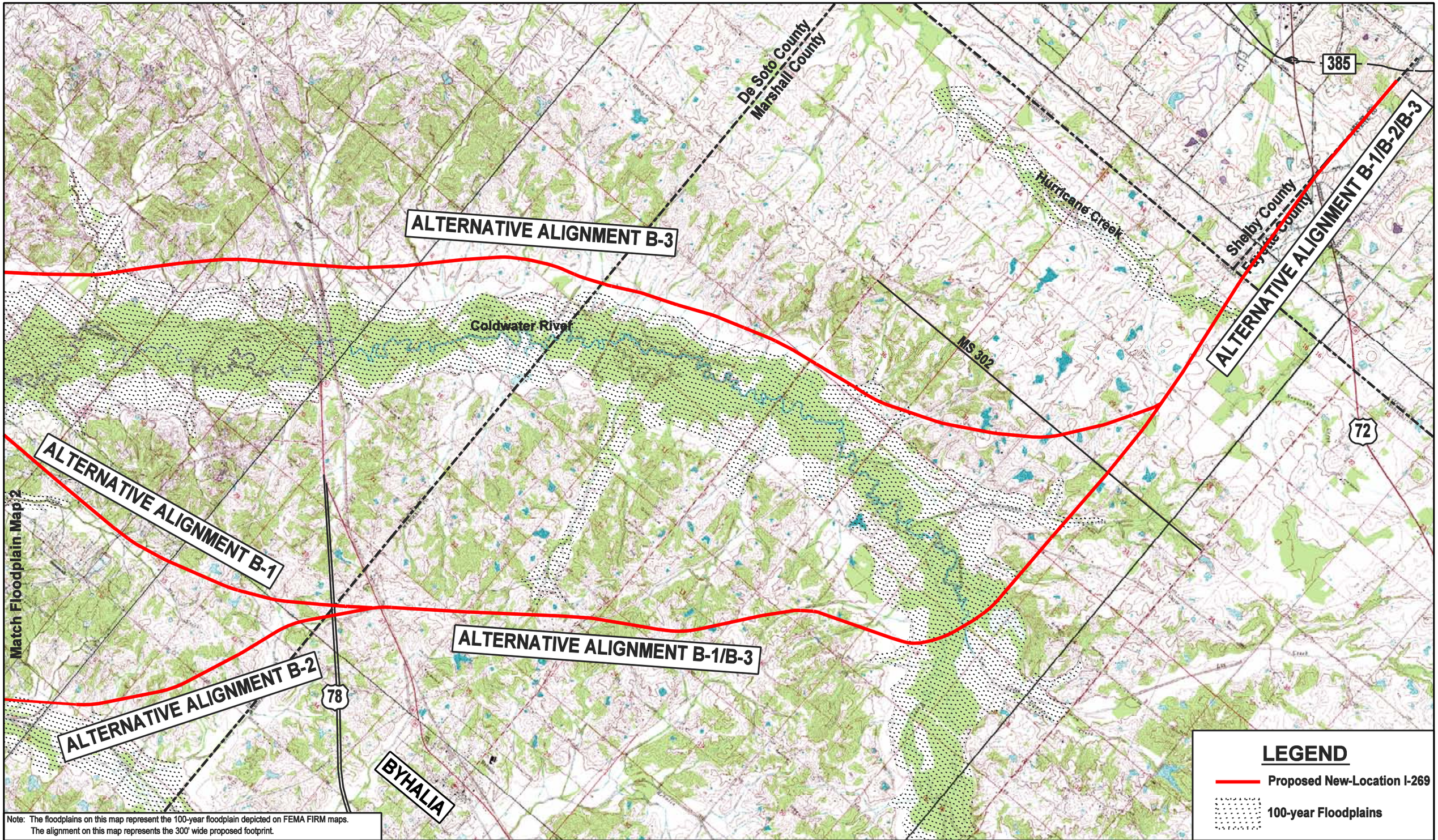
Note: The floodplains on this map represent the 100-year floodplain depicted on FEMA FIRM maps.
The alignment on this map represents the 300' wide proposed footprint.

0 0.5 1 2
Scale in Miles
0 0.5 1 2
Scale in Kilometers

N W E S

Interstate 69 S.I.U. #90
From Hernando, Mississippi to Millington, Tennessee

Figure 4-2
Floodplain Map 2



Note: The floodplains on this map represent the 100-year floodplain depicted on FEMA FIRM maps.
The alignment on this map represents the 300' wide proposed footprint.

0 0.5 1 2
Scale in Miles
0 0.5 1 2
Scale in Kilometers

Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-3
Floodplain Map 3

Alternative Alignment A-3

The new location portion of Alternative Alignment A-3 includes (from south to north) the floodplains associated with the Wolf River, Loosahatchie River, and Big Creek Drainage Canal. Alternative Alignment A-3 longitudinally encroaches upon a portion of the Loosahatchie River Floodplain northwest of Frayser, Tennessee.

Alternative Alignment B-1 (I-269 Preferred Alignment)

The new location portion of Alternative Alignment B-1 includes (from west to east) the floodplains associated with Bean Patch Creek, Camp Creek Canal, Coldwater River, and Nonconnah Creek. Alternative Alignment B-1 does not longitudinally encroach upon any floodplains. This Alternative Alignment perpendicularly crosses the Coldwater River floodplain.

Alternative Alignment B-2

The new location portion of Alternative Alignment B-2 includes (from west to east) the floodplains associated with Camp Creek Canal, Short Fork Creek, Coldwater River, Byhalia Creek Canal, and Nonconnah Creek. This alternative includes a longitudinal encroachment on a small portion of the Byhalia Creek Canal floodplain. It also includes two perpendicular crossings of the Coldwater River floodplains.

Alternative Alignment B-3

The new location portion of Alternative Alignment B-3 includes (from west to east) the floodplains associated with Bean Patch Creek, Camp Creek Canal, Coldwater River, and Nonconnah Creek. Alternative Alignment B-3 parallels the Coldwater River, however, it only longitudinally encroaches upon a small portion of the floodplain. Most of the length of the alignment that parallels the Coldwater River stays outside the 100-year floodplain.

The impacts on the natural and beneficial floodplain values of the project would be the loss of wildlife habitat and the loss of vegetation. Impacts would be short-term and minimal losses due to re-establishment capabilities of the species located in the areas. Any influence on the flood level resulting from these possible encroachments will be determined by the DOT's hydrology section during the survey and preliminary design phase of the project.

The project would be designed to minimize floodplain impacts as required by the Federal Highways Administration procedures in 23 CFR 650A. Each floodplain crossing will be designed so that the following criteria are met:

(1) There is no potential for interruption or termination of the transportation facility that is needed for emergency vehicles or provides the communities' only evacuation route due to the construction of the project.

(2) The water crossings will convey floodwaters so there will be no increase in flooding due to the encroachment in the floodplain.

The preferred **Systems Approach Alternative** (A-1/B-1) will have no substantial impacts on the natural and beneficial floodplain values.

4.8.6 Permits

A project of this size will most likely require State of Tennessee, State of Mississippi, and federal environmental permits. Some of the regulations that may affect this project include, but are not limited to, the following:

- Section 404 of the Clean Water Act – 33 United States Code 1344
- Sections 401 and 402 of the Clean Water Act – (State Administered)
- USACE Wetlands Regulatory Program Regulations – 33 CFR, Parts 320-330
- Tennessee Water Quality Control Act of 1977 – Tennessee Code Annotated 69-3, as amended
- National Pollutant Discharge Elimination System (NPDES) Permits

The preferred **Systems Approach Alternative** (A-1/B-1) will result in unavoidable impacts to jurisdictional wetlands and streams, as discussed in Section 4.8.3 of this document. It is during the Section 404 Clean Water Act permitting process with the USACE and the DOT's that the final appropriate compensatory mitigation for the impacts of this project will be determined.

The DOT's (TDOT and MDOT) will carry out further coordination with the regulatory agencies before preparing final mitigation plans and submitting state and federal permit applications.

4.8.7 Threatened or Endangered Species

In compliance with the Federal Endangered Species Act of 1973, coordination with the U.S. Fish and Wildlife Service (USFWS) Tennessee and Mississippi field offices was undertaken. In addition, coordination with Tennessee and Mississippi State Wildlife Offices was also undertaken. Early coordination from the USFWS - Tennessee field office stated, in letters dated September 26, 2001, March 5, 2002, and April 20, 2005, "available records do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the alternative alignments." Early Coordination from the USFWS – Mississippi field office stated, in a letter dated May 1, 2001 "there are no federally listed species in the general area of either corridor". In a separate letter dated February 11, 2002, the Mississippi field office stated: "the bald eagle (*Haliaeetus leucocephalus*) is known to occur in the Coldwater River Basin." The Tennessee Department of Environment and Conservation Division of Natural Heritage (TDEC-DNH) rare species database was reviewed on October 17, 2001, November 1, 2001, and May 22, 2002. The records revealed no federally protected species located within the Tennessee portion of the project. The Mississippi Natural Heritage Program (MNHP) responded to a request for protected species information in a letter dated May 4, 2001. MNHP reported that no federally protected species were shown to occur within the project corridor.

Along with coordination from the above agencies, the TDEC-DNH and MNHP County listing web sites were also reviewed. The bald eagle was not listed in any of the four counties involved in the project; however, through the above-mentioned coordination from the USFWS in Mississippi, it was evaluated as potentially occurring within the Coldwater River basin. The bald eagle is the only species of "sea eagle" regularly occurring on the North American continent and has a federally threatened status. Habitat requirements for this species include: lakes, rivers, marshes, and along seacoasts. The USFWS recommended a visual survey for eagles and/or eagle nests along the proposed highway alignment. No eagles or eagle nests were sighted within or near the project corridors during the field survey.

Overall Survey Findings

Based on the results of the field survey and the literature review for federally threatened or endangered species, it is concluded there is no evidence that any federally protected species will

be impacted by the proposed project. The preferred **Systems Approach Alternative** (A-1/B-1) will not affect any threatened or endangered species. The proposed project has been coordinated with the USFWS and concurrence under Section 7 of the Endangered Species Act has been received (Reference Appendix C). Endangered species are discussed in further detail in the Ecology Report, contained in Technical Appendix I, which is available for viewing at TDOT and MDOT offices.

4.8.8 Wild and Scenic Rivers

There are no rivers in the study area that are listed in the National Park Service's Nationwide Rivers Inventory as a Wild and Scenic Riverway. Therefore, the coordination requirements for the Wild and Scenic Rivers Act do not apply to this project.

4.8.9 Summary of Ecological Impacts

The construction of this project will result in adverse ecological impacts. The impacts will be in the form of unavoidable fill of wetlands, streams, and impoundments and the conversion of wildlife habitat to road right-of-way areas. Table 4-17 summarizes the ecological areas within the proposed alternatives.

TABLE 4-17

SUMMARY OF THE ECOLOGICAL SITES WITHIN ALTERNATIVE ALIGNMENTS

Ecological Feature	Alternative Alignment				
	A-1	**A-3**	**B-1**	**B-2**	**B-3**
Length of New-location (miles)	15.2	15.3	28.6	30.6	26.6
Total Area of Right-of-way * (acres)	739	798	1479	1552	1406
Wetland Area within 1,000' Corridor (acres)	108.5	145.4	227.5	189.1	21.6
Wetland Area within 300’ ROW Footprint (acres)	48	53	69	51	6
Average Quality of the Wetlands **	Moderate	Moderate	Moderate to High	Moderate	Moderate to High
Number of Stream Crossing within 1,000' Corridor	21	22	47	49	43
Number of Stream Crossing within 300’ ROW Footprint	21	20	39	46	37
Endangered Species within on near 1,000' Corridor	None	None	None	None	None
Number of Ponds within 1,000' Corridor	3	12	37	51	33
Number of Wet Weather Conveyances within 1,000' Corridor	3	3	9	6	15

*The total acres of right-of-way were estimated from a proposed 300' wide road right-of-way.
** The average quality of the wetlands was determined by averaging all 3 functional values for both the "Connected" and "Isolated" wetlands. It is important to note that all 3 functions the LGRWAMM analysis calculates should be considered separately for each individual wetland.

4.9 AIR QUALITY IMPACTS

The air quality impacts for this project have been updated to reflect the latest conformity analysis prepared by the Memphis Metropolitan Planning Organization for the 2026 Long Range Transportation Plan. A report documenting the process used for conformity determination was adopted by the Memphis MPO Executive Board on August 25, 2005 entitled *“Conformity Demonstration with 1990 Clean Air Act Amendments for the 2026 Long Range Transportation Plan and the 2004-2006 Transportation Improvement Program”*.

The following summarizes the background of air quality designations for the Memphis area and the compliance by the MPO with federal and state regulations that govern air quality requirements.

In 1991, EPA designated Shelby County, Tennessee a moderate nonattainment area for carbon monoxide (CO) and a marginal nonattainment area for the 1-hour ozone standard. Due to improvements in the ambient air quality, EPA redesignated Shelby County to attainment for CO on August 31, 1994 and for 1-hour ozone attainment on February 16, 1995. In April 2004, EPA designated Memphis, TN-AR as an 8-hour ozone moderate nonattainment area. Included in this designation were two counties: Shelby County, Tennessee and Crittenden County, Arkansas. The 8-hour ozone designation became effective on June 15, 2004. The area was redesignated from moderate to marginal on September 15, 2004. The reclassification means that the attainment year changed from June 2010 to June 2007.

The purpose of the August 2005 conformity report was to demonstrate that the implementation of the FY 2004-2006 Transportation Improvement Program and the financially constrained 2026 Long Range Transportation Plan will contribute to improved air quality for the area and not jeopardize Shelby County's attainment of the 8-hour ozone standard by June 2007. The conformity determination was performed according to procedures prescribed by the following federal, state, and local regulations: 69 FR 40004, 40 CFR Parts 51 and 93 (i.e. Transportation Conformity Rule Requirements); the Tennessee Transportation Conformity Rules, Chapter 1200-3-34; the Memphis and Shelby County ordinances that adopt by reference the Tennessee Conformity Rules; and , Metropolitan Planning Organization Planning Regulations (23 CFR 450.322) implementing the Transportation Equity Act for the 21st Century (TEA-21) requirements.

Results of the conformity determination are show in the following table, Table 4-18.

TABLE 4-18

SUMMARY OF MOBILE SOURCE EMISSIONS AND EMISSIONS BUDGETS

(tons/day)

Pollutants	Emission Budget	2026	2016	2007
VOC (Ozone Season)	144.50	9.560	11.873	22.210
NOx (Ozone Season)	94.30	11.436	21.457	51.554
CO (Carbon Monoxide Season)	414.60	266.518	257.515	366.399

Source: Conformity Demonstration with Clean Air Amendments for 2026 Long Range Transportation Plan Amendments and 2004-2006 Transportation Improvement Program, Memphis MPO, August 25, 2005

Note: Emission Budgets from 1997 Non-Regulatory SIP Submittal by Memphis and Shelby County Health Department, Pollution Control Section

In order for each transportation plan (2026 LRTP) and program (2004-2006 TIP) to be found to conform, it must be demonstrated that the applicable criteria and procedures have been satisfied. The applicable criteria are described as follows:

- The TIP and LRTP must pass an emissions budget test with a budget that has been found to be adequate by EPA for transportation conformity purposes, or an emissions reduction test;
- The conformity determinations must be based upon the most recent planning assumptions;
- The conformity determinations must be based upon the latest emission estimation model available;
- MPO's and state departments of transportation must provide reasonable opportunity for consultation with state air quality agencies, local air quality and transportation agencies, DOT, and the EPA;
- Timely implementation of Transportation Control Measures (TCM's) in the applicable State Implementation Plan (SIP) must be provided for; and

- The conformity determination must comply with TEA-21 and successive legislation and the MPO Planning Regulation.

The adopted August 25, 2005 conformity report meets all of the above criteria.

4.9.1 Section Analysis

Analysis was conducted to determine the air quality impact of the proposed roadway construction. The microscale model CAL3QHC Version II was used to perform the analysis. Table 4-19 shows the intersection/interchanges where CO concentrations were predicted. These locations were selected for analysis purposes as being the interchanges with the highest traffic volume projections along each alternative alignment and representative of the worse case scenario for CO concentrations. Each receptor modeled was located at points along the roadway's right-of-way.

TABLE 4-19

ANALYZED INTERSECTIONS

Alternative Alignment Section	Analyzed Interchange Location
A1/A3 Section 2	I-69 @ N. Second Street
A1 Section 1	I-69 near SR 385
A3 Section 1	I-69 near SR 385
B1/B3 Section 1	I-269 @ Getwell Road
B3 Section 1	I-269 @ US 78
B1 Section 1	I-269 @ US 78
B2 Section 1	I-269 @ Getwell Road
B1/B2 Section 1	I-269 @ US 78
B1/B2/B3 Section 1	I-269 @ Walnut Grove

Inputs in CAL3QHC to analyze the locations included: design hourly volume (calculated peak hour traffic volumes from average daily volumes), emission factors, wind speed of 1m/sec, the appropriate wind angle, receptor heights (5 feet), and stability class D.

CO concentrations for the project were analyzed for the design year (2030). The pollution concentration predicted was then added to a background ambient concentration to determine the total predicted CO concentration. The NAAQS for CO concentrations are 35-ppm maximum one-hour average and 9 ppm maximum eight-hour average concentration.

The **Systems Approach Alternative** will utilize sections of Interstates 55, 240 and 40, the existing section of SR 385, which was constructed to interstate standards from I-40 to Millington, and the section of SR 385 currently under construction from I-40 south to Collierville, which is being constructed to interstate standards. These existing and planned roadways were evaluated as separate projects and broken into sections, taking into consideration future projects and found to be in conformity. An air quality analysis was performed for each project included in the current Transportation Improvement Program (TIP). All of these projects, including the **Systems Approach Alternative**, have been included in the 2026 Long-Range Transportation Plan for Shelby County, which has been adopted and found to be in conformity with the Clean Air Act standards.

The one-hour average CO concentrations are presented for each section below (see Tables 4-20 through 4-24).

4.9.1.1 A1/A3 Section 1

This section of the **Systems Approach Alternative** utilizes the existing interstate system through Memphis. The improvements to I-55, I-240 and I-40 along the proposed I-69 route are separate projects and not dependent on I-69. An air quality analysis was performed for each project included in the TIP. These projects are included in the 2026 Long-Range Transportation Plan, which has been adopted and found in conformity. Based upon the analysis of highway projects with similar meteorological conditions and traffic volumes, the CO levels of the subject project will be well below the NAAQS. This project will have no substantial impact on the air quality of the area.

4.9.1.2 A1/A3 Section 2

Analysis indicates that, for the design year 2030, the highest one-hour average CO concentration at the I-69/North Second Street intersection would be 7.1 ppm at Receptor 3. Table 4-20 shows the results at the analyzed intersections. Refer to Figure 4-4 for receptor locations.

TABLE 4-20

CO CONCENTRATIONS AT ANALYZED INTERCHANGES FOR THE BUILD CONDITION, YEAR 2030

Receptor Number	I-69 at N. Second Ave. Predicted	Background Concentration	Total
Receptor 1	2.5	2.0	4.5
Receptor 2	2.5	2.0	4.5
Receptor 3	5.1	2.0	7.1
Receptor 4	3.4	2.0	5.4
Receptor 5	4.0	2.0	6.0
Receptor 6	5.0	2.0	7.0
Receptor 7	3.2	2.0	5.2
Receptor 8	3.1	2.0	5.1

4.9.1.3 A1 Section 1 and A3 Section 1

Analysis indicates that, for the design year 2030, the highest one-hour average CO concentration along I-69 near State Route 385 would be 4.5 ppm at Receptors 1, 2, 5, and 6. Table 4-21 shows the results at the analyzed intersections. Refer to Figure 4-5 for receptor locations.

TABLE 4-21

CO CONCENTRATIONS AT ANALYZED INTERCHANGES FOR THE BUILD CONDITION, YEAR 2030

Receptor Number	I-69 near State Route 385 Predicted	Background Concentration	Total
Receptor 1	2.5	2.0	4.5
Receptor 2	2.5	2.0	4.5
Receptor 3	2.1	2.0	4.1
Receptor 4	2.1	2.0	4.1
Receptor 5	2.5	2.0	4.5
Receptor 6	2.5	2.0	4.5

4.9.1.4 B1/B3 Section 1 and B2 Section 1

Analysis indicates that, for the design year 2030, the highest one-hour average CO concentration at the I-269/Getwell Road intersection would be 4.4 ppm at Receptor 10. Table 4-22 shows the results at the analyzed intersections. Refer to Figure 4-6 for receptor locations.

TABLE 4-22

CO CONCENTRATIONS AT ANALYZED INTERCHANGES FOR THE BUILD CONDITION, YEAR 2030

Receptor Number	I-269 at Getwell Rd.	Background Concentration	Total
Receptor 1	1.5	2.0	3.5
Receptor 2	1.5	2.0	3.5
Receptor 3	2.0	2.0	4.0
Receptor 4	1.9	2.0	3.9
Receptor 5	1.9	2.0	3.9
Receptor 6	2.0	2.0	4.0
Receptor 7	1.4	2.0	3.4
Receptor 8	1.4	2.0	3.4
Receptor 9	2.3	2.0	4.3
Receptor 10	2.4	2.0	4.4

4.9.1.5 B3 Section 1 and B1 Section 1 and B1/B2 Section 1

Analysis indicates that, for the design year 2030, the highest one-hour average CO concentration at the I-269/US 78 intersection would be 5.1 ppm at Receptors 3 and 5. Table 4-23 shows the results at the analyzed intersections. Refer to Figure 4-7 for receptor locations.

TABLE 4-23

CO CONCENTRATIONS AT ANALYZED INTERCHANGES FOR THE BUILD CONDITION, YEAR 2030

Receptor Number	I-269 @ US 78	Background Concentration	Total
Receptor 1	3.0	2.0	5.0
Receptor 2	3.0	2.0	5.0
Receptor 3	3.1	2.0	5.1
Receptor 4	3.0	2.0	5.0
Receptor 5	3.1	2.0	5.1
Receptor 6	3.0	2.0	5.0
Receptor 7	3.0	2.0	5.0
Receptor 8	3.0	2.0	5.0
Receptor 9	2.5	2.0	4.5
Receptor 10	2.6	2.0	4.6

4.9.1.6 B1/B2/B3 Section 1

Analysis indicates that, for the design year 2030, the highest one-hour average CO concentration at the I-269/Walnut Grove intersection would be 5.0 ppm at Receptor 8. Table 4-24 shows the results at the analyzed intersections. Refer to Figure 4-8 for receptor locations.

TABLE 4-24

CO CONCENTRATIONS AT ANALYZED INTERCHANGES FOR THE BUILD CONDITION, YEAR 2030

Receptor Number	I-269 @ Walnut Grove	Background Concentration	Total
Receptor 1	1.7	2.0	3.7
Receptor 2	1.7	2.0	3.7
Receptor 3	2.3	2.0	4.3
Receptor 4	2.5	2.0	4.5
Receptor 5	2.6	2.0	4.6
Receptor 6	2.5	2.0	4.5
Receptor 7	2.7	2.0	4.7
Receptor 8	3.0	2.0	5.0

4.9.1.7 B1/B2/B3 Section 2

The improvements to this section are separate projects and not dependent on I-69. A microscale analysis was performed on these projects as part of separate EIS's. The results of those studies

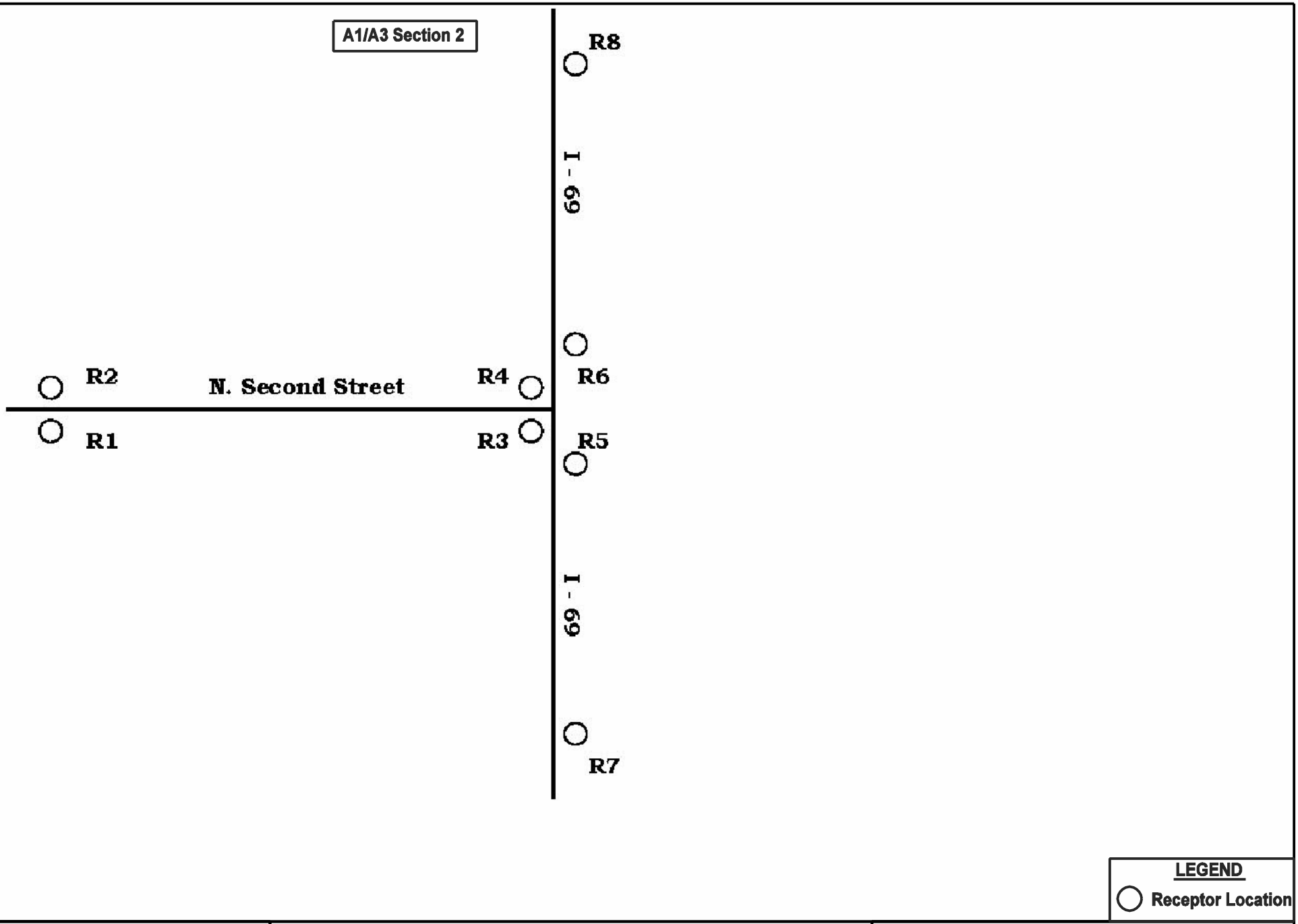
indicate CO levels well below the NAAQS. I-269 will be routed along these highways, however the volume attributed to I-269 is not substantial. This project will have no substantial impact on the air quality of the area.

4.9.2 Summary

The proposed project is located in the Memphis Urbanized Area classified as a nonattainment area for the 8-hour ozone standard. The counties included in this designation are Shelby County, Tennessee and Crittenden County, Arkansas. The Mississippi counties of Marshall and DeSoto are not included.

The proposed project is included in the 2026 Long Range Transportation Plan and the FY 2004-2006 Transportation Improvement Program for the Memphis Urbanized Area. The Memphis MPO has prepared a conformity demonstration report dated August 25, 2005 which indicates that projected emissions levels from the 2026 Long Range Transportation Plan and the FY 2004-2006 Transportation Improvement Program meet the conformity tests specified in the Transportation Conformity Rule (40 CFR Part 93), including the Transportation Conformity Rule Amendments for the new 8-hour ozone standards. The conformity report was Federally approved on October 24, 2005.

As indicated by the analysis conducted for this project and the Memphis MPO's conformity demonstration report, this project will result in CO levels well below the NAAQS and will have no substantial impact on air quality of the area.

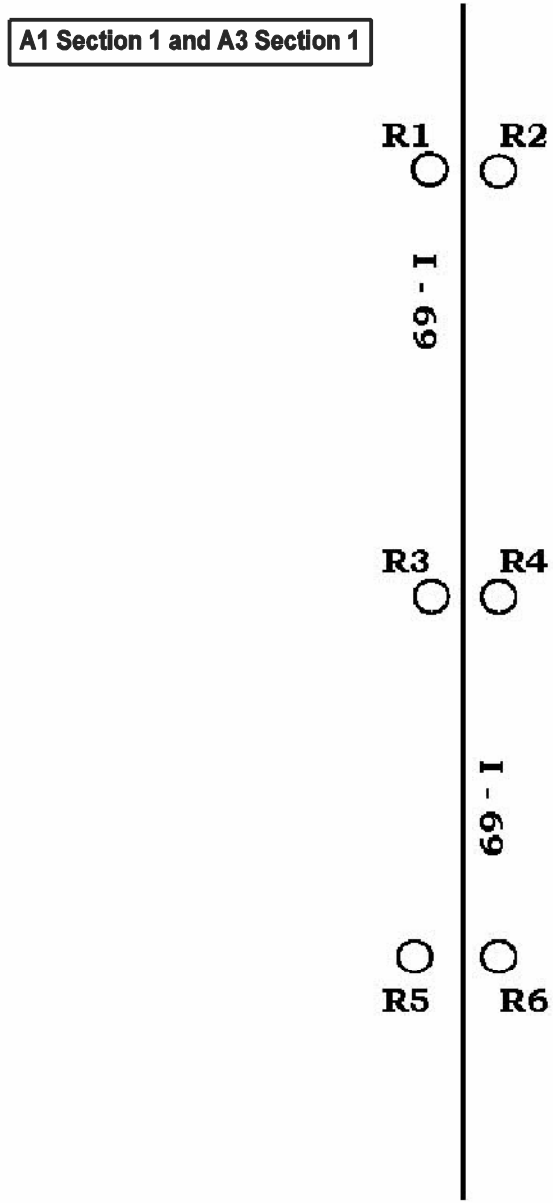


Not To Scale

N
W
E
S

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 4-4
CO Concentration Analyzed Intersection
I-69 at N. Second Street



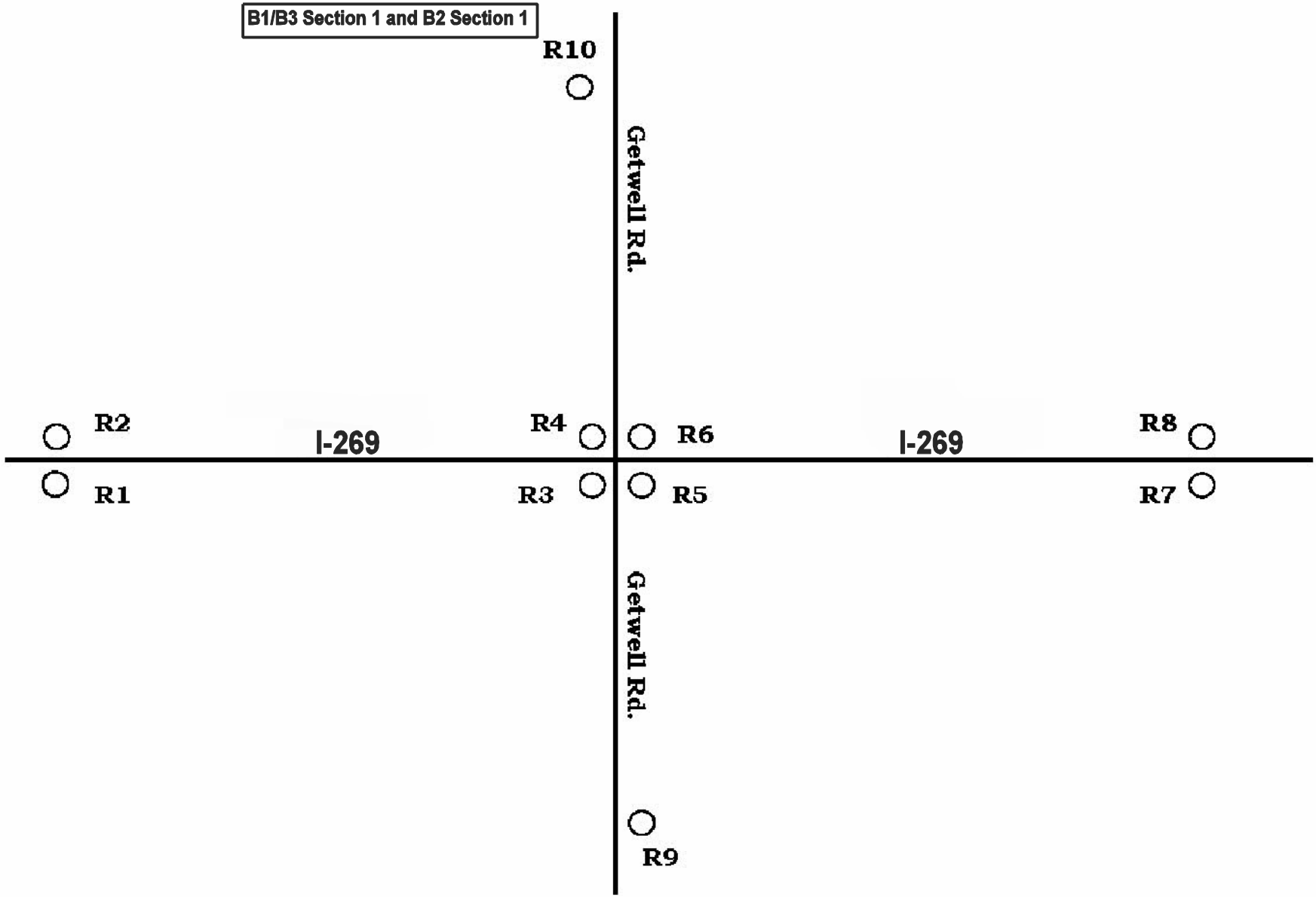
LEGEND

Receptor Location

Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 4-5
CO Concentration Analyzed Intersection
I-69 Near State Route 385



LEGEND

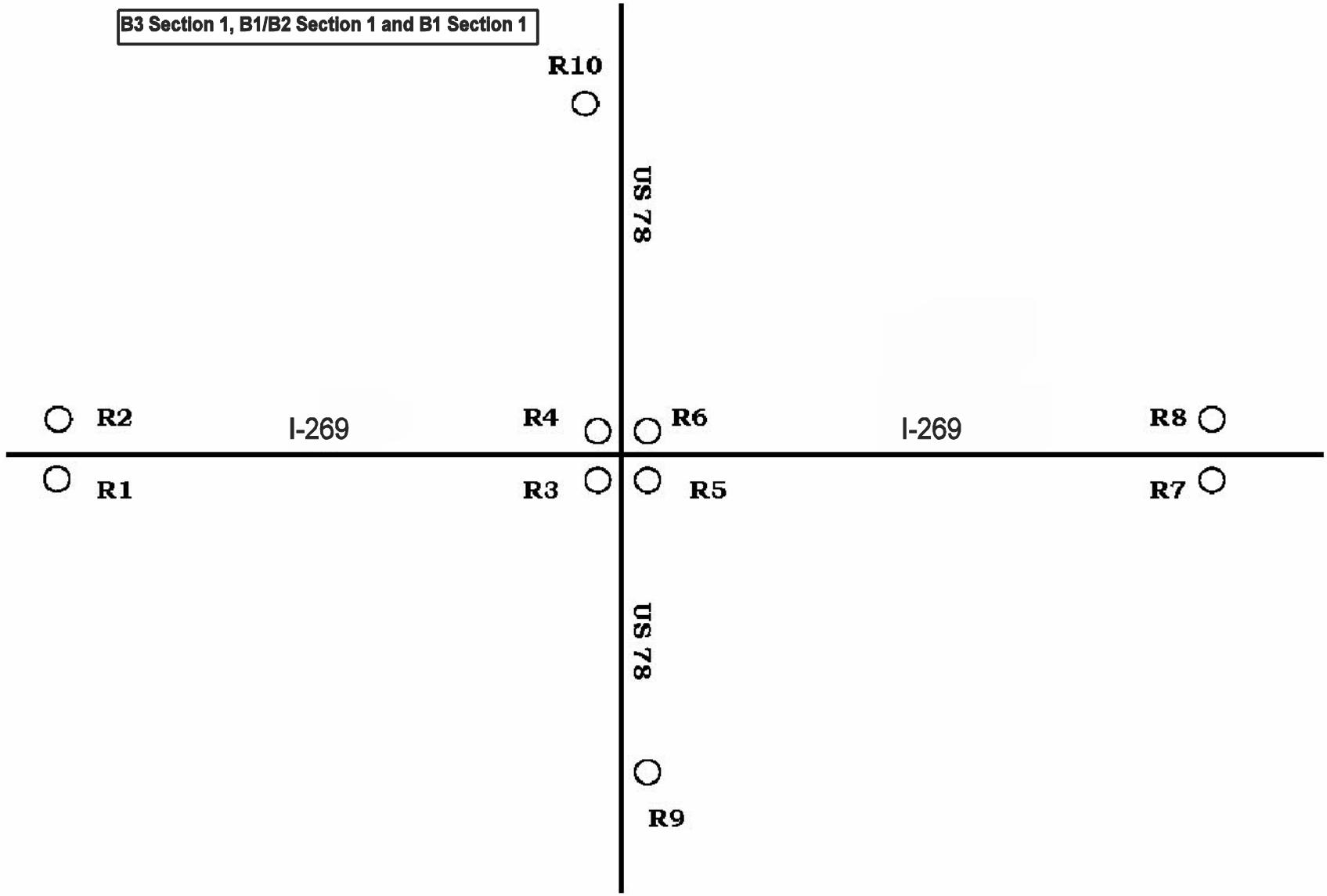
Receptor Location

Not To Scale

N W E S

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

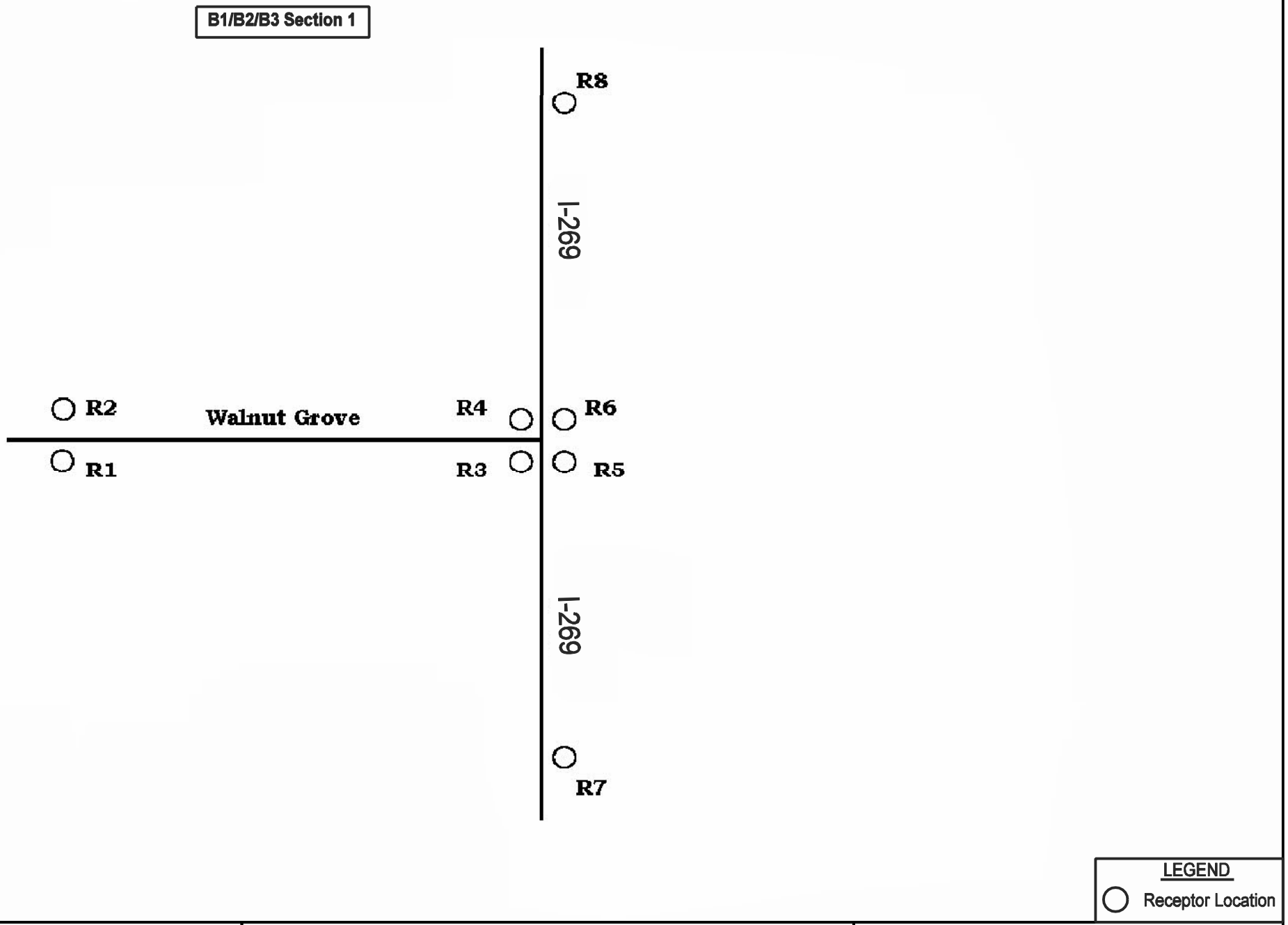
Figure 4-6
CO Concentration Analyzed Intersection
I-269 at Getwell Road



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 4-7
CO Concentration Analyzed Intersection
I-269 at U.S. 78



Not To Scale

Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 4-8
CO Concentration Analyzed Intersection
I-269 at Walnut Grove

4.10 NOISE IMPACTS

To determine the compatibility of highway traffic noise levels with various land uses, the FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. These criteria and procedures are set forth in Title 23 of the Code of Federal Regulations, Part 772 (23 CFR 772), U.S. Department of Transportation, FHWA, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. A summary of the FHWA noise abatement criteria for various land uses is presented in Table 4-25. As shown in Table 4-25, land uses are grouped into Activity Categories. All land uses evaluated in this report belong in Category B. L_{eq}, as defined in the July 8, 1982 Federal Register, is the equivalent steady-state sound level, which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period. Additionally, L_{eq} is the decibel level measured on the "A" frequency weighting scale (dBA).

Title 23 CFR Section 772.11(a) states, "In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement will usually be necessary only where frequent human use occurs and lowered noise levels would be of benefit."

Traffic noise impacts can occur when either the predicted traffic noise levels approach or exceed the FHWA Noise Abatement Criteria for the applicable Activity Category, or the predicted traffic noise levels substantially increase the existing noise levels (23 CFR 772). Noise abatement measures must be considered for receptors impacted under either case. Noise levels within one decibel of the FHWA Noise Abatement Criteria shown in Table 4-25 are considered to be "approaching" the criteria. The definition of "substantial" increase in the proposed noise level from the existing noise level as defined in TDOT's Noise Abatement Criteria is shown in Table 4-26.

TABLE 4-25

FHWA NOISE ABATEMENT CRITERIA

Activity Category	L_{eq} (Hour)*	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 and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Activities A or B above.
D	---	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

* Hourly A-weighted Average Noise Level
Source: Title 23 of the Code of Federal Regulations (CFR) Part 772, US Department of Transportation, Federal Highway Administration.

TABLE 4-26

DEFINITIONS OF SUBSTANTIAL INCREASE NOISE LEVELS

Increase (dBA)	Subjective Descriptor
0 – 5	Minor Increase
6 – 15	Moderate Increase
> 15	Substantial Increase

Source: Title 23 of the Code of Federal Regulations (CFR) Part 772, US Department of Transportation, Federal Highway Administration.

4.10.1 Methodology

With the utilization of the most recent design plans and traffic information available, the existing and design year (2030) peak-hour levels were predicted along each section of the proposed project (refer to Figure 1-4A and 1-4B for section locations). The FHWA Traffic Noise Model (TNM), Version 1.1 was used to predict these levels. In addition, existing noise measurements

were taken in March and April 2002. The locations of these measurements can be seen in Figures 4-9 and 4-10 for I-69 and Figures 4-11 through 4-14 for I-269.

Noise contours were developed in 50-foot increments from the centerlines of the alternative corridors up to 500 feet. TDOT *Guidelines for Traffic Noise Abatement* require only facilities listed under Activity Category B (residences, schools, churches, etc.) be modeled and MDOT *Highway Traffic Noise Policy* allow for the use of insulation and/or air conditioning of public and institutional buildings to meet interior noise standards; therefore, no commercial or industrial receptors were analyzed. The noise abatement criterion for Activity Category B is 67 dBA Leq, and the approach value is 66 dBA Leq. All data were input to the model in English units.

The first step in the analysis of future traffic noise was to determine the areas most likely to be impacted. The TNM model was run under worst-case conditions to determine the maximum distance from the roadway to the 66 dBA Leq noise contour.

Proposed traffic conditions were modeled using the most recent traffic count information available. A vehicle speed of 65 mph was assumed. Vehicles modeled included cars, medium trucks, and heavy trucks.

The existing and design year noise levels are shown in the even numbered tables from Table 4-28 through Table 4-42. The tables show the distances from the centerline of the study corridor at which noise levels approach or exceed the noise abatement criteria of 67 dBA with or without the project. Design year predicted noise levels at 50-foot increments are shown in the odd numbered tables from Table 4-27 through Table 4-43. The tables should be used for future planning purposes.

The improvements to I-55, I-240 and I-40 along the I-69 route, and the use of existing and proposed State Route 385 from south of Collierville to Millington along the I-269 route, as previously discussed in this document, are separate projects and not dependent on this project. Noise abatement has been evaluated along these projects and noise barriers have been proposed in appropriate locations. The **Systems Approach Alternative** will be routed along these

existing highways and interstates; however, the volume attributed to the proposed project is not substantial and will not result in the need for additional barriers. They are mentioned here to acknowledge that a noise study has been conducted for the entire I-69 project limits. This noise study addresses the new location alignments. Copies of the previous Noise Studies are available at TDOT and MDOT offices.

According to traffic projections in the traffic study, the proposed project will increase traffic on I-55, I-240 and I-40 through Memphis by less than eight percent and on the existing and proposed new location sections of SR 385 by 15 to 25 percent. The FHWA guidelines, *Fundamentals and Abatement of Highway Traffic Noise*, indicate that in order to raise the existing noise level by 3 dBA, the noise source must double. The increase in traffic on existing and proposed interstates and highways would raise the noise level by less than 1 dBA. Based on previous noise analysis, a 1 dBA increase would not be discernable by the human ear.

A long berm is being constructed in front of a large subdivision as a part of the proposed SR 385 project in Collierville. This berm will act as a visual barrier between the subdivision and the roadway to shield a residential area that is located approximately 500 feet from the SR 385 roadway. This segment of SR 385 will be re-evaluated for noise barriers and berms prior to construction in this area.

Noise abatement measures are proposed along I-40, I-240 and I-55 as part of the separate improvement projects. The routing of I-69 along these roadways will not negate the benefits of the proposed noise barriers. The proposed noise barriers along I-240 and I-55 will be re-evaluated prior to construction.

4.10.2 Alternative Alignment Sections

4.10.2.1 Alternative Alignment A-1/A-3 Section 2

This section is the portion of the common A-1/A-3 alignment on new location from the US 51/State Route 300 interchange to the divergence of Alternative Alignment A-1 and A-3 into separate alignments. Traffic noise contours are shown in Table 4-27 for the design year. Currently, no existing residences, schools, or churches are located within approximately 375 feet

of the alignment's centerline that would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figure 4-9 and 4-10).

TABLE 4-27

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, A-1/A-3 SECTION 2

Distance* (Feet)	L_{eq} Noise Levels
50	73.2
100	69.4
150	69.1
200	69.0
250	68.9
300	68.6
350	68.0
400	65.5
450	64.0
500	63.1
*Perpendicular distance to the roadway centerline for an at-grade situation.	

For the predicted noise levels, the distances in Table 4-27 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

4.10.2.2 Alternative Alignment A-1 Section 1

This section of A-1 begins where Alternative Alignment A-1 and A-3 split into separate alignments and continue to the end of the project near Millington, Tennessee. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-28 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along the eastern and western side of this section that fall within approximately 225 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figure 4-9 and 4-10).

TABLE 4-28

EXISTING AND PREDICTED NOISE LEVELS, A-1 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 11a	1	50	63	50
NM 9	1 church	58	59	58
NM 10	1	62	63	62
NM 8a	1	46	59	46
NM 5	1	53	61	53
NM 1	1 church and 2 residences	68	69*	68
Tie to SR 385	20	50	50	50

Receptor locations are shown in Figures 4-9 and 4-10.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

As shown in Table 4-28, the exterior noise levels at one church and two residences located along Alternative Alignment A-1 are above the noise criteria level.

For the predicted noise levels, the distances in Table 4-29 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-29

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, A-1 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	75.7
100	71.0
150	70.2
200	68.5
250	64.9
300	62.6
350	61.1
400	60.5
450	59.4
500	59.1
*Perpendicular distance to the roadway centerline for an at-grade situation.	

4.10.2.3 Alternative Alignment A-3 Section 1

This section of Alternative Alignment A-3 begins where Alternative Alignment A-1 and A-3 split into separate alignments and continue to the end of the project near Millington, Tennessee. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-30 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section that fall within approximately 300 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figure 4-9 and 4-10).

For the predicted noise levels, the distances in Table 4-31 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

As shown in Table 4-30, the external noise levels at one church and 28 residences located along Alternative Alignment A-3 will be above the noise criteria level.

TABLE 4-30

EXISTING AND PREDICTED NOISE LEVELS, A-3 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 15a	4	50	66*	50
NM 14	7	62	68*	62
NM 14a	9	62	70*	62
NM 12	2	72	74*	72
NM 13	2	72	72*	72
NM 7a	2	53	68*	53
NM 6a	1	63	65	63
NM 3a	1	51	62	51
NM 1	1 church and 2 residences	68	69*	68
Tie to SR 385	20	50	50	50

Receptor locations are shown in Figures 4-9 and 4-10.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

TABLE 4-31

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, A-3 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	75.5
100	72.5
150	70.5
200	68.9
250	67.5
300	66.3
350	65.2
400	64.3
450	63.5
500	62.2

*Perpendicular distance to the roadway centerline for an at-grade situation.

NM 11a
50 dBA
63 dBA
50 dBA

NM 9
58 dBA
59 dBA
58 dBA

NM 10
62 dBA
63 dBA
62 dBA

66 dBA
App. 225 FT

A-1 Section 1

ALTERNATIVE ALIGNMENT A-1

NM 8a
46 dBA
59 dBA
46 dBA

Match Noise Map 2

NM 15a
50 dBA
66 dBA
50 dBA

66 dBA
App. 375 FT

A-3 Section 1

NM 14a
62 dBA
70 dBA
62 dBA

ALTERNATIVE ALIGNMENT A-3

A-1/A-3 Section 1

NM 14
62 dBA
68 dBA
62 dBA

NM 12
72 dBA
74 dBA
72 dBA

66 dBA
App. 300 FT

NM 13
72 dBA
72 dBA
72 dBA

Start New-Location
for I-69

Note: This map represents the proposed new-location footprint for I-69.

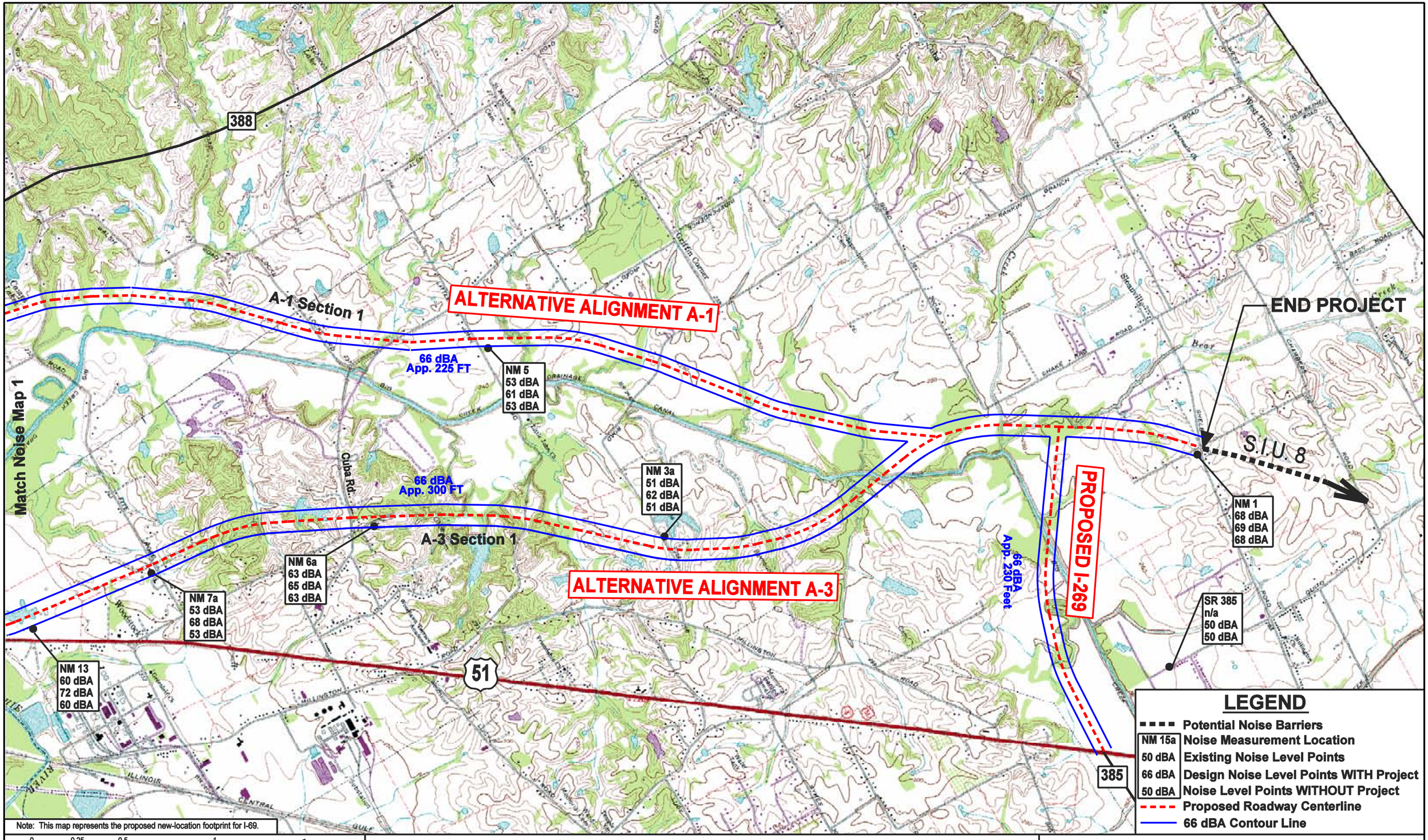
LEGEND

- Potential Noise Barriers
- NM 15a — Noise Measurement Location
- 50 dBA — Existing Noise Level Points
- 66 dBA — Design Noise Level Points WITH Project
- 50 dBA — Noise Level Points WITHOUT Project
- Proposed Roadway Centerline
- 66 dBA Contour Line

0 0.25 0.5 1
Scale in Miles
0 1000 2000 4000
Scale in Feet

Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-9
Noise Map 1



Note: This map represents the proposed new-location footprint for I-69.

0 0.25 0.5 1
Scale in Miles
0 1000 2000 4000
Scale in Feet

Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-10
Noise Map 2

4.10.2.4 Alternative Alignment B-1/B-3 Section 1

This section of proposed I-269 is the portion of the common Alternative Alignment B-1/B-3 that would be on new location from Hernando, Mississippi to where Alternative Alignments B-1 and B-3 split into separate alignments. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-32 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section that fall within approximately 200 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

TABLE 4-32

EXISTING AND PREDICTED NOISE LEVELS, B-1/B-3 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 22a	3	53	66*	53
NM 22b	2	53	66*	53
NM 23a	1	54	60	54
NM 26b	11	58	64	58

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

For the predicted noise levels, the distances in Table 4-33 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-33

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-1/B-3 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	74.2
100	70.5
150	68.0
200	66.0
250	64.3
300	62.9
350	62.6
400	60.3
450	59.2
500	58.2
*Perpendicular distance to the roadway centerline for an at-grade situation.	

4.10.2.5 Alternative Alignment B-3 Section 1

This section of proposed I-269 is the portion of Alternative Alignment B-3 on new location from where Alternative Alignment B-1 and B-3 split into separate alignments to where Alternative Alignment B-3 joins the Alternative B-1/B-2 Alignment near Byhalia. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-34 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section of proposed I-269 that fall within approximately 230 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

The Forest Hill Community subdivision, currently under construction, is located within this section of Alternative Alignment B-3. Approximately 67 residences located along the proposed alignment would be impacted by traffic noise. Noise walls would likely be required.

For the predicted noise levels, the distances in Table 4-35 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and

should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-34

EXISTING AND PREDICTED NOISE LEVELS, B-3 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 26a	3	58	59	58
NM 27a	3	50	64	50
NM 27b	3	50	64	50
NM 28	5	58	69*	58
NM 28a	2	58	66*	58
NM 29a	6	51	67*	51
NM 29b	4	51	67*	51
NM 30a	1	44	67*	44
NM 32a	8	40	67*	40
NM 32	9	40	69*	40

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

TABLE 4-35

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-3 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	75.0
100	71.8
150	69.4
200	67.3
250	65.8
300	64.3
350	63.0
400	62.3
450	61.0
500	60.0
*Perpendicular distance to the roadway centerline for an at-grade situation.	

4.10.2.6 Alternative Alignment B-1 Section 1

This section of proposed I-269 is the portion of Alternative Alignment B-1 that would be on new location from where Alternative Alignments B-1 and B-3 split into separate alignments to where Alternative Alignment B-1 joins the Alternative B-2 Alignment near Byhalia. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-36 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section of proposed I-269 that fall within approximately 270 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

For the predicted noise levels, the distances in Table 4-37 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-36

EXISTING AND PREDICTED NOISE LEVELS, B-1 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 42a	9	46	69*	46
NM 41a	2	46	63*	46
NM 44a	3	52	69*	52
NM 44b	1	52	72*	52

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

TABLE 4-37

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-1 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	79.9
100	76.1
150	72.6
200	69.6
250	67.3
300	65.4
350	63.8
400	62.5
450	61.8
500	60.1

*Perpendicular distance to the roadway centerline for an at-grade situation.

4.10.2.7 Alternative Alignment B-2 Section 1

This section of proposed I-269 is the portion of Alternative Alignment B-2 that would be on new location from Hernando, Mississippi to where Alternative Alignment B-2 joins the Alternative B-1 Alignment near Byhalia. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements.

Table 4-38 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section of proposed I-269 that fall within approximately 275 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

For the predicted noise levels, the distances in Table 4-39 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-38

EXISTING AND PREDICTED NOISE LEVELS, B-2 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 19a	3	60	69*	60
NM 20a	1	51	69*	51
NM 20b	3	51	67*	51
NM 25a	3	47	69*	47
NM 25b	3	47	69*	47
NM 25c	3	47	69*	47
NM 43a	2	78	78*	78

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

TABLE 4-39

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-2 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	78.6
100	74.3
150	70.7
200	69.1
250	67.3
300	65.4
350	64.2
400	62.5
450	62.3
500	60.7
*Perpendicular distance to the roadway centerline for an at-grade situation.	

4.10.2.8 Alternative Alignment B-1/B-2 Section 1

This section of proposed I-269 is the portion of common Alternative Alignment B-1/B-2 that would be on new location from where Alternative Alignment B-2 joins Alternative Alignment B-1 near Byhalia to where Alternative Alignment B-3 joins the common Alternative B-1/B-2 Alignment just north of MS 302. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-40 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along this section of proposed I-269 that fall within approximately 300 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

For the predicted noise levels, the distances in Table 4-41 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

TABLE 4-40

EXISTING AND PREDICTED NOISE LEVELS, B-1/B-2 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 45a	15	62	76*	62
NM 46a	7	54	70*	54
NM 46b	3	54	71*	54
NM 48a	15	62	69*	62
NM 48b	7	62	67*	62

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

TABLE 4-41

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-1/B-2 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	78.5
100	76.2
150	73.6
200	70.7
250	68.5
300	66.5
350	64.9
400	63.6
450	62.4
500	61.0

*Perpendicular distance to the roadway centerline for an at-grade situation.

4.10.2.9 Alternative Alignment B-1/B-2/B-3 Section 1

This section of proposed I-269 is the portion of common Alternative B-1/B-2/B-3 Alignment on new location from where Alternative Alignment B-3 joins the common Alternative B-1/B-2

Alignment just north of MS 302 to the tie-in connection with State Route 385. Predicted noise levels at each of these receptors were interpolated from the contour model runs, while existing noise levels were taken from on-site measurements. Table 4-42 shows the predicted traffic noise levels for the design year and the existing noise levels. The table indicates that all residences, schools, churches, etc. located along the eastern and western side of this section of proposed I-269 that fall within approximately 350 feet of the alignment's centerline would be impacted on the basis of the FHWA Noise Abatement Criteria (Reference Figures 4-11 through 4-14).

For the predicted noise levels, the distances in Table 4-43 were measured perpendicular to the centerline at an at-grade situation. The predicted Leq noise levels displayed are conservative and should be considered to be the maximum (highest) noise levels at any location along the entire roadway at the same distance from the roadway.

As shown in Tables 4-32, 4-36, 4-40 and 4-42, 70 residences located along Alternative Alignment B-1 will potentially have noise impacts. As shown in Tables 4-38, 4-40 and 4-42, 68 residences located along Alternative Alignment B-2 will potentially have noise impacts. As shown in Tables 4-32, 4-34 and 4-42, 43 residences located along Alternative Alignment B-3 will potentially have noise impacts. The potentially noise impacted residences along Alternative Alignment B-3 does not include the proposed Forest Hill Community subdivision along the alignment.

TABLE 4-42

EXISTING AND PREDICTED NOISE LEVELS, B-1/B-2/B-3 SECTION 1

Receptor Number	Number of Residences Represented	Existing Noise Level dBA L_{eq}	Predicted (2030) Build Noise Level dBA L_{eq}	Predicted (2030) No-Build Noise Level dBA L_{eq}
NM 33a	1	53	67*	53
NM 31a	2	71	72*	71

Receptor locations are shown in Figures 4-11 through 4-14.
* Receptors have a noise level that approaches or exceeds the FHWA Noise Abatement Criteria for the Build Alternative.

ALTERNATIVE ALIGNMENT B-1/B-3

ALTERNATIVE ALIGNMENT B-2

B - 1/B - 3

B - 2

B-1/B-3 Section 1

B2 Section 1

BEGIN PROJECT

S.I.U. 10

NM 22b
53 dBA
66 dBA
54 dBA

NM 23a
54 dBA
60 dBA
54 dBA

NM 22a
53 dBA
66 dBA
54 dBA

NM 20a
51 dBA
69 dBA
51 dBA

NM 20b
51 dBA
67 dBA
51 dBA

NM 19a
60 dBA
69 dBA
60 dBA

66 dBA
App. 200 FT

66 dBA
App. 275 FT

Nesbit Rd.

Getwell Rd

Malone Rd.

Laughter Rd.

Byhalia Rd.

Match Noise Map 4

Sunset Lake

Sunrise Lake

Hurricane Creek

Camp Creek

Bright

LEGEND

- Potential Noise Barriers
- NM 15a — Noise Measurement Location
- 50 dBA — Existing Noise Level Points
- 66 dBA — Design Noise Level Points WITH Project
- 50 dBA — Noise Level Points WITHOUT Project
- Proposed Roadway Centerline
- 66 dBA Contour Line

Note: This map represents the proposed new-location footprint for I-269.

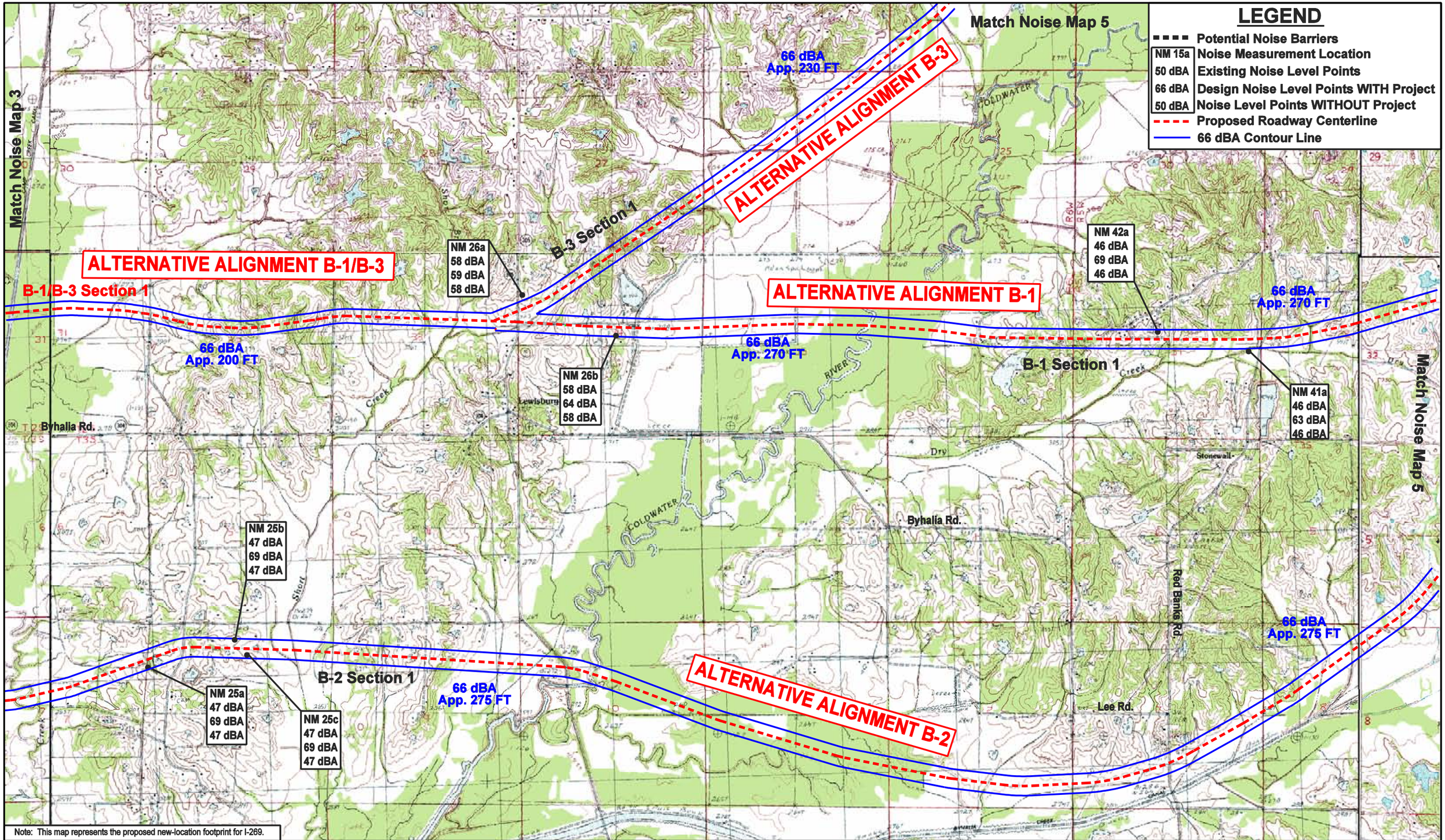
0 0.25 0.5 1
Scale in Miles

0 1000 2000 4000
Scale in Feet

N W E S

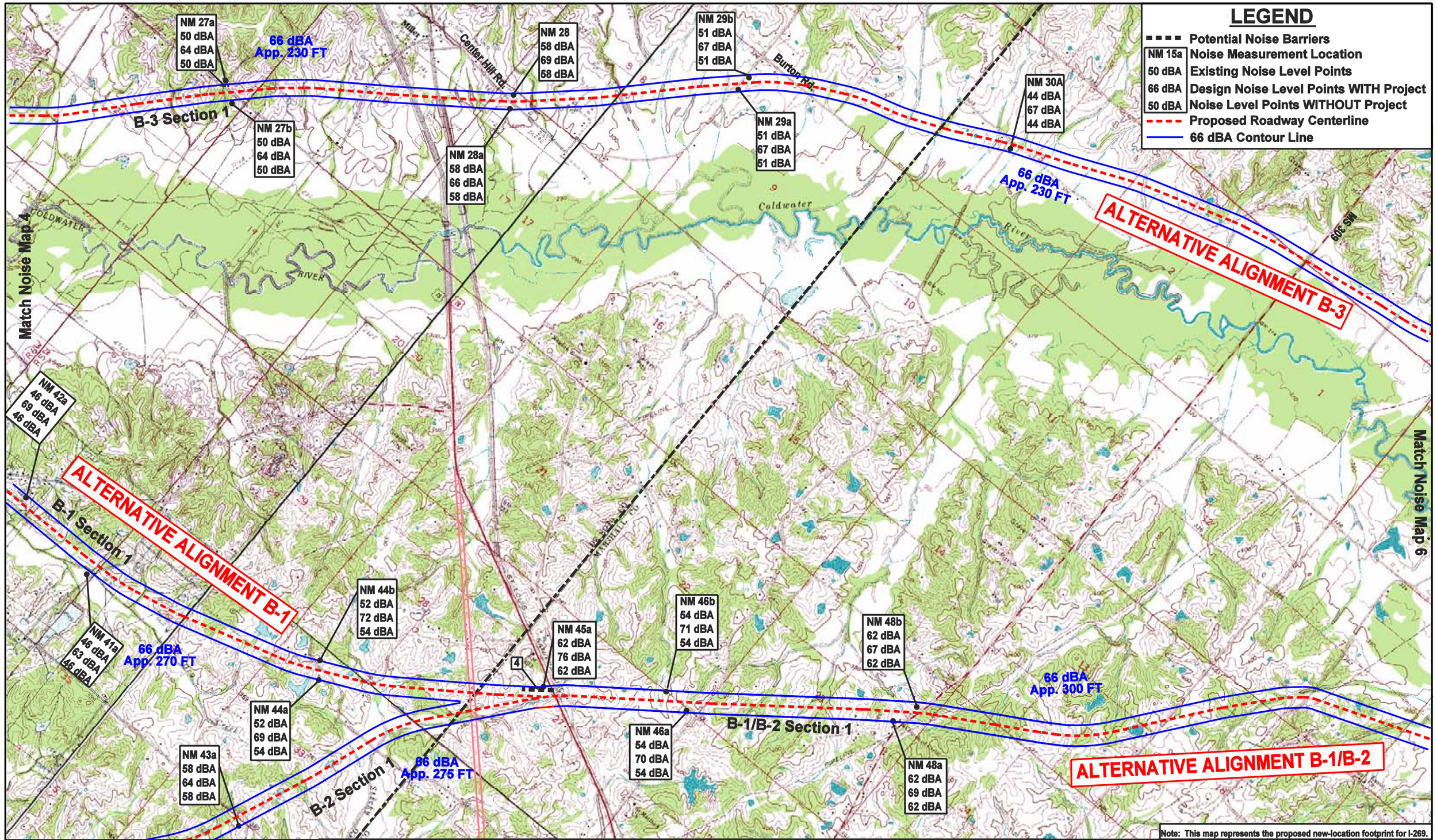
Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-11
Noise Map 3



Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-12
Noise Map 4



Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-13
Noise Map 5

Match Noise Map 5

ALTERNATIVE ALIGNMENT B-3

66 dBA
App. 230 FT

B-3 Section 1

NM 32
40 dBA
69 dBA
40 dBA

NM 32a
40 dBA
67 dBA
40 dBA

MS 309

Quinn Rd.

MS 302 Under Construction

Barringer Rd.

Tennessee
Mississippi

385

NM 31a
71 dBA
72 dBA
71 dBA

Shelby County
Fayette County

NM 33a
53 dBA
67 dBA
53 dBA

B-1/B-2/B-3 Section 1

66 dBA
App. 350 FT

66 dBA
App. 300 FT

ALTERNATIVE ALIGNMENT B-1/B-2

B-1/B-2 Section 1

ALTERNATIVE ALIGNMENT B-3

Note: This map represents the proposed new-location footprint for I-269.

LEGEND

- Potential Noise Barriers
- NM 15a — Noise Measurement Location
- 50 dBA — Existing Noise Level Points
- 66 dBA — Design Noise Level Points WITH Project
- 50 dBA — Noise Level Points WITHOUT Project
- Proposed Roadway Centerline
- 66 dBA Contour Line

0 0.25 0.5 1
Scale in Miles
0 1000 2000 4000
Scale in Feet

W N S E

Interstate 69 S.I.U. #9
From Hernando, Mississippi to Millington, Tennessee

Figure 4-14
Noise Map 6

TABLE 4-43

DESIGN YEAR (2030) PREDICTED L_{EQ} PROJECT-CONTRIBUTED NOISE LEVELS, B-1/B-2/B-3 SECTION 1

Distance* (Feet)	L_{eq} Noise Levels
50	84.6
100	81.4
150	77.2
200	74.3
250	70.1
300	67.3
350	66.1
400	64.8
450	64.6
500	62.1
*Perpendicular distance to the roadway centerline for an at-grade situation.	

4.10.3 Noise Abatement

The location points approaching or exceeding the FHWA noise abatement criteria warrant consideration of noise abatement measures. Impacts were determined utilizing the 300-foot wide footprint of the proposed new location alternative alignments. Impacts could increase or decrease depending upon where the final alignment is placed.

The results of this preliminary study indicate that the proposed project would impact approximately 29 Activity Category B receptors along the I-69 route and approximately 123 existing Activity Category B receptors along the proposed I-269 route.

TABLE 4-44

NUMBER OF NOISE IMPACTED RECEPTORS ALONG EACH ALTERNATIVE

Alternatives	A-1	A-3	B-1	B-2	B-3	A-1/ B-1	A-1/ B-2	A-1/ B-3	A-3/ B-1	A-3/ B-2	A-3/ B-3
Impacted Noise Receptors	3	29	70	68	43*	73	71	46*	99	97	72*
* Does not include future impacted residences in the Forest Hill Community subdivision that is currently under construction.											

Noise abatement measures such as alteration of horizontal and vertical alignments and traffic management measures (such as reducing speed limits, prohibition of heavy trucks, etc.) and constructing noise barriers were considered in order to attenuate the noise levels for this project. Because final alignments have yet to be set, alteration of horizontal and vertical alignments could be feasible. However, traffic management measures were found not to be reasonable. The reduction of speed limits and the elimination of truck traffic were determined to be contrary to the major reason for the highway. It appears that noise barrier walls would be the only reasonable method of abatement to reduce the noise levels.

Each new location Alternative Alignment has been assessed for potential barrier locations and costs. It should be noted that noise barriers as a form of abatement were not considered for standalone receptors. Under TDOT noise policy, in order for a noise barrier to be considered feasible, the barrier must first provide a minimum insertion loss of 7 dBA for the first row of residences and at least a 5-dBA reduction for other benefited residences. Noise barriers are considered reasonable if their cost does not exceed $25,000 per benefited residence or $27,500 per dwelling unit when there are 25 or more dwelling units that would be abated by the barrier. A benefited residence is a residence that receives at least a 5-dBA reduction, regardless of whether or not they were identified as impacted.

The MDOT Highway Traffic Noise Policy states that construction of a noise barrier is feasible if a noise reduction of at least 5 dBA can be achieved. Secondly, for noise barriers to be considered reasonable, they must be cost effective. MDOT noise policy indicate that a noise barrier is reasonable if a minimum of four residences are expected to receive noise reduction and the barrier cost is no more than $20,000 per residence.

4.10.3.1 I-69 Route

Table 4-45 identifies the areas evaluated for noise barriers. The bolded sections indicate the sections where barriers are feasible along Alternative Alignments A-1 and A-3. The possible barrier locations are shown on Noise Maps 1 and 2 (Figures 4-10 and 4-11).

TABLE 4-45

POSSIBLE BARRIER LOCATIONS, I-69 ROUTE

Alternative Alignment Section	Barrier Number	Possible Number of Receptors	Cost per Dwelling Unit	General Location
A1/A3 Section 2	No Barriers			
A3 Section 1 (NM 15a)	**1**	**4**	**$21,000**	I-69 at Benjestown Rd along the NB side of I-69
A3 Section 1 (NM 14a)	**2**	**9**	**$15,556**	App. 2900 ft south of SR 388 along SB side of I-69
A3 Section 1 (NM 14)	**3**	**7**	**$14,000**	App 3100 ft south of SR 388 along NB side of I-69
A1 Section 1 and A3 Section 1 (NM 1)	---	3	---	I-69 at Shelby Rd along NB side of I-69 (end of project) *Note:* Dominant noise source is from local road (Shelby Road). Impact from I-69 (65 dBA) is below FHWA Noise Abatement Criteria.

It should be noted that the cost of the barriers is dependent upon how many receptors are abated or benefited by the barrier. The above costs are based on all possible receptors being abated or benefited by the barrier.
*Possible feasible barriers are in bold.

A total of 29 receptors were identified along Alternative Alignment A-1 and A-3 at or above the noise abatement criteria. Abatement was considered at most of these sites. Noise barriers were not considered at locations with one or two receptors. Four sites were considered for noise barriers along these alignments. Barriers appear feasible along three sites (shown in bold) in accordance with TDOT noise barrier policy along Alternative Alignment A-3. No noise barriers are proposed along the preferred **Systems Approach Alternative** A-1 Alignment since the residences are sparsely scattered and there are no concentrations of houses or subdivisions along this alignment. None of the residences along Alternative A-1 meet the noise barrier criteria.

4.10.3.2 I-269 Route

Table 4-46 identifies the areas evaluated for noise barriers. The bolded sections indicate the sections where barriers are feasible along Alternative Alignments B-1, B-2 and B-3. The possible barrier locations are shown on Noise Maps 3 through 6 (Figures 4-11 and 4-14).

TABLE 4-46

POSSIBLE BARRIER LOCATIONS, I-269 ROUTE

Alternative Alignment Section	Barrier Number	Possible Number of Receptors	Cost per Dwelling Unit	General Location
B1/B-3 Section 1 (NM 22a)	---	3	$130,667	I-269 EB at Malone Road
B3 Section 1 (NM 28)	---	4	$63,000	I-269 WB at Center Hill Road just east of US 78
B3 Section 1 (NM 29a)	---	6	$37,300	I-269 EB at Center Hill Road
B3 Section 1 (NM 29b)	---	5	$67,200	I-269 WB at Center Hill Road
B3 Section 1 (NM 32a)	---	8	$98,000	I-269 EB at Farley Road (1.3 miles east of MS 309)
B3 Section 1 (NM 32)	---	9	$87,111	I-269 WB at Farley Road (1.3 miles east of MS 309)
B1 Section 1 (NM 42a)	---	9	$65,333	I-269 WB between Fairvieweast Road and Red Banks Road
B1 Section 1 (NM 44a)	---	3	$84,000	I-269 WB at eastern crossing of Fairvieweast Road
B2 Section 1 (NM 19a)	---	3	$168,000	I-269 EB at Bright Road
B2 Section 1 (NM 20b)	---	3	$168,000	I-269 EB between Getwell Road and Malone Road
B2 Section 1 (NM 25a)	---	3	$121,333	I-269 EB west of Craft Road /Grasspond Road
B2 Section 1 (NM 25b)	---	3	$205,333	I-269 WB at Craft Road/Grasspond Road
B2 Section 1 (NM 25c)	---	3	$205,333	I-269 EB east of Craft Road/Grasspond Road
B1/B2 Section 1 (NM 45a)	**4**	**15**	**$15,000**	App. 1 mile west US 178 along WB side of I-269
B1/B2 Section 1 (NM 46a)	---	7	$80,000	I-269 EB at Shinalt Road
B1/B2 Section 1 (NM 46b)	---	3	$177,333	I-269 WB at Shinalt Road
B1/B2 Section 1 (NM 48a)	---	15	$46,667	I-269 EB at MS 309

Table 6 (cont.)

Alternative Alignment Section	Barrier Number	Possible Number of Receptors	Cost per Dwelling Unit	General Location
B1/B2 Section 1 (NM 48b)	---	7	$48,000	I-269 WB at MS 309
It should be noted that the cost of the barriers is dependent upon how many receptors are abated or benefited by the barrier. The above costs are based on all possible receptors being abated or benefited by the barrier. *Possible feasible barriers are in bold.				

A total of 123 existing receptors were identified along Alternative Alignments B-1, B-2, and B-3 at or above the noise abatement criteria. Abatement was considered at most of these sites. Noise barriers were not considered at locations with one or two receptors. Eighteen sites were considered for noise barriers along these alignments. Barriers appear feasible along one of these sites (shown in bold) in accordance with MDOT noise barrier policy and warrant further consideration once the alignment is set. Since the Noise Study was completed, the Forest Hill Community subdivision has been developed. Based on the subdivision plat, approximately 67 houses on both sides of the roadway would be impacted by traffic noise. Noise barriers would likely be required in this area in accordance with MDOT noise barrier policy. Due to the rapid development in the project area, a reevaluation of the noise impacts will be conducted during the roadway design process before final construction plans are completed.

4.10.4 Construction Noise

Although temporary in nature, construction noise can, at times, interfere with day-to-day activities. During construction, there is the potential for noise impacts to be significantly greater than those resulting from normal traffic operations. Depending upon the type of construction work occurring, construction noise levels would range from 85 to 89 dBA within 50 feet of the roadway centerline and 82 to 86 dBA within 100 feet of the centerline. Construction noise will be reasonably mitigated in residential areas. The contractor will comply with all state and local noise ordinances. All motorized equipment should be properly tuned to the manufacturer's specifications for additional source reduction. All construction equipment should be equipped with noise attenuation devices, such as mufflers and insulated engine housings.

4.11 HISTORICAL IMPACTS

It was established in Chapters 1 and 2 of this EIS that a major portion of the **Systems Approach Alternative** follows existing interstates and highways built or proposed to be built to interstate standards. They are separate projects and not dependent upon the approval of I-69. The environmental impacts of these projects have been previously documented and are on file at TDOT and MDOT offices. While the **Systems Approach Alternative** is proposed to be routed over these projects, it will not require additional traffic lanes or new right-of-way. The current historical survey efforts focused on a 1000-foot wide study area for each new location Alternative Alignment (A-1, A-3, B-1, B-2 and B-3).

4.11.1 Survey Methodology

Pursuant to regulations set forth in the 36 CFR 800 guidelines, a qualified architectural historian surveyed the Area of Potential Effects (APE) of the proposed project during April and May 2002. The purpose of this survey was to identify any resources included in, or potentially eligible for inclusion in the National Register of Historic Places per eligibility requirements as set forth in 36 CFR 60.4. Pedestrian and vehicular survey of the proposed project's APE was undertaken to identify all architectural resources 50 years old or older and any structures less than 50 years of age of exceptional significance. For this survey, the APE was defined as the area in which the new location sections of the proposed project alternates could physically or visually affect any historical architectural resources; this included the land within the 1,000 foot-wide study corridors and all properties adjacent to and/or visible from the study corridors. The visual portion of the APE (i.e., the portion of the APE outside the footprint of the project study corridors) varied based on topography and vegetation. While there are numerous previously identified historic resources in the vicinity of the new location alternative alignments, the only resources included in this survey are the extant structures located within the proposed project's APE. In Mississippi, the field survey methodology also followed the ***Survey Inclusion Guidelines*** published by the Mississippi Department of Archives and History's Historic Preservation Division (HPD). In Tennessee, the field survey methodology also followed the TDOT *Guidelines for Historical/Architectural Surveys.*

In addition to conducting a field survey of the project, the National Register of Historical Places and survey files housed at the Mississippi Department of Archives and History (MDAH) and the Tennessee State Historic Preservation Office/Tennessee Historical Commission (TN-SHPO/THC) were consulted. Federal agencies, state agencies, local governments and other interested parties were also contacted and afforded an opportunity to comment.

4.11.2 Survey Results

The field survey focused on the new location sections as shown in Figure 1-4A and 1-4B. The number of historic resources surveyed, by section, is listed in Table 4-47.

TABLE 4-47

HISTORIC STRUCTURES WITHIN ALTERNATIVE ALIGNMENTS

Alternative Alignment	Identified Resources	NRHP* Listed or Eligible Resource
A1/A3 - Section 2	0	0
A1 – Section 1	1	0
A3 – Section 1	11	0
B1/B3 – Section 1	0	0
B2 – Section 1	1	0
B1 – Section 1	3	0
B3 – Section 1	1	1
B1/B2 – Section 1	2	0
B1/B2/B3 – Section 1	0	0

*National Register of Historic Places

4.11.3 Identified Historic Resources

One property within the project area, the Miller Plantation House, is listed in the National Register of Historic Places (Alternate Alignment B-3 – Section 1). No other National Register listed historic resources are located within the project area. The field survey did not identify any additional resources that appear to meet the criteria for eligibility for inclusion in the National Register as specified in the National Park Service's *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation.* Therefore, no additional properties within the

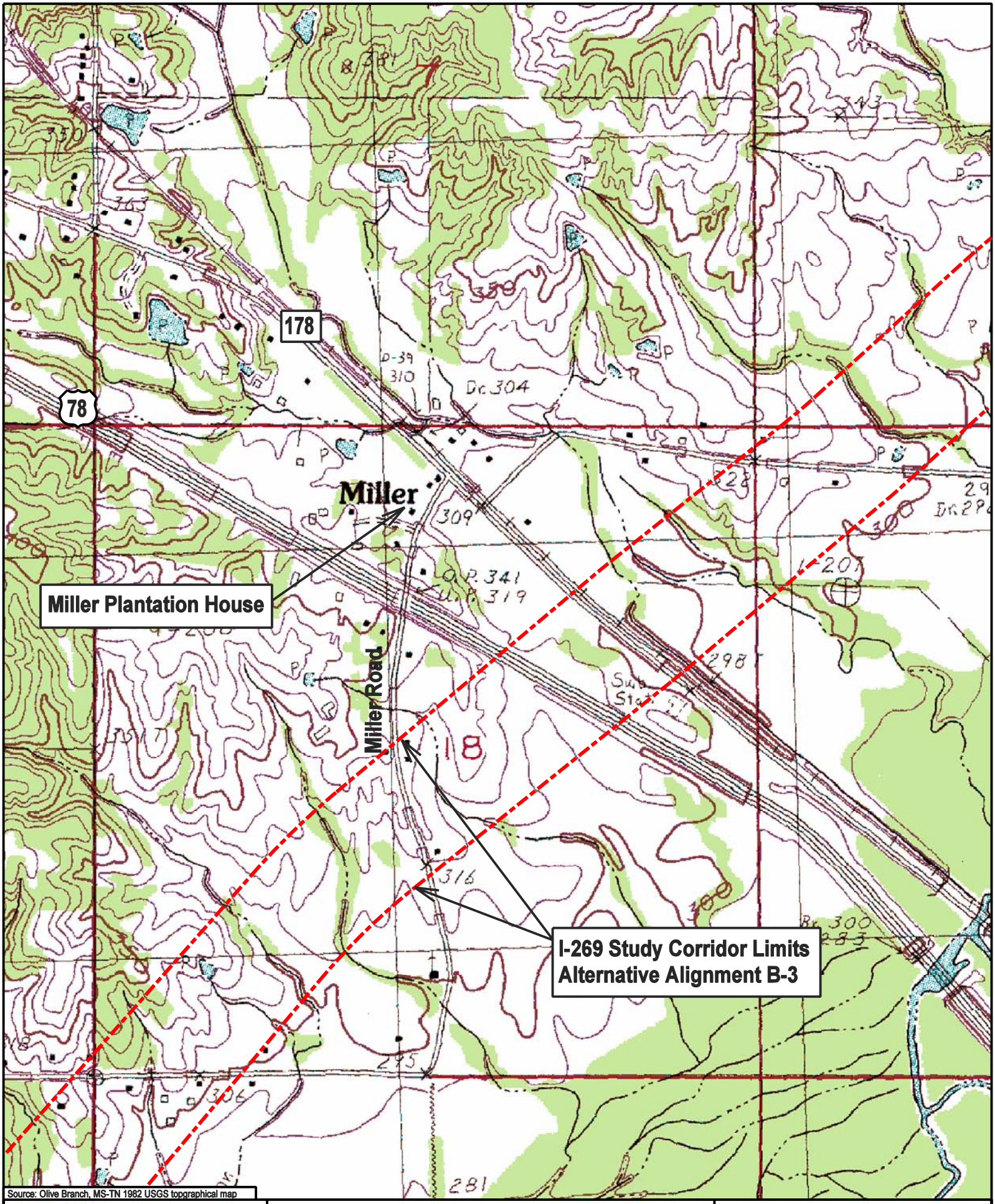
project area were recommended as being potentially eligible for listing in the National Register of Historic Places.

4.11.3.1 Miller Plantation House

The Miller Plantation House is a ca. 1849 two-and-a-half story frame, Greek Revival residential structure, and is significant on a local level as the best intact example of antebellum architecture in DeSoto County (see Figure 4-15, Historic Resources Location Map). The National Register-listed boundary for the resource is a portion of the larger 25-acre tract of land associated with the house, and comprises only a one-acre square plot centered on the Miller Plantation House. The northern edge of the study corridor for Alternate Alignment B-3 – Section 1 falls approximately 1,100 feet south of the Miller Plantation House. Both the Miller Plantation House and the entirety of its National Register-listed boundary are located over 1,000 feet north of the northern edge of the study corridor; therefore, there would be no Section 4(f) involvement with the Miller Plantation House.

4.11.4 Summary

Historic Resources Survey Reports detailing the efforts to identify historic resources within the project area and the survey results have been submitted to the THC and the MDAH for review and comment. One National Register listed property, the Miller Plantation House, has been identified within the project area, north of Alternative Alignment B-3 Section 1 in Mississippi. No additional historic resources have been recommended as eligible for listing in the National Register of Historic Places in the project impact area. The Mississippi SHPO, in a letter dated September 18, 2002, concurred that the Miller Plantation was the only historical property of significance in the project area in Mississippi. The Tennessee SHPO, in a letter dated February 5, 2004, concurred that there were no cultural resources eligible for listing on the National Register in the project area in Tennessee. The preferred **Systems Approach Alternative** (A-1/B-1) will not impact any historical properties on or eligible for the National Register of Historic Places. A copy of the Historical Survey is contained in Technical Appendix II on file at TDOT and MDOT offices.



Interstate 69 (S.I.U. #9)
From Hernando, Mississippi to Millington, Tennessee

Figure 4-15
Historic Resources Location Map

4.12 ARCHAEOLOGICAL ASSESSMENT

Pursuant to compliance with Section 106 of the National Historic Preservation Act of 1966 and implementing regulations 36CFR800, an archaeological reconnaissance survey was conducted by a qualified archaeologist on all of the proposed Systems Approach Alternative corridors (A1, A3, B1, B2, and B3) in 2002. A 1,000 foot wide corridor was studied along each new location alignment. The survey resulted in the location of 64 sites. (*Archaeological Reconnaissance Survey of the Proposed Interstate 69 (SIU9) from Hernando, MS to Millington, TN,* January 2003 report on file in TDOT and MDOT offices). A copy of the report was sent to the twelve recognized Native American Tribes in February 2004 for review and comment. A list of the Native American Tribes receiving the report is contained in Appendix D. No comments on the report were received.

Once the preferred alternative alignments were selected (A1/B1) and the proposed 300 foot right-of-way was identified, an intensive Phase I archaeological survey of the Area of Potential Effect (APE) was undertaken by a qualified archaeologist. The APE for the survey was defined as the proposed 300 foot wide right-of-way plus adjacent land that could be subject to collateral impact from staging and construction activity. The portion of the APE immediately outside the footprint of the study corridor varied based on topography and vegetation. The purpose of the survey was to identify and assess archaeological sites within the APE that are listed, determined eligible or are potentially eligible for the National Register of Historic Places pursuant to criteria set forth in 36CFR600.4.

4.12.1 Proposed I-69 Route (A-1)

The Phase I survey of the Alternative Alignment A-1 conducted in March 2005 documented thirty-three archaeological sites. The thirty-three sites consisted of open habitation, rural domestic, and historic industrial complex site types that contain evidence of human occupation that spans the prehistoric period from the Early Archaic period. The majority of these sites have been largely destroyed through erosional processes exacerbated through agricultural practices. Three sites appeared to have suffered less from such processes and had the potential to contain intact cultural features. Due to the proposed I-69 construction's potential to affect these sites, Phase II investigations were recommended. The purpose of the Phase II testing was to assess the

National Register eligibility of the archaeological resources at these three sites; to determine whether intact deposits were present within the proposed construction easements at any of the sites and make recommendations based on an evaluation of the observed cultural resources.

Phase II investigations were conducted across the proposed Alternative Alignment A-1 on the three identified sites. The Phase II investigations concluded that no archaeological historic properties will be affected within the APE. The sites or portions thereof within the APE, are not considered eligible for inclusion in the National Register of Historic Places pursuant to 36CFR60.4. No human remains were observed on the sites and no further investigations are recommended in the APE across these three sites. A copy of the Phase II report was sent to the recognized Native American Tribes for review. A list of the Native American Tribes receiving a copy of the Phase II report is contained in Appendix D, "Cultural Resources".

In the unlikely event that human remains or undocumented archaeological deposits are encountered during the construction phase, the 36CFR800.13 process for "Post-review discoveries" will be followed.

4.12.2 Proposed I-269 Route (B-1)

The field survey efforts, along with a records search at the Mississippi Department of Archives and History (MDAH), identified six sites in the B-1 APE that contained prehistoric cultural materials.

The Phase I survey was conducted from December 2004 through May 2005. No human remains were encountered. No National Register eligible or listed resources were identified within the study corridor and it is the opinion of the archaeologist that no cultural resources assessed within the APE are eligible for the National Register of Historic Places. A copy of the report was sent to the recognized Native American tribes for review and comment. A list of the Native American Tribes receiving the Phase I Survey is contained in Appendix D, "Cultural Resources".

The Phase I survey reports were sent to the State Historic Preservation Officers (SHPO) in Tennessee and Mississippi for review and concurrence. A copy of the Phase II study was sent to

the TN-SHPO. The Mississippi SHPO responded on September 29, 2005, "We do not see any necessity for further testing. We have no reservations with the project". The Tennessee SHPO concurred with the results of the Phase I survey and Phase II testing reports. The concurrence letters are contained in Appendix D: Cultural Resource Correspondence.

Based on the results of the archaeological assessments and the concurrence of the SHPO's in Mississippi and Tennessee the proposed project is in compliance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), 16 USC 470; 80 Stat. 915 and 36CFR60 and 36CFR800. All of the archaeological reports for this project are on file in TDOT and MDOT offices.

4.13 SECTION 4(f) IMPACTS

The preferred **Systems Approach Alternative** (A-1/B-1) does not require the use of publicly owned land from a park, recreation area, wildlife refuge, waterfowl refuge, or any land from a historic site of national, state, or local significance or any other lands protected by Section 4(f) of the U.S. Transportation Act of 1966. There are no Section 4(f) impacts.

4.14 HAZARDOUS MATERIAL IMPACTS

A broad hazardous materials study was conducted for this project. All alternative alignments on new alignment were examined for the presence of hazardous materials. The results of the study were based on visual inspection and documentation of state and federal agencies. Agencies whose records were reviewed included the U.S. EPA, the Tennessee Department of Environment and Conservation, and the Mississippi Department of Environmental Quality.

All hazardous waste sites mentioned in this section can be located using the Constraints Maps, Attachment 1.

The National Priorities List (NPL) is a federal list of sites subject to cleanup directed by the EPA. These sites are part of the national Superfund program. The NPL revealed four sites in Shelby County. None of these sites are near the preferred **Systems Approach Alternative** (A-

1/B-1) new location routes. There were no NPL-Superfund sites listed in DeSoto or Marshall Counties in Mississippi.

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Information System (CERCLIS) is also part of the national Superfund program. Inclusion in CERCLIS is the first step in the ranking of potentially hazardous sites to determine whether they meet the criteria for inclusion on the NPL. The only active CERCLIS site in the project area is the Bellevue Avenue Landfill, located along I-240 through Memphis on existing alignment. It is just south of the Wolf River at I-40/240 in Memphis. The EPA does not have a schedule by which to complete their investigation and provide a decision. As of January 2006, according to the U.S. EPA website, it had not been listed on the NPL. TDOT has committed to do an assessment of risk at this site prior to any excavation or construction activities. This segment of roadway has an approved Final Environmental Impact Statement (3/16/98).

Superfund also has an archive designation. This archive status means that assessment at a site has been completed and the EPA has determined no steps will be taken to designate this site as a priority by listing it on the NPL. No further remedial action is planned for these sites under the Superfund program. There are several of these sites identified in Tennessee along Alternative Alignments A1 and A3. The International Harvester Landfill site is located at the end of Klinke Road behind the old Harvester facility on what is now the police impound lot. It falls within the Alternative Alignment A1/A3-Section 2 study corridor. The Chickasaw Ordnance Works is located west of Alternative Alignment A1-Section 1 on Shake Rag Road in Millington. It is not within the proposed study corridor, however, it is close enough to monitor. The Old Millington Landfill is also located on Shake Rag Road, within the Alternative A1-Section 1 study corridor. The Benjestown Road Landfills (Sites A-E) are scattered along the Loosahatchie River and Old Cuba-Benjestown Road. None of these sites are within the proposed project corridor, but should be monitored due to their close proximity to the project area. The Old Frayser Dump is located west of Benjestown Road in a sharp bend of the Loosahatchie River. It is within the Alternative Alignment A3-Section 1 study corridor. There were no archived Superfund sites found in the Mississippi region of the project on new alignment.

The Resource Conservation and Recovery Act (RCRA) Information System (RCRIS) is a national program management and inventory system about hazardous waste handlers. It indicated that there are four sites adjacent to the proposed I-69 new location alignments in Tennessee's. (1) Millington Collision Center is located on Highway 51 North in Millington, just north of Alternative Alignment A3-Section 1. (2) Amoco Oil is located on Thomas Street in Memphis, just north of Alternative Alignment A1/A3-Section 2. (3) Keith Wilson Aircraft Inc. is on North 2nd Street in Memphis, just south of Alternative Alignment A1/A3-Section 2. (4) Quality Auto Body and Paint is on Highway 51 North in Memphis, slightly east of Alternative Alignment A3-Section 1. There are two sites that are adjacent to the I-269 route in Mississippi. (1) Artisan Frame and Moulding is located on Highway 309 North in Byhalia, just east of Alternative B1/B2-Section 1. (2) Shell Oil Company is located on Wingo Road in Byhalia, just west of Alternative B1/B2/B3-Section 1. Because these RCRA facilities are not located inside the corridor, potential contamination from them is low.

There were eight underground storage tanks (USTs) found along the proposed I-69 new location alternative alignments. Of these tanks only one is located in close proximity. This UST is located at the Kountry Korner in Millington on Woodstock Cuba Road along Alternative Alignment A3-Section 1. The other seven of the USTs were outside the limits of the new location alternatives. (1) The Millington Wastewater Facility is located on Epperson Mill Road, slightly east of Alternative A3-Section 1 and Alternative A1-Section 1. (2 and 3) Jimmy T. Wood, Inc. and Fullen Dock and Warehouse are both located on Klinke Road in Memphis. They are just east of Alterative A1/A3-Section 2. (4 and 5) The General Dewitt Spain Airport is located on North 2nd Street in Memphis. There are two USTs in the airport vicinity. They are just south of Alternative A1/A3-Section 2. (6) Tiger Mart Exxon is located on North Thomas Street in Memphis, just east of Alternative A3-Section 1. (7) Amoco Oil is also on Thomas Street in Memphis. It is slightly north of Alternative A1/A3-Section 2. The I-269 route contains just one UST, it is just south of Alternative B2-Section 1 on Green T Road at Southern Aggregates in Hernando. The preferred **Systems Approach Alternative** (A-1/B-1) will not impact any underground storage tanks.

In addition to the landfills previously mentioned, there are four additional landfills along the I-69 new location alignments. Landfills are divided into four categories. Class I landfills hold municipal solid waste and household waste. Class II landfills contain industrial waste. Class III landfills are for farming, landscaping and land clearing wastes. Class IV landfills hold construction and demolition wastes. Landfills are either open/active, which means it is accepting waste, or closed/inactive, which means it has stopped receiving waste. Landfills in close proximity of the proposed alternative alignments include: (1) The Jimmy T. Wood Demolition Landfill is located between Klinke Road and the Loosahatchie River. It is a Class III/IV landfill that is an open, active site. (2) Fullen Dock and Warehouse Monofill, a closed/inactive Class II landfill, is also located between Klinke Road and the Loosahatchie River in Memphis near Alternative A1/A3-Section 2. (3) The BFI North Shelby Landfill is situated between Old Millington Road and Big Creek. Alternative Alignment A3-Section 1 will encroach on this Class I landfill. It is an open/active landfill. (4) The Leonard Biggs Demolition Landfill is a closed/inactive Class III/IV landfill that is adjacent to Alternative Alignment A3-Section 1. It is east of Highway 51 North, about a mile south of the Loosahatchie River. (5) The James Howell Demolition Landfill is located in the northwest corner of the US 51/SR 300 Interchange. (6) The Jimmy T. Wood Benjestown Road Landfill is a permitted site located on Benjestown Road between the dead end of Carrolton Road and the Loosahatchie River, which is within the Alternative A3-Section 1 alignment. There were no landfills found along the proposed I-269 route. The preferred **Systems Approach Alternative** (A-1/B-1) will not impact any active landfill sites.

In the event that other hazardous waste sites are discovered during the project development process or if contamination is discovered during construction activities, the appropriate permits will be secured and cleanup activities will take place.

4.15 VISUAL IMPACTS

Visual impacts can be defined as changes to the visual landscape. Visual impacts can be categorized as minimal, moderate or high. Minimal impact generally occurs when existing transportation facilities are already part of the viewshed, the view has few or no visually sensitive resources and the proposed project would introduce few, if any, noticeable changes to

the viewshed. Moderate visual impact occurs when changes to the existing viewshed would be noticeable, but not substantial and/or there are visually sensitive resources that would undergo a noticeable change in view. High visual impact occurs when substantial changes are made to the existing viewshed that would result in a greatly changed view and/or there are visually sensitive resources that would undergo a substantial change in view.

This project passes through land that has been modified by man; from the pastoral patchwork of farm fields, hedgerows, woodlots and rural residences or the more visually diverse areas of modern residential and commercial development. Neither the I-69 route nor the I-269 route passes through pristine natural areas or areas of outstanding visual character, whether natural or man-made. Most visual impacts would be minimal. In areas where I-269 crosses the Coldwater River, visual impacts may be considered moderate. Secondary visual impacts are possible if the areas around the proposed interchanges are allowed to develop as residential, commercial or industrial areas.

4.15.1 I-69 Route (Systems Approach Alternative)

The I-69 route follows existing I-55, I-240, and I-40/240 to State Route 300. These existing access-controlled facilities range from a four-lane divided highway with a grass median to an eight-lane section divided with a Jersey barrier. Few changes other than re-signing the existing interstates would be required; therefore, no visual impact is anticipated for the **Systems Approach Alternative** on existing alignment. At this time, other improvement projects, which may cause visual impacts, are being planned or are currently under construction.

A majority of Alternative Alignments A-1 and A-3 traverse floodplains and wetlands, residential areas and industrial areas. The proposed project would have a moderate impact in these areas due to the introduction of wide areas of pavement and sections of elevated roadway into the viewshed. The elevated roadway and bridges, such as in the area of the Loosahatchie River, would interrupt the long distance views. Although the road would result in a moderate change in the view, relatively few people would have views of the road since the majority of the area is sparsely populated.

Alternative Alignment A-3 passes to the east of Firestone Park and extends along US 51, between the highway and the park. The majority of the park is separated from the existing road and the proposed road by farmland. Firestone Park contains soccer fields, softball fields and a football field. The predominant visual focus of the park appears to be in the park rather than out of the park. Due to the proximity to the existing US 51, Alternative Alignment A-3 will not have an adverse impact on Firestone Park. Alternative Alignment A-1 passes to the west of Firestone Park. The Loosahatchie River and wooded wetland areas separate the proposed road and the park, so Alternative Alignment A-1 will not have an adverse impact on Firestone Park. The preferred **Systems Approach Alternative** (A-1/B-1) will not have an adverse visual impact on Firestone Park.

Several subdivisions in the Frayser area just north of State Route 300 will have visual impacts. The Harvester Hills area (Marigold Street, Benham Avenue, etc.) is adjacent to the common alignment of Alternatives A-1 and A-3. This subdivision will incur minimal visual impact since forested lands visually screen the subdivision from the proposed roadway. Landfills and industrial areas sit between this subdivision and the proposed alignment; therefore, the impact is further minimized. The subdivision to the north of Westside Park (Creston Avenue, Carrolton Avenue, etc.) will incur a minimal visual impact. Looking northwest from this subdivision is the Loosahatchie River and wooded wetland areas. Some vegetative screening, currently in place, will block the view of Alternative Alignment A-3. In areas where there is no screening, the proposed roadway will have a moderate visual impact. A mobile home park is located southwest of the proposed interchange of Alternative Alignment A-3 and State Route 388. This mobile home park will incur a high visual impact, but existing trees and vegetation will screen it from view. Proposed noise barriers will also provide visual screening.

Sherry Hopper Goodman Park and the adjacent subdivision along State Route 388 will incur moderate visual impacts as a result of Alternative Alignment A-1. State Route 388 currently is within the predominantly rural viewshed. Introduction of an interchange and new interstate will have a moderate visual impact. No mitigation is proposed at this time, but could be considered further during the design phase when more detailed plans are available.

4.15.2 I-269 Route (Systems Approach Alternative)

Like the I-69 route, a portion of the I-269 route is located on existing alignment. The existing alignment is a four-lane access-controlled facility divided by a grass median. Few changes other than re-signing the existing roadway would be required; therefore, no visual impact is anticipated along I-269 on existing alignment. Right-of-way is currently being purchased along the previously approved section of State Route 385 from I-40 to Nonconnah Parkway. Some segments are under construction. SR 385 will also be a four-lane access-controlled facility divided by a grass median. The visual impact of the construction of this facility through rural areas has been addressed in the previously approved Final EIS.

Alternative Alignments B-1, B-2 and B-3 traverse residential areas, floodplains, wetlands and industrial areas. The proposed project would have an adverse impact in these areas due to the introduction of wide areas of pavement and sections of elevated roadway into the viewshed. The elevated roadway and bridges, such as in the area of the Coldwater River, would interrupt the long distance views.

Several subdivisions such as Hernando Hills, Forest Hill and Estates of Centerhill are located adjacent to the proposed alternative alignments. The proposed project would have an adverse impact to these subdivisions.

4.16 ENERGY IMPACTS

Construction of the Build Alternative will involve the commitment of energy resources both during the short-term construction period and throughout the long-term operation of the facility. The energy requirements of the various construction alternative alignments are basically similar and are greater than the energy requirements of the No-Build Alternative.

The energy used by the Build Alternative can be characterized as follows:

Construction: Energy would be used for the manufacturing and transport of the construction components and by the heavy equipment utilized for roadway and bridge construction.

Maintenance: The project under the Build Alternative would require routine maintenance that could result in energy use for the maintenance activities. Traffic delays could accompany the maintenance activities and could result in temporary increases in energy use.

Motor Vehicle Use: Improved traffic flow and reduced travel time could result in a decrease from existing energy use.

In summary, the amount of energy required to construct a highway project of this type is substantial, but temporary in nature, and generally leads to reduced operating costs once the project is completed. A reduction in costs and energy use could come from improved access, reduced travel time and increased safety.

4.17 CONSTRUCTION IMPACTS

A major construction project, public or private, will likely inconvenience or disturb residents, businesses and business customers. In the case of improvements to an existing highway, inconvenience to highway users also occurs. The maintenance of traffic and access to properties adjoining the road and utility relocations are particular construction-related impact issues that must be addressed with this project.

Without proper planning and implementation of controls, traffic disruption, loss of access and utility relocation could adversely affect the comfort and daily life of residents and inconvenience or disrupt the flow of customers, employees and materials/supplies to and from businesses. Construction impact controls would be integrated into the project's contract specifications and traffic control plans. The **Systems Approach Alternative** will have physical construction-related impacts, but with implementation of appropriate controls, no cumulative or secondary impacts are foreseeable. The following construction issues are addressed below:

- Maintenance of traffic and access
- Employment benefits
- Waste disposal
- Utility relocation
- Discovery of unknown archaeological sites
- Erosion control

- Air quality
- Noise

Maintenance of Traffic and Access: Traffic will be maintained on existing roadways during construction or detours will be developed. Access to all properties will be maintained during construction.

Employment: The construction activities may result in short-term economic benefits to the local area that would include increased revenue to local businesses through the sale of construction supplies and material and retail/service purchases by construction personnel. Construction jobs also could be available for persons residing in the area. These short-term revenues and jobs are not expected to be significant locally or regionally.

Construction could result in adverse economic impacts to local businesses or to through truckers as a result of construction slow-downs, but the impacts would be minimal and short-term.

Waste Disposal: Solid waste could be generated by project construction (e.g., through removal of structures that cannot be relocated). The quantity of disposed waste would represent a negligible proportion of the total load directed toward local landfills.

Any toxic and hazardous materials would be handled and used in accordance with package labels and manufacturers directions. Wastes would be segregated, labeled and stored in a manner that would prevent their release into the environment from an accident or spill. The contractor would dispose of these materials and their containers in accordance with applicable state and federal regulations.

Disposal of excess material would be the responsibility of the contractor, who would be contractually required to handle and dispose of the material in accordance with the TDOT *Standard Specifications for Road and Bridge Construction.* These specifications require that the contractor comply with open burning regulations and be supervised by competent watchmen;

that material is disposed of in accordance with all applicable laws and ordinances; and that material disposed of on private property have a signed agreement with each property owner.

Utility Relocation: The relocation of utilities would be included in final design plans. As appropriate, either TDOT or MDOT will coordinate with the appropriate officials to avoid or minimize damage or disruption of service.

Discovery of Unknown Archaeological Sites: If archaeological materials are uncovered during construction, all construction work in the area of the find will cease. Either the Tennessee Division of Archaeology or the Mississippi State Historic Preservation Office and the recognized Native American Tribes previously coordinated with will be immediately contacted so a representative of their office may have the opportunity to examine and evaluate the materials.

Should earth fill be required for this project, the applicable TDOT and MDOT borrow provisions will be followed.

Erosion Control: The Build Alternative would disturb land that has a tendency to erode when disturbed. The contractor will be required to employ best management practices (BMP's) to minimize the impacts of point and non-point source pollution resulting from increased siltation and highway runoff. A sediment control plan will be formulated in accordance with the TDOT ***Standard Specifications for Road and Bridge Construction*** and will include the following measures:

- Temporary erosion control devices, such as silt fences, straw bales, burlap, jute matting, grading, seeding and sodding will be used to minimize erosion and sedimentation.
- Removal of vegetation will be minimized.
- Fill slopes should be constructed and stabilized during the growing season through the establishment of non-invasive vegetation.
- The planting of native woody and herbaceous vegetation should be encouraged.

Air Quality: Even though the NAAQS are not exceeded in the design year, all phases of construction operations could temporarily contribute to air pollution. Particulates would increase

slightly in the Corridor as dust from construction activities collects in the air surrounding the project. The construction equipment would temporarily produce slight amounts of exhaust emissions. The emission of air pollutants would be reduced by the use of properly maintained equipment and the use of tarp covers on trucks transporting refuse and construction waste products.

Any burning of wastes and control of dust would be the responsibility of the construction contractor. The contractor must meet the burning and dust control requirements of TDOT and MDOT *Standard Specifications for Road and Bridge Construction* and is required to comply with applicable state and local laws, ordinances and regulations regarding these emissions.

Construction Noise Abatement: Temporary noise impacts would occur within the immediate vicinity of the construction activities. The exact noise levels cannot be predicted because the specific types of construction equipment, methods and schedule are unknown at this time.

The construction contractor would be required to provide such equipment (sound deadening devices, shields, physical barriers) and take such noise abatement measures that may be necessary to restrict the transmission of noise sensitive sites such as homes and churches in the immediate vicinity of the project. These measures may include but are not necessarily limited to the following:

- Provide soundproofing housing or enclosures for stationary noise-producing machinery such as drills and augers, cranes, derricks, compactors and pile drivers.
- Provide efficient intake and exhaust mufflers on internal combustion machines.
- Perform proper maintenance on all noise producing equipment to prevent excessive rattling and vibration of metal surfaces.
- Restrict construction operations in the vicinity of noise sensitive locations to the periods of the day when excessive noise would be least harmful.

The following noise abatement measures will be incorporated into the contract plans and specifications in order to prevent adverse construction noise impact in the vicinity of the proposed project:

- The contractor shall comply with all state and local sound control and noise level rules, regulations and ordinances that apply to any work performed pursuant to the contract.
- Each internal combustion engine used for any purpose on work related to the project shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without such muffler.

4.18 INDIRECT AND CUMULATIVE IMPACTS

Throughout the development of the proposed project and in the preparation of the FEIS, an effort has been made to identify and estimate the indirect and cumulative impacts attributable to the project. Some of the guidance material consulted in evaluating the indirect and cumulative effects include: NCHRP Report 403, "Guidance for Estimating the Indirect Effects of Proposed Transportation Projects"; CEQ guidance material "Considering Cumulative Effects Under the National Environmental Policy Act"; the Memphis Long-Range Transportation Plan; and the available local land use plans for the surrounding communities.

During the scoping process with State and Federal resource and permitting agencies, the geographical impact area (southwest Tennessee and northwest Mississippi) was identified and a 7500 foot wide study corridor was established. During the course of the study the corridor was refined to a 1000 foot wide corridor avoiding as many environmentally sensitive areas as possible (homes, businesses, cemeteries, wetlands, historical properties, and longitudinal stream impacts). The alternative alignments were further refined to a 300 foot wide right-of-way to accommodate the proposed interstate facility.

Several sensitive areas were identified at the scoping meetings and early public involvement meetings (i.e. wetlands, archaeological resources, historical property, a soil conservation project area, and new residential areas). The indirect and cumulative impacts to these sensitive areas were considered during the establishment of the alternative alignments to minimize or avoid impacts. The reasonably foreseeable and cumulative impacts of the proposed project are identified throughout the FEIS and Technical Appendices.

According to the Council of Environmental Quality NEPA regulations:

> "Cumulative impact is 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 individually minor, but collectively significant actions taking place over a period of time." (40 CFR 1508.7)
>
> "Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." (40 CFR 1508.8)

This section discusses indirect and cumulative impacts. It evaluates cumulative effects associated with the proposed project for environmental impacts evaluated in this document. The study area analyzed in this evaluation is Shelby County in southwest Tennessee and DeSoto and Marshall Counties in northwest Mississippi. This area was selected for analysis because it is the area that would most likely be influenced by the construction of this project.

Memphis is the center of a 21 county growth area which includes eastern Arkansas, northwest Mississippi, and west Tennessee. Memphis is the largest city in Tennessee and Shelby County has the largest population. It is one of the top ten distribution centers in America and has spent the last decade building infrastructure to support its economic base. Memphis has attracted many new jobs and the employment centers are hiring to keep pace with the distribution industry. The new growth has resulted in new warehousing along US 78 and the development of new industrial parks and the expansion of existing industrial parks in both Tennessee and northern Mississippi. Many new subdivisions are being constructed around the area to accommodate the ever growing population, all of which is having a cumulative effect on land use, aquatic and terrestrial resources, wetlands, air and noise pollution and conversion of farmland.

As with all infrastructure projects, there are several factors that influence why and when transportation improvement projects are needed. While roadway improvements enhance access to adjacent properties (particularly for a new roadway alignment), the need for implementing transportation improvements is based on the development allowed under approved county and local land use plans.

The Memphis Metropolitan Planning Organization (MPO) is responsible for developing the Long-Range Transportation Plan within the project area. The primary purpose of the Long-Range Transportation Plan is to guide the development of transportation systems to serve the travel demands of existing and projected future growth. One of the guiding principles in developing the Long-Range Plan is the Future Land Use Plan. This plan identifies the development potential of an area and is also used to identify the transportation facilities and improvements needed to support future growth and development in a region.

The Future Land Use Plan, developed by the local planning agency, indicates the kind and intensity of activity approved for the various land uses. Transportation improvement needs are identified in response to the development allowed in the Local Government Comprehensive Plans, of which the Long Range Transportation Plan and Future Land Use Plans are elements.

The consistency of the proposed project with the Long-Range Transportation Plan and local development plans is further discussed in Chapter 1, “Purpose and Need for Proposed Action”. The land use and population growth trends are included in Chapter 3, “Affected Environment” and the anticipated job growth is found in this chapter under the heading “Economics Impacts”. The land use changes are going to occur with or without the proposed project. However, undeveloped land near the interchange areas will result in development at a faster rate than without the proposed project.

A positive cumulative effect in transportation service to the surrounding area is that the proposed project will connect existing and proposed interstates and existing and proposed major highways identified in the Memphis Long Range Transportation Plan and the Mississippi Vision 21 Plan into a connected roadway system that will meet the projected goals of the surrounding area and

provide additional regional transportation access to the smaller cities and municipalities around Memphis. It will also aid in the orderly development of the area to achieve a balance between population and resources that will permit high standards of living and a wide sharing of life's amenities.

The Tennessee Advisory Commission on Intergovernmental Relations issued a report indicating that Tennessee needs at least $20 billion in public infrastructure projects to be in some stage of development during the five year period 2001-2006. The needs are based on information provided by state and local officials with assistance of the state's nine development districts. Transportation and utilities are the single largest category of infrastructure need. The greatest needs are in the larger counties which includes Shelby County. Transportation alone represents 35 percent of the grand total. The cumulative effect of these public infrastructure projects will result in land use changes, primarily to farmland.

The Lower Mississippi Delta Development Commission established by Congress has also issued a report "The Delta Initiative" which outlines recommendations needed to improve the region economy and addresses issues such as high unemployment, welfare dependency, poor health care and the serious shortcomings in transportation infrastructure.

The cumulative impacts resulting from the implementation of the infrastructure needs, including construction of the proposed project, is more conversion of farmland, more stream crossings, more pressure on water resources, more impacts on wetlands, more air and noise impact, more roads, subdivisions and more impact on the surrounding watersheds. The impacts attributed to this segment of I-69 are identified in this document.

4.18.1 Cumulative Effect of Area Growth Influences on Population, Employment, and Land Use

Future population and employment are largely functions of land availability, current transportation accessibility, land use and zoning, prevailing settlement patterns, and anticipated plans for non-transportation infrastructure.

4.18.1.1 Population and Employment Overview

Over the course of the last 20 years, the population of the Memphis Study area has grown from 947,000 to 1,157,000 persons, a 22 percent increase. In the same twenty-year period, employment has increased from 498,000 to 753,000 in the region, a 51 percent increase. Shelby County remains the most populous area but adjacent counties in both Mississippi and Tennessee have shown extraordinary growth.

TABLE 4-48

HISTORICAL POPULATION AND EMPLOYMENT IN THE SEVEN COUNTY STUDY AREA

County	Population					Employment				
	1980	Percent Of Total	2000	Percent Of Total	1980-2000 Percent Growth	1980	Percent Of Total	2000	Percent Of Total	1980-2000 Percent Growth
Shelby	775,888	81.9	898,356	77.7	15.80	443,240	89.0	637,190	84.6	43.80
Fayette	25,283	2.7	28,780	2.5	13.80	7,216	1.4	10,048	1.3	39.20
Tipton	33,002	3.5	51,557	4.5	56.20	10,038	2.0	17,084	2.3	70.20
DeSoto	54,013	5.7	108,156	9.4	100.20	16,559	3.3	46,177	6.1	178.90
Marshall	29,332	3.1	35,030	3.0	19.40	8,229	1.7	11,389	1.5	38.40
Tunica	9,583	1.0	9,227	0.8	-3.70	3,588	0.7	19,879	2.6	454.00
Tate	20,157	2.1	25,408	2.2	26.10	9,364	1.	11,176	1.5	19.40
Total	947,258	100	1,156,514	100	22.10	498,234	100%	752,943	100	51.10

Source: RERC; Woods and Poole; MPO

For the past twenty years, Shelby County has remained the region's population leader with the four counties that comprise the corridor impact area representing above 90 percent of the total regional population. As the region has expanded, the rate of growth in Shelby County has slowed, surpassed by suburban counties in Mississippi. The population in DeSoto County more than doubled to 108,000 persons in 2000. Nearly 7,000 residential building permits have been applied for between 1994 and 2000. The cumulative effect of this growth is the conversion of farmland to residential development, loss of wildlife habitat and impacts to area streams and wetlands.

Although its population growth has somewhat slowed, Shelby County still remains the multi-county region's economic hub and will remain so in the future even though growth rates will slow. In 2000, almost 85 percent of the region was employed in this county and employment

expanded by more than 43 percent to the 2000 estimated total employment of about 637,000. Fayette, Marshall, and DeSoto Counties approximately equaled or exceeded the Shelby County rate of growth, indicating the power of spreading suburbanization. This growth has had and will continue to have an impact on the natural environment.

Of particular interest is DeSoto County's growth in the last twenty years. It is very clear from the data, fieldwork, and interviews with local planning agencies, that DeSoto County has successfully positioned itself to absorb the spillover growth from Memphis and Shelby County. The municipalities within DeSoto County have assembled the appropriate urban infrastructure to attract growth and have taken advantage of their proximity to Memphis, the major employment center in the area.

Since 1970, agricultural influences have declined and the region has become one of the nation's most significant transportation and distribution hubs, primarily through the continuing investments and expansions of FedEx and UPS.

The region's historical dependence on the Mississippi River as a means of conveyance has largely yielded to the growing utilization of the Memphis International Airport which now ranks as the largest freight center in the world.

In the next two decades the population in Shelby County should grow to more than 1,000,000. By 2020, all of the counties within the larger study area will grow at a percentage rate exceeding that of Shelby County's. The most substantial growth will be experienced in DeSoto County. The population in DeSoto will reach almost 190,000 persons by 2020. Due to the increase in population in the outlying counties, the rate of employment increase in Shelby County will slow, reaching about 815,000 persons in 2020, a change of about 28 percent. Even at this reduced rate, Shelby County will still account for about 83 percent of total employment in 2020. Employment in Marshall and DeSoto counties will grow at 31 percent and 66 percent respectively to a total employment of about 91,000. Together they will increase their share of employment to about 10 percent of the region's employment. In the year 2000, these two counties comprised less than 8 percent of the workers in the region.

At least in the next several decades, it is likely that the area's growth will remain tied to its importance as a transportation and distribution hub. In that regard, transportation associated employment is expected to grow to 120,000 workers by 2020 and represent 13 percent of total employment in the impact corridor.

TABLE 4-49

PROJECTED POPULATION AND EMPLOYMENT IN THE SEVEN COUNTY STUDY AREA

County	Population					Employment				
	1980	Percent Of Total	2000	Percent Of Total	1980-2000 Percent Growth	1980	Percent Of Total	2000	Percent Of Total	1980-2000 Percent Growth
Shelby	898,356	77.7	1,053,482	73.4	17.3	637,190	84.6	815,311	83.0	28.0
Fayette	28,780	2.5	35,309	2.5	22.7	10,048	1.3	12,568	1.3	25.1
Tipton	51,557	4.5	70,461	4.9	36.7	17,084	2.3	23,014	2.3	34.7
DeSoto	108,156	9.4	186,578	13.0	72.5	46,177	6.1	76,936	7.8	66.6
Marshall	35,030	3.0	46,136	3.2	31.7	11,389	1.5	14,964	1.5	31.4
Tunica	9,227	0.8	12,173	0.8	31.9	19,879	2.6	26,265	2.7	32.1
Tate	25,408	2.2	31,301	2.2	23.2	11,176	1.5	13,062	1.3	16.9
Total	1,156,514	100	1,435,440	100	24.1	752,943	100	982,120	100	30.4

Source: RERC; Woods and Poole; MPO

The cumulative effect of this growth will be the conversion of more open land and farmland to residential, commercial and industrial uses. This growth will also impact the aquatic and terrestrial resources in the region. Over 50 percent of the land along the proposed new location alignment (A-1, B-1) is classified open land and agricultural land. At present land zoned for agriculture especially in Mississippi, is being subdivided into acreage parcels for families desiring a country lifestyle. Several large subdivisions (1600+ lots) are currently under development along the proposed project right-of-way. The proposed project will result in the conversion of approximately 128 acres of farmland in Tennessee and the conversion of approximately 435 acres of farmland in Mississippi to highway right-of-way.

The following figures (Figure 4-16 through 4-19) reflect the evident changes in land consumption at a regional level over a period of 40 years. While growth has occurred to the north of Memphis in Shelby County, the predominant pattern shows material growth east, southeast and south. It is apparent development has moved in a radial fashion from the core of

Memphis, taking advantage of I-55, I-40 and State Route 385. Some of the past migration and settlement patterns are the product of socioeconomic preferences that have resulted in concentrations of wealth outside of the core city.

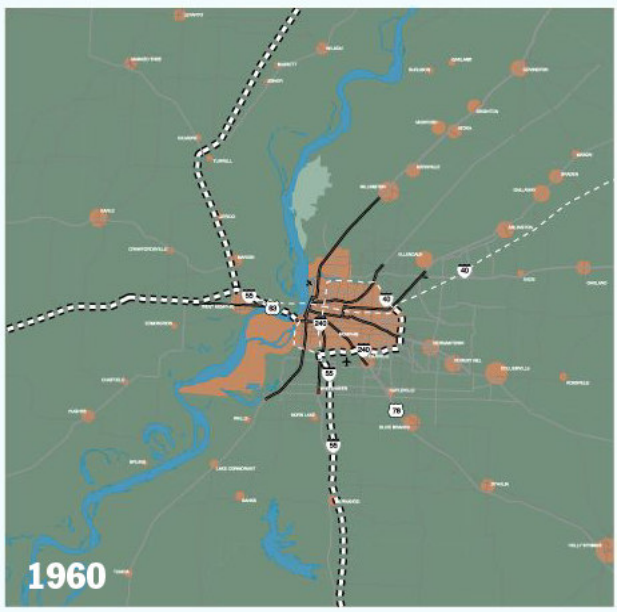


Figure 4-16
1960 Land Consumption

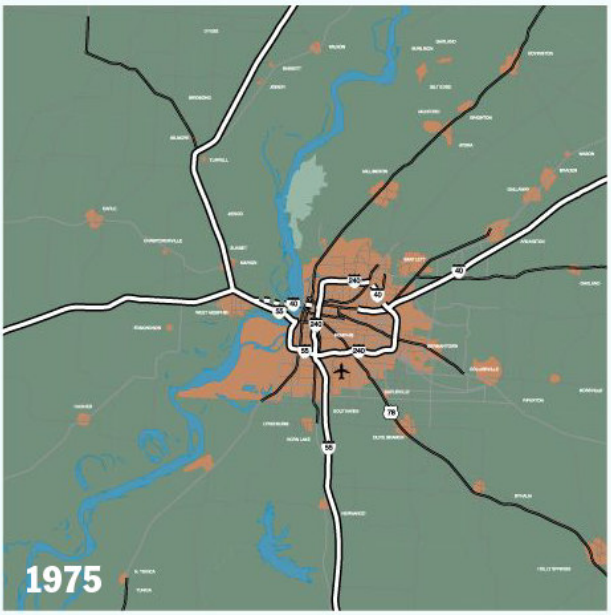


Figure 4-17
1975 Land Consumption

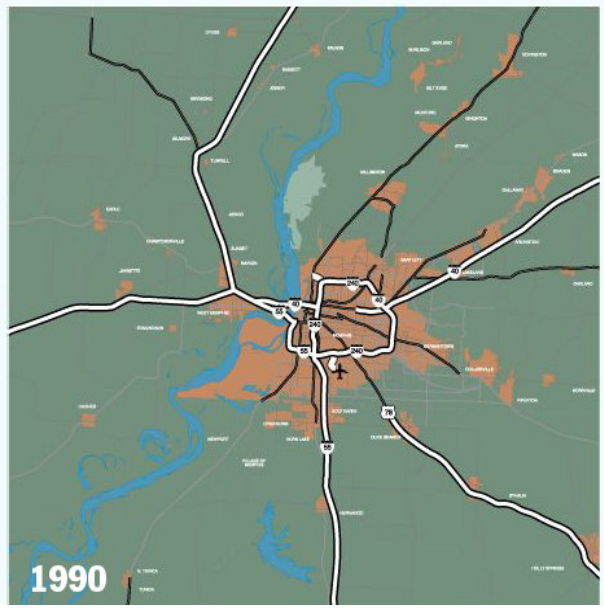


Figure 4-18
1990 Land Consumption

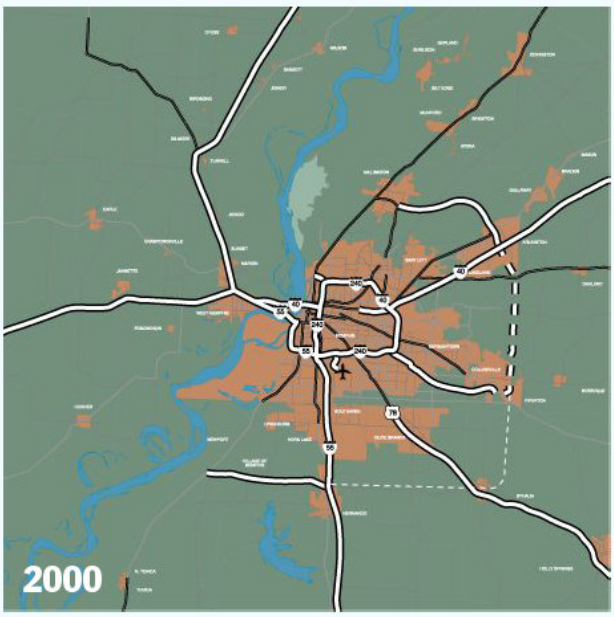


Figure 4-19
2000 Land Consumption

Source: Memphis Region Sourcebook

The figures (4-20 and 4-21) below show current and future concentrations of population and employment in the general study area. Green and yellow indicate the areas of spreading suburban population and red and hatched red represent employment.

Figure 4-20

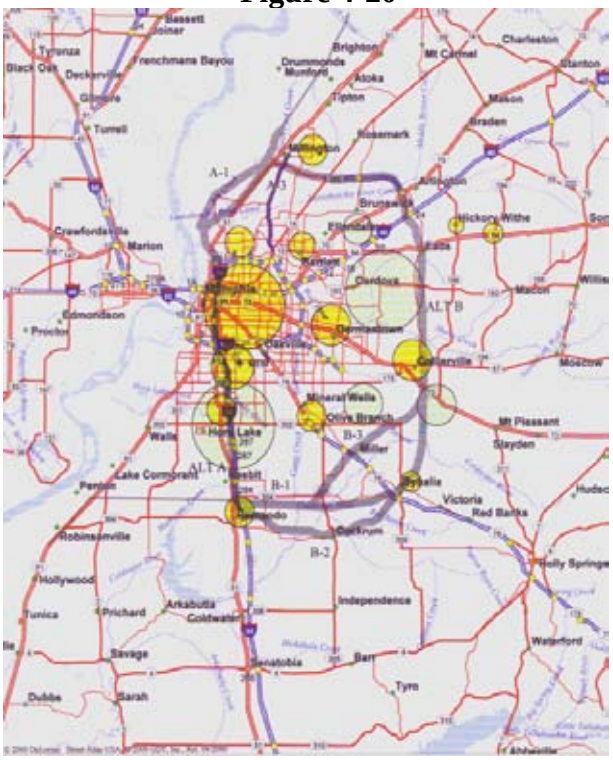


Figure 4-21

Current and Future Population
Current Population Ctr
Future Population Ctr

Current and Future Employment
Current Employment Ctr
Future Employment Ctr

There are some major physical features that have affected development patterns. To the north, the Wolf and Loosahatchie Rivers and floodplains are a constraint to major development activity and many areas adjacent to the Mississippi River are retained in conservation use. To the west, the Mississippi River itself is an obvious barrier, and demand has not been sufficient to bring lands beyond the Mississippi River into the active real estate inventory despite their proximity to Memphis. The Coldwater River floodplain and associated wetlands have also been a constraint to development in Mississippi, especially in the Marshall County area where there is a vast amount of undeveloped land and unemployment is high. Although these major rivers are constraints to future development, the growth in this area has over the last 40 years cumulatively encroached on the wetlands associated with these rivers and resulted in a loss of many acres of wetlands.

The forces (re)shaping the future growth pattern are similar to those of the last several decades. These include major transportation projects such as I-69, SR-385, and MS-304, the provision of non-transportation infrastructure, the planned development of new employment centers such as the redeveloped Millington Naval Air Station and the 6,000 acre Chickasaw Trail Industrial Park, as well as the emergence of non-traditional industries such as gaming in Tunica, Mississippi about 30 miles southwest of Memphis.

The proposed project, in conjunction with these emerging and already established employment centers, will generate extensive residential growth just beyond the perimeter of the existing urban/ suburban/ex-urban fringe. This development will stimulate needed support services (i.e. police and fire protection, schools, new local roadways, etc.), further employment, and additional business clusters. The cumulative effect will be the conversion of more open land and farmland to residential commercial uses, the loss of wildlife habitat, the filling of wetlands, and an increase in air and noise pollution, as well as an increase in storm water runoff to area streams.

Although there are controls to preclude uncontrolled growth in Tennessee, they are apparently less effective than in other states with similar forms of legislation that aggressively demark urban service boundaries. In this region, growth controls are compromised in part by the economic interdependence with neighboring Mississippi where growth is less regulated and most jurisdictions are anxious to accommodate spreading suburbanization. The construction of I-55 and other limited access highways into Mississippi have made this state a practical residential alternative, especially in the last few years as the industrial and distribution centers supporting the Memphis International Airport have expanded. Based on the prevailing patterns of settlement, recent trends that have generally favored population and employment growth to the south, southeast, and east of Memphis seem likely to continue throughout the foreseeable future.

4.18.1.2 Land Use Impacts

Indirect and cumulative impacts to land use in the project study area, as a result of past and future transportation projects, has been anticipated by local governments for many years (Local land use plans have identified areas for future growth and local services). The conversion of farmland and open land and the filling of wetlands for residential, commercial and industrial uses

to support the ever growing human environment and provide the needed infrastructure has been an on-going process for many decades. The decline in agricultural employment and the increase in manufacturing and distribution employment have cumulatively accelerated the land use changes and water quality impacts in the region.

The cumulative effects on land use in the study area resulting from past transportation improvements are evident throughout the region (See figures 4-16 thru 4-21). The proposed project predominantly utilizes road corridors that have existed or have been planned for the region over the past 50 years.

The northern and eastern portions of the proposed Interstate 269 loop in Shelby County have been part of the Memphis MPO or its predecessor (the Memphis Urban Area Transportation Study) transportation plans and regional roadway network since the adoption of the MUATS Transportation Plan in 1969. The Midtown Memphis portion of Interstate 240 and Interstate 55 from Interstate 240 to the Tennessee-Mississippi State Line, the "in town" segments of proposed Interstate 69 were existing interstate facilities at the time of the MUATS Transportation Plan adoption in 1969.

The proposed Interstate 269 corridor in southern DeSoto County (Mississippi 304) became part of the Memphis MPO regional roadway network in 1994, following expansion of the MPO boundaries from approximately Mississippi 302 southward to the proposed alignment of Mississippi 304. The initial proposal for MS 304 was the connection of US Highway 61, Interstate 55, and US Highways 72 and 78 across southern DeSoto County. All of these highways are part of the National Highway System.

The portion of proposed Interstate 269 from US Highway 78 to the Mississippi-Tennessee State Line became part of the Memphis MPO Long Range Transportation Plan adopted in December 1998.

The adoption of the Memphis MPO Long Range Transportation Plan in March 2004 incorporated all of these segments in what is now defined in the Interstate 69 DEIS and FEIS as the **Systems Approach Alternative** for Interstate 69 in the Memphis region.

4.18.1.3 Transportation Impacts

A circumferential roadway system is proposed to be constructed in the Memphis metropolitan region whether or not it is designated as part of the interstate system. As many of the segments of this circumferential system have been part of the transportation plan for nearly 40 years, growth policies of the various jurisdictions along its route have factored the system into their land use plans.

Federal regulations require the MPO to utilize current planning assumptions in the preparation of the required Long Range Transportation Plan: Development trends and pressure over these 40 years has been to the northeast, southeast, and recently to the east and south. Current growth patterns in the MPO region are in proximity to a number of segments of the proposed roadway network. The land use activities of this growth are a full range of urban uses including residential, commercial and industrial development. These activities are part of the plans and policies of the jurisdictions impacted by this regional roadway system. The plans and policies of these jurisdictions were a significant part of the basis for land use and socio-economic projections contained in the Memphis MPO Long Range Transportation Plan adopted in March 2004.

Interstate 69 Impacts:

The I-69 segment of the **Systems Approach Alternative** that extends from TN SR 385 to TN SR 300 generally runs parallel to US Highway 51 from Millington, TN to Memphis, TN. The area is predominantly rural in character, with the availability of sanitary sewers limited to the extreme northern portion of the corridor and the extreme southern portion. The sewers available to the north are provided by the City of Millington while the southern area is served by the City of Memphis. The City of Millington is experiencing suburbanization in the Memphis region, and has identified the area northwest of its current urbanized core as its primary growth area. The growth areas for the City of Millington are defined in its Growth Plan of 1999, required by TN

Law 1101 of 1998. The northwest quadrant of the Millington Growth Area is being planned to support both residential and commercial development, while employment uses will be focused toward the former Millington Naval Air Station. Interstate 69 serves as an addition level of service and enhancement to promote this planned growth area.

The area between the Loosahatchie and Mississippi Rivers and the location of Interstate 69, has long been proposed for non-residential activities, primarily focused on transportation services. Available access to Interstates 40 and 240 encouraged private ventures to develop Mississippi River port facilities. The potential of more direct access to Interstate 69 will enhance the attractiveness of this alternative port site in the Memphis region.

The remaining areas along this alternative corridor have no plans for the extension of sanitary sewers. Anticipated development patters would be suburban, exurban and rural residential development in the scale of 2, 4, and multi-acre lot developments.

On the segment of the proposed project that extends from the FA 101-connector at TN SR 300 to the Tennessee-Mississippi State Line, Memphis and Shelby County has concentrated considerable resources to this area to promote redevelopment. The Interstates 40, 55, and 240 corridors provide a backbone to this area. Interstate 69 ties together a number of multi-modal transportation facilities, including the Port of Memphis, Memphis International Airport and railroad multi-modal yards.

In DeSoto County the proposed project continues southward along Interstate 55 from the Mississippi-Tennessee State Line to the newly constructed MS 304 interchange. MS 304 then proceeds westward to (SIU-8) US Highway 61 at the DeSoto-Tunica County Line providing interstate level access from Interstate 55 to the casinos in Tunica County, Mississippi. This segment passes through the high growth area of northern DeSoto County, which is not only identified as an area for regional residential growth, but also non-residential particularly logistic industries. Proximity of land in this corridor to other modes of transportation including air, rail, and water has made it competitive with industrial locations in the City of Memphis. These

growth patterns and trends are discussed in both the DeSoto County Comprehensive Plan and the Memphis MPO Long Range Transportation Plan.

Interstate 269 Impacts:

The Northern segment of Interstate 269 extends from approximately US 51 eastwardly to Interstate 40 to US Highway 64 in eastern Shelby County along existing SR 385 also known as Paul Barrett Parkway. Since the scheduled development of this road segment, both the City of Millington and Town of Arlington have been pursuing land use and development policies consistent with having an interstate type facility linking both the jurisdictions and Interstate 40 with US Highway 51. These policies contained in the individual jurisdictions land use plans and Growth Plans promote business park and industrial development. The current lack of sanitary sewers in the Town of Arlington has some impact on the timeliness of this development. Meanwhile the City of Millington has demonstrated its ability to compete nationally due to the access this segment provides to the City's industrial land base, the former Millington Naval Air Station which is subject to numerous economic development studies since the base closure in the mid-1990's.

The eastern segment of I-269 extends from US Highway 64 to the Tennessee-Mississippi State Line and intersects with US Highway 72. It is along a planned road corridor identified as Collierville Arlington Parkway, which is generally along the Fayette-Shelby County Line. It passes through an area identified by Memphis and Shelby County as the Grays Creek Area, the Town of Piperton in Fayette County and the Town of Collierville in southeast Shelby County. Memphis and Shelby County have analyzed the growth potential in the Grays Creek area based on the potential impacts of this roadway and the Towns of Collierville and Piperton have incorporated the potential impacts in their required Growth Plans adopted under TN State Law 1101 of 1998. In general, various types of residential uses and densities are planned north of Poplar Avenue, and Collierville has identified its expanding industrial areas as being along the Interstate 269-US Highway 72 corridors south of Poplar Avenue. Additional urban development is planned west of the proposed Interstate 269 corridor along SR 385 in the form of residential, regional to local commercial uses and corporate and technology parks.

The southern segment of I-269 extends generally across DeSoto County from the Mississippi-Tennessee State Line to Interstate 55 north of Hernando, MS. This alignment is also generally the southern boundary of the principal growth area in DeSoto County. The western portion of the County was addressed along the proposed Interstate 269 segment. The eastern portion of the County currently has two primary transportation corridors in US Highway 78 and MS 302. Olive Branch is promoting industrial development along the US 78 corridor which will be further enhanced by Interstate 269 by providing more direct access to Interstate 40 east bound and Interstate 55 southbound, as well as access to US 72 eastbound. The promotion of residential and retail development in an area northeast of the City of Hernando and the incorporated area known as Nesbit is being undertaken by DeSoto County through the expansion of sanitary sewer capacity in the area, which will also be served by the proposed Interstate 269 corridor. These plans and policies are documented in the comprehensive land use plans for DeSoto County and the City of Olive Branch.

The indirect and cumulative effects of the proposed local transportation and land use plans will be the continuing conversion of farmland and open land to residential, commercial and industrial uses. The total number of acres involved, the sediment load to the watershed, and the number of acres of wetlands impacted by these local projects is unknown at this time and would be difficult to quantify. It is not known which of these future actions would be permitted under State and Federal water quality rules and regulations or what level of mitigation would be required to offset the impacts. However, it is prudent to recognize that there will be indirect and cumulative effects on the human and natural environment. There will be an increase in air and noise pollution, the filling of wetlands, impacts to aquatic and terrestrial habitats, increased runoff, and encroachment on the major watersheds in the area. This new development will be subject to appropriate Federal, State, and local laws and regulations.

4.18.1.4 Hydrology, Water Quality, and Floodplains

The three main watersheds in the project impact area are the Loosahatchie River which has a drainage area of 472,216 acres, the Wolf River with a drainage area of 353,853 acres and the Coldwater River, 1,231,995 acres. The construction of the proposed project along with the future planned and on-going residential, commercial, and industrial development and other

roadway improvements will increase site imperviousness and add to the amount of run-off entering these rivers and their tributaries. Small local drainage systems and existing culverts in the developing areas may not be able to accommodate the increase in run-off. The hydrologic impact resulting from the proposed project will be minimized by the use of appropriate drainage and flow control features designed into the roadway project (Tennessee and Mississippi *Standard Specifications for Road and Bridge Construction*) along with implementation of Best Management Practices (BMP's) to control soil erosion and sedimentation.

The proposed project, along with other infrastructure improvements and the on-going residential, commercial, and industrial development in the project impact area could affect long term water quality as a result of increased run-off. Water quality would be affected following site development by the introduction of urban pollutants, such as vehicle oils and grease, and heavy metals on roads, parking lots, and driveways; fertilizer used on site landscaping; and toxic compounds released from auto maintenance areas. Uncontrolled, these pollutants could affect aquatic life in the surrounding watersheds. During the rainy season construction of the proposed project, as well as the on-going residential, commercial, and industrial development in the project impact area could affect water quality. Clearing, grubbing, and grading activities could temporarily increase sedimentation and the maintenance of construction vehicles and equipment could release contaminants. The proposed project will incrementally contribute to this cumulative effect on water quality. The long term water quality impacts associated with the proposed project are considered to be less cumulative because of the implementation of proper planning and use of stormwater BMP's, along with adhering to federal and state water quality permit provisions. If all future development around rivers and streams were constructed using appropriate sediment and erosion controls, this impact could be minimized.

4.18.1.5 Wetlands and Streams

Indirect and cumulative development in the project area could result in the loss of waters of the United States; including jurisdictional wetlands and riparian habitat. The proposed project will cause some incremental cumulative impacts to area streams and wetlands. The Loosahatchie and Wolf Rivers are located along the northern I-69 portion of the proposed project in northwest Shelby County. The Loosahatchie River watershed drains an area of approximately 472,216

acres. Approximately 4.6 miles of the Loosahatchie River is located in close proximity to the proposed project alignment. It is estimated that there are 1,325 acres of adjacent wetlands. The proposed project will cross 21 streams in this watershed and has the potential to impact approximately 9,590 linear feet of these streams. It will also result in the unavoidable filling of approximately 15.44 acres of wetlands along the proposed alignment.

The Wolf River crossing is located along an existing section of I-240 and will not be directly impacted by the proposed new location alignment. The watershed drains an area of approximately 353,853 acres. There are approximately 356 acres of farmed wetlands between the Wolf River and the proposed new location alignment just west of US-51, approximately 32 acres will be impacted by the project. The city of Memphis is proposing to extend North Second Street which is a principal arterial to improve access to the Memphis Central Business District and relieve some of the traffic congestion on I-40 and US-51. North Second Street will interchange with I-69 just east of the Dewitt Spain Airport. This project will also result in cumulative wetland impacts. The area between the proposed project and the river is currently being evaluated as a potential greenway. Table 4-9 in this chapter details the classification and functional value of the impacted wetlands. (*See Technical Appendix I, Ecology, for complete discussion of wetland and stream impacts.)

The Coldwater River located along the I-269 section of the proposed project in northwestern Mississippi drains an area of approximately 1,231,995 acres. There is approximately 10 linear miles of the Coldwater River in the project impact area with approximately 3,044 acres of adjacent wetland. The proposed project will cross 39 streams in this watershed and has the potential to impact approximately 15,780 linear feet of streams. The proposed project crosses the Coldwater River at two locations and could impact 69 acres of wetlands. This number could be reduced depending on the length of the new bridges. Table 4-10 in this chapter details the classification and functional value of the wetlands impacted in the Coldwater River watershed.

Implementation of mitigation measures addressed in this chapter will mitigate the proposed projects incremental cumulative effect contributions. The planned development in this area by local governments and private enterprises will add to the cumulative effect on these watersheds.

If other proposed development in the project area implements similar mitigation measures proposed for this project the cumulative effect to streams and wetlands would be minimized.

4.18.1.6 Endangered Species

Based on coordination with Federal and State resources agencies, the proposed project will not impact any federal or state listed endangered species. The proposed project will have no direct or indirect impacts on endangered species.

4.18.1.7 Wildlife Impacts

Cumulative development in the project area could result in the loss of habitat for some local wildlife. (See Ecological Study on file at TDOT and MDOT offices). The clearing of forest area, farmland, and other open land will have an impact on wildlife. The proposed project will result in the conversion of 2,218 acres of land in various land uses to roadway right-of-way.

Past actions involving roadway construction, residential and commercial developments have resulted in the removal of some habitat or the degradation of areas of habitat. It is not evident at this time the extent of the combined effects of past and present actions upon wildlife in the project area.

Reasonably foreseeable future actions in relation to this project are expected to be limited and concentrated mainly at proposed interchange locations and developments not associated with the project. These actions could result in the additional loss of habitat for local wildlife.

Local and regional development efforts should show sensitivity toward the loss of wildlife habitat as development efforts continue to push beyond the existing boundaries between urban and rural areas. Consultation with TDEC and USFWS will ensure that sensitive habitats are avoided. Sensitivity to floodplains should also be monitored and coordinated with FEMA.

4.18.1.8 Cultural Resources

The past construction of roadways (i.e.: I-55, I-40, I-240, SR-385, MS-302, MS-304) along with residential, commercial, and industrial development over an extended period of time has affected

historic and archaeological resources in the project impact areas. Proposed development along the project corridor has the potential to impact cultural resources located under the potential construction sites if these resources are not properly recorded.

There are no known cultural resources on or eligible for the National Register of Historic Places located within the proposed project right-of-way. However, there are a number of archaeological sites located in the project vicinity. The **Systems Approach Alternatives** incremental contribution to potential adverse effects during construction of unknown cultural resources will be governed by existing State and Federal regulations as they pertain to roadway construction.

4.18.1.9 Air Quality

The micro scale model conducted for air quality and contained in Section 4.9 is based on the 2030 traffic investigation prepared for this project in November 2003. Based upon the analysis of highway projects with similar meteorological conditions and traffic volumes and composition, the CO levels for the proposed project will be well below the National Ambient Air Quality Standards (NAAQS). The project will have no substantial impact on the air quality of the four-county area.

The Memphis Metropolitan Planning Organization (MPO) prepared a report titled *Conformity Demonstration with 1990 Clean Air Amendments for the 2026 Long Range Transportation Plan Amendments and 2004-2006 Transportation Improvement Program* that was adopted August 25, 2005. The conformity report was federally approved on October 24, 2005. The 2026 Long Range Transportation Plan (LRTP) contains all regionally significant projects, including the Systems Approach Alternative for the I-69 Corridor, whether federally funded or otherwise. EPA's MOBILE 6.2 model was used to derive emission factors for the LRTP.

In March 2004, the U.S. DOT and the Memphis MPO Executive Board approved the FY 2004-2006 Transportation Improvement Program (TIP) and the 2026 LRTP based on conformity under the 1-hour ozone standard. On April 15, 2004, the EPA designated Memphis, TN-AR as 8-hour ozone moderate "nonattainment" area (69 FR 23858). Included in this designation were two counties: Shelby County, Tennessee and Crittenden County, Arkansas. No Mississippi counties

were included. The 8-hour ozone designation was effective June 15, 2004. On September 15, 2004, the EPA reclassified the area from moderate to marginal. The reclassification means that the area is expected to achieve clean air sooner than originally anticipated. While moderate areas must attain national air quality standards for 8-hour ozone no later than June 2010, marginal areas must attain standards no later than June 2007. EPA revoked the 1-hour ozone standard on June 15, 2005. The 8-hour ozone air quality conformity for the 2026 LRTP was completed and approved by the U. S. DOT on May 12, 2005. The August 25, 2005 report represents the 8-hour conformity demonstration of the FY 2004-2006 TIP and the 2026 LRTP including amendments for both CO and ozone. The report concludes that "It is the Memphis MPO's determination that the FY 2004-2006 TIP and the 2026 LRTP conform under the 8-hour ozone National Ambient Air Quality Standard and the CO National Ambient Air Quality Standard."

Cumulative development in the four county area will result in an increase in exhaust, dust, and other miscellaneous short-term emissions and particulate matter associated with construction activity of the development in addition to the proposed project. Implementation of appropriate Best Management Practices (BMP's) will reduce and minimize these pollutants. Local and regional development, which is the responsibility of the local governments, should include efforts to ensure air quality standards are not exceeded.

4.18.1.10 Noise Impacts

The project study area has in the past experienced an increase in noise levels due primarily to the construction of new roadways and improvements to existing roadways. Some of the larger projects in the area include I-55, I-40, I-240, MS-302, and SR-385. The proposed project will utilize sections of I-55, I-40, and I-240 along the I-69 route and use the existing and proposed SR-385 route from south of Collierville to Millington along the I-269 route. Noise abatement has been evaluated along these projects and noise barriers have either been constructed or are proposed for construction. The proposed project will be routed along these existing interstates and roadways; however, the volume attributed to the proposed project is not substantial and will not result in the need for additional noise abatement. They are mentioned here to acknowledge that a noise study has been conducted for the entire project area. The noise study in Section 4.10 only addresses the new location alignments for the proposed project.

Within the I-69 portion of the proposed project; Alternative Alignment A-1 was selected as the preferred alternative. Along this alternative, 26 residences and 2 churches were modeled, but only one church and two residences had a predicted build noise level above the FHWA Noise Abatement Criteria. The church and two residences were located along Shelby Road near the end of the project. Traffic noise impact from I-69 was below the Noise Abatement Criteria. Shelby Road was the dominant noise source for the church and residences, so noise walls were not considered along I-69 for this location.

Within the I-269 portion of the proposed project, Alternative Alignment B-1 was selected as the preferred alternative. Along this alternative, 82 residences were modeled, but only 70 residences had a predicted build noise level above the FHWA Noise Abatement Criteria. Noise abatement was considered at most of these sites. Noise barriers were not considered at locations with one or two receptors. Eight sites were considered for noise barriers along Alternative Alignment B-1, but only one location was considered feasible in accordance with MDOT noise barrier policy. This location contained 15 receptors and was located approximately one mile west of US 178 along the westbound side of I-269. Once the alignment is set, this site will be given further consideration for noise abatement.

It is anticipated that as present and future land use changes occur, converting farmland and open land to residential, commercial, and industrial uses that traffic noise will increase. This increase is likely to occur first around the proposed interchange areas. Additional impacts will occur as business and residential developments extend from the corporate limits of cities and towns toward I-69. These actions might result in localized noise. Local officials should take action in locating new development to ensure that noise levels do not cause long term impacts to area residences and businesses. Local officials and private developers could use the data provided in the noise study report which identifies various distance and predicted noise levels along the proposed project in the planning and location of future residential areas. New homes could be constructed a safe distance away from the roadway. The construction of earth berms or noise barriers or simply placing the structures to reduce the noise impact will insure the public is exposed to the least noise impact.

The noise impact associated with the proposed project, as well as the proposed development in the four-county project area will cumulatively result in an increase in noise impacts. Construction noise levels have the potential for being greater than those of normal traffic operations. Implementation of appropriate BMP's during construction such as temporary barriers to shield equipment, and the implementation of noise abatement measures for post construction operation would be expected to reduce or mitigate these noise impacts.

4.18.2 Summary

The construction of a project of this magnitude and the associated development around the major metropolitan area of Memphis will have indirect and cumulative impacts on the human and natural environment. This document addresses the impacts of the Systems Approach Alternative and the potential cumulative impacts to the surrounding area. Strict adherence to local land use policies and Federal and State rules and regulations could minimize any cumulative adverse impacts to the environment.

Local officials could use the data contained within this study to identify sensitive areas and assist them in making future land use decisions.

4.19 SHORT-TERM IMPACTS VERSES LONG-TERM BENEFITS

Short-term impacts related to highway improvements will occur during construction operations. Some interruption to vehicular traffic flow is inevitable; however, appropriate maintenance of traffic phasing will be employed to minimize inconvenience. Traffic control plans will be developed to minimize congestion and delays during construction.

Temporary air impacts from dust and exhaust fumes, and noise associated with construction operations cannot be avoided. Every effort will be made to minimize these effects by using best management practices.

Many long-term benefits are anticipated to result from the proposed project, such as a decrease in travel time and traffic congestion and an improved level of service. Accidents along segments of existing highways that will be bypassed may also decrease over the long term as through truck and other traffic is removed from local roads. Elimination of congestion is expected to result in a

more efficient use of energy. In the long term, the construction of the interstate highway through the area provides a better modal connection and could provide an economic benefit through establishment of new businesses and industries along the corridor.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Irretrievable resources necessary to build the proposed roadway include energy (fossil fuels), concrete, aggregate and steel. None of these materials are in short supply.

Implementation of the project involves a commitment of a range of natural, human and fiscal resources. As stated above, fossil fuels and highway construction materials such as cement, aggregate and bituminous materials would be expended. Labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. They are, however, not in short supply and their use would not have an adverse effect upon continued availability of these resources. Construction would also require a one-time expenditure of state and federal funds that is not retrievable.

The commitment of these resources is based on the concept that residents and visitors of the area would benefit by the transportation improvements. These benefits include an increase in safety, savings in time through improved traffic flow, and provision of jobs.

Based on the evaluation of the context and intensity of the effects described above, there should be no adverse impact resulting from the irreversible or irretrievable commitment of resources on the project area.

CHAPTER 5
PUBLIC INVOLVEMENT

During the early stages of project development, two scoping meetings were held with federal, state and local officials to introduce the project and identify social, economic and environmental concerns. The participants expressed their concerns and suggested certain methodologies to use in evaluating the alternative corridors.

In addition, eight early public involvement meetings were held to inform people about the proposed project and obtain their comments. These meetings were advertised in local papers and posted on the TDOT and MDOT websites. Four public meetings were held in and around the study area in May 2001. Four additional meetings were held at different locations in the project region during the second round of meetings in November 2001. Approximately 1300 people attended these eight meetings. The attendees were asked to comment on the proposed project. Oral comments were taken by a court reporter, and standard comment cards were distributed. Feedback was received from about 800 of the attendees (Transcripts of meetings are available at TDOT and MDOT offices).

The May 2001 meetings were held in Millington, Collierville and Memphis, Tennessee and Hernando, Mississippi. Just over 700 people attended these meetings, of which 600 responded. The November meetings were held in Arlington, Frayser and Whitehaven, Tennessee and Byhalia, Mississippi. Approximately 600 people attended these meetings. There were 200 comments submitted.

Concerns expressed by the public included increased air and noise pollution, impacts to neighborhoods and schools, wetlands and wildlife, and archaeological sites and historical resources, safety, loss of property, amplified urban sprawl, lower property values, the transportation of hazardous materials, and the creation of a drug traffic corridor.

Four additional public meetings were held as a part of the Environmental Justice community outreach process in an effort to reach those who may not have been aware of the I-69 (SIU 9)

project. Three other smaller informational sessions were conducted at the request of local neighborhood groups and community organizations.

During the project development process, a newsletter was published to keep the public informed about the progress of the project and meeting announcements. There are 1800 people on the current mailing list. Seven newsletters have been sent out to date. Newsletter number seven announced the selected alternative alignments. All pertinent information about the **Systems Approach Alternative** is also available on the TDOT and MDOT websites.

A series of Corridor Public Hearings was held between June 21 and July 1, 2004 on the I-69 **Systems Approach Alternative** that extends from Hernando, Mississippi to Millington, Tennessee. The meetings were advertised to be held between 5:00 pm and 7:00 pm, although the public began to arrive as early as 4:00 pm. The first hour of the Hearing involved getting everyone to sign-in, distributing the Hearing handouts (including comment forms and ROW information), and allowing the public to view the Public Hearing displays, which included functional drawings on aerial photographs (including property lines and ownership), wall displays, the I-69 FHWA video, and topographical maps showing the alignments, proposed interchanges, intermodal facilities, industrial employment centers and airport facilities, and to ask questions.

The second hour involved a formal presentation of the project purpose and need, alignments under consideration, and information regarding the project schedule. This was followed by a facilitated question and answer period. After the question and answer period, the public was invited to again review the public hearing displays and to make additional comments to the court reporter.

Overall the Hearings were well attended with some 1180 persons signing in. The attendees were given several opportunities to ask questions and voice their opinion. The estimated time of construction of the project was asked at all the meetings. Since future funding is uncertain and the reality that the project is several years off at best, may have tempered the number of comments made about the project. The B-3 alignment presented received the most opposition

from attendees in Mississippi due to its passing close to a new school, an existing school, and impacting an upscale neighborhood.

<u>June 21, 2004 – Millington, Tennessee</u>

The Hearing in Millington was held at the Baker Community Center. Approximately 400 people were in attendance. Mayor Harvell of the City of Millington was present at the Hearing and addressed the audience.

A number of residents attending the meeting questioned the need for I-69. Some were concerned about crime and the establishment of a drug corridor, as well as overall safety. Access to homes and taking of right-of-way were the other main issues. A question was raised about "how running another interstate highway through Memphis could improve the quality of life for the area". Several questions were asked about air quality and being able to meet the new air quality standards. During the Hearing, there were several questions about the connection with SIU 8 west of Millington and access to property.

June 22, 2004 – Arlington, Tennessee

The Corridor Public Hearing in Arlington was held at Arlington Town Hall. Approximately 125 people were in attendance.

Several attendees questioned the need for the project, while others were concerned about establishing a drug corridor, crime, noise impacts, and loss of property. There were also several questions about the cost of the project and the timing of construction. There were also a number of questions regarding SIU 8.

June 28, 2004 – Byhalia, Mississippi

The Hearing in Byhalia was held at Byhalia High School. Approximately 425 people were in attendance.

A number of Mississippi officials, including Commissioner Bill Minor and State Representative Thomas Woods, attended the Hearing and commented on the project.

The residents in Mississippi were concerned about coming close to new subdivisions, new schools, noise, safety, wetlands, and the loss of property. There were a number of questions regarding the positive economic impact the roadway will have on northern Mississippi. Some residents voiced opposition to the project, especially the B-3 alignment; others had moved to the area to get away from development and questioned the need for the project. The impact on new development and the safety of children attending the new schools that are in close proximity to the proposed project was a central issue.

June 29, 2004 – Southaven, Mississippi

The Hearing in Southaven was held at Southaven City Hall. Approximately 150 residents attended.

A formal presentation was made by Mr. Bill Wallace (PBS&J) and Mr. Claiborne Barnwell (MDOT). Several Mississippi officials, including Commissioner Bill Minor, were present and made comments about the project. Several residents questioned the need for I-69, while others voiced their preference of alternatives. There were a number of questions regarding traffic count numbers and about noise studies – how loud will it be and will noise walls be constructed? There were concerns about taking houses, passing too close to a proposed school, impacting upscale neighborhoods (B-3), safety, wetlands, and a creating potential drug corridor. There were several comments made about the overall positive economic impact of the project.

July 1, 2004 – Memphis, Tennessee

The Hearing in Memphis was held at the Mississippi Boulevard Christian Church and was attended by approximately 80 people. State Representatives were present and addressed the audience.

There were several questions regarding noise barriers along the I-240 segment and concerns about traffic congestion. The past president of the Memphis Regional Chamber, supported the project and discussed the economic boost that I-69 would provide to the Memphis economy. A representative of the Memphis Area Sierra Club described opposition to I-69 as only general in nature because the project is so segmented. A representative of the Mid-South Group for Peace and Justice had many issues with the project. His issues included mass transit, safety, cost and environmental justice. There were very few questions at this Hearing about the need for I-69 or the alignments being considered.

Responses

A total of 454 responses, including oral comments, letters, emails and petitions were received as a result of the Corridor Public Hearing process. A list of the primary issues discussed at the meeting follows.

Concerned Citizen's Primary Issues:

- Impacts to neighborhoods and schools
- Loss of property values
- Air pollution
- Noise pollution
- Economic benefits
- Safety (increased truck traffic, lack of enforcement of truck standards from Mexico)
- Transporting hazardous materials

- Increased crime
- Creating a drug corridor
- Urban sprawl
- Increase in flooding
- Loss of wetlands
- Loss of farmland

A copy of the Corridor Public Hearing Transcripts and the Corridor Public Hearing Summary Report are available at TDOT and MDOT offices.

DISPOSITION TO LOCAL COMMENTS

Comment: Impacts to neighborhoods and schools

Disposition: The proposed project will be designed to minimize the impact to surrounding neighborhoods and schools to the extent practicable. Access will be controlled along the entire route, guardrail and other safety devices will be provided. Fencing will be used to prevent access to private property from the roadway. Noise barriers will be provided where deemed necessary. The height and length of any proposed noise barriers will be determined during the design phase. Disturbed areas will be re-vegetated with native species to buffer sensitive areas where deemed necessary.

Comment: Loss of property values

Disposition: A Right-of-Way Relocation Assistance Plan will be carried out for the proposed project. A right-of-way agent will be assigned to each property affected. The fair market appraised value will be paid for each property acquired and appropriate damages paid where warranted. Uneconomic remnants of affected property may be purchased. In areas that have an active real estate market and a good economy such as the project impact area where new subdivisions are being constructed, highways do not negatively impact property values.

Comment: Air pollution

Disposition: While new highways and development will increase air pollution in the project corridor it will not have a substantial effect. An air pollution study has been conducted for the

project area and this project has been found to be in conformity with the Memphis area Transportation Improvement Plan and in compliance with the Federal Clean Air Act.

Comment: Noise pollution

Disposition: Construction of the proposed project along with area development will increase the noise levels in the project impact area. A noise study was conducted to determine noise levels attributable to the proposed project. Noise barriers will be provided where necessary in compliance with TDOT and MDOT noise barrier policy guidelines. TDOT and MDOT will reevaluate noise impacts when design plans are developed to ensure noise impacts are adequately abated.

Comment: Economic benefit

Disposition: Based on comments received at the Corridor Hearings and the results of an economic analysis of the area, the proposed project will have a positive economic benefit on the area. It will provide access to new areas for residential, commercial and industrial development and increase the tax base. This revenue can be used in the local communities to provide infrastructure needs such as new schools, police, and fire service services and other road improvements. It will also provide commuters with improved access to jobs in the Memphis area.

Comment: Safety (increased truck traffic, lack of enforcement of truck standards from Mexico)

Disposition: The proposed project will be designed to modern day interstate standards which will accommodate truck traffic. The roadways will be monitored by state agencies to insure that trucks meet safety standards. The Federal Motor Safety Carrier Administration is the agency that normally has jurisdiction over vehicles entering the United States. The President of the United States has opened the borders to Mexican trucks. The Supreme Court has ruled the President has this authority and his actions cannot be countermanded by a federal agency.

Comment: Transporting hazardous material

Disposition: Trucks hauling hazardous material will be subject to the Federal Motor Safety Carrier Administration regulations. There are state and local agency response procedures in place in the event of a hazardous waste spill.

Comment: Increased crime

Disposition: There is no data available to support that construction of the proposed project will necessarily increase crime. While it will provide access to new locations, there are local law enforcement agencies that will be patrolling the areas, as they do in other communities.

Comment: Creating a drug corridor

Disposition: Traffic using the proposed roadway will be subject to all Federal, State, and local drug trafficking laws. This interstate facility will be monitored by State and Federal agencies in an effort to stop illegal drugs from being transported on the nation's highways. This is an on-going program.

Comment: Urban sprawl

Disposition: The increase in population in the Memphis area, as well as the job opportunities in this region is contributing to urban sprawl. The growth in this area over the past 40 years has resulted in many new subdivisions and shopping areas being built in suburban areas. The control of land use is the responsibility of local governments as they try to provide the infrastructure needs of their citizens.

Comment: Increase in flooding

Disposition: The proposed project will be designed to ensure that the proposed project will not increase the flooding potential in the project impact area. A hydrological study will be prepared and used in the designing of the project.

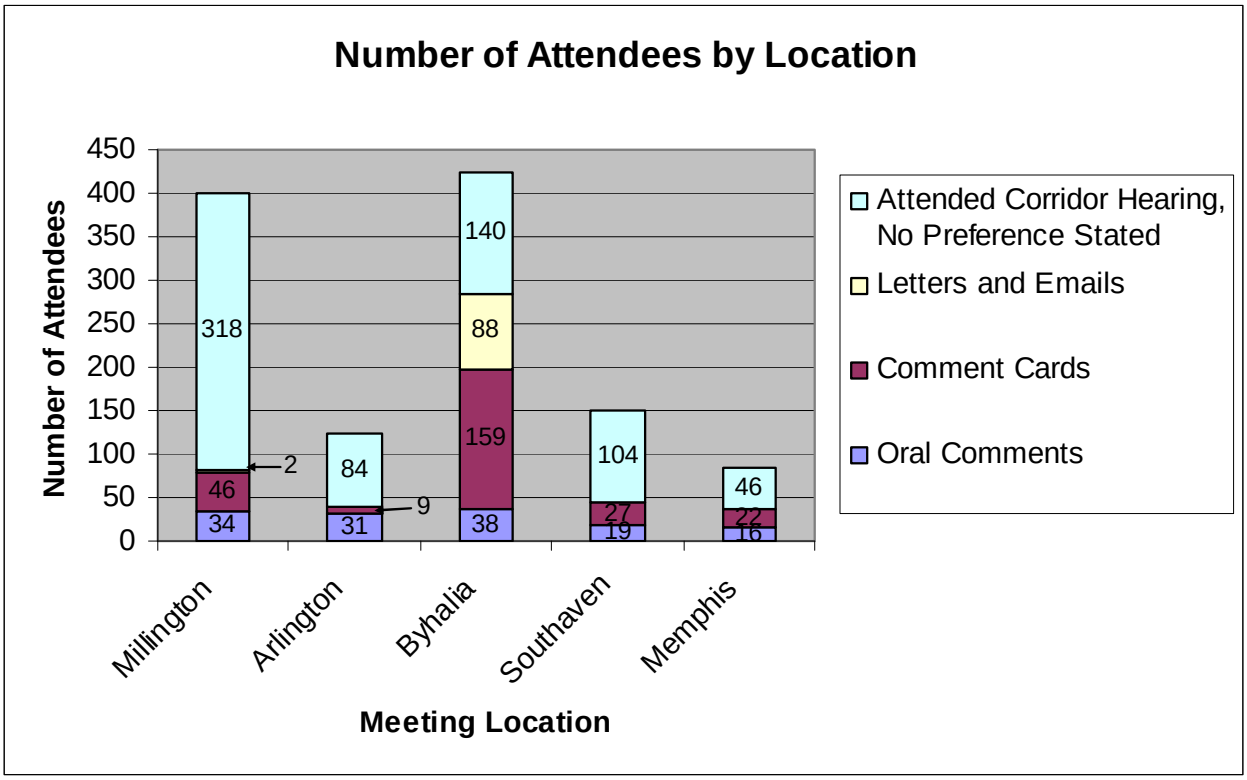
Comment: Loss of wetlands

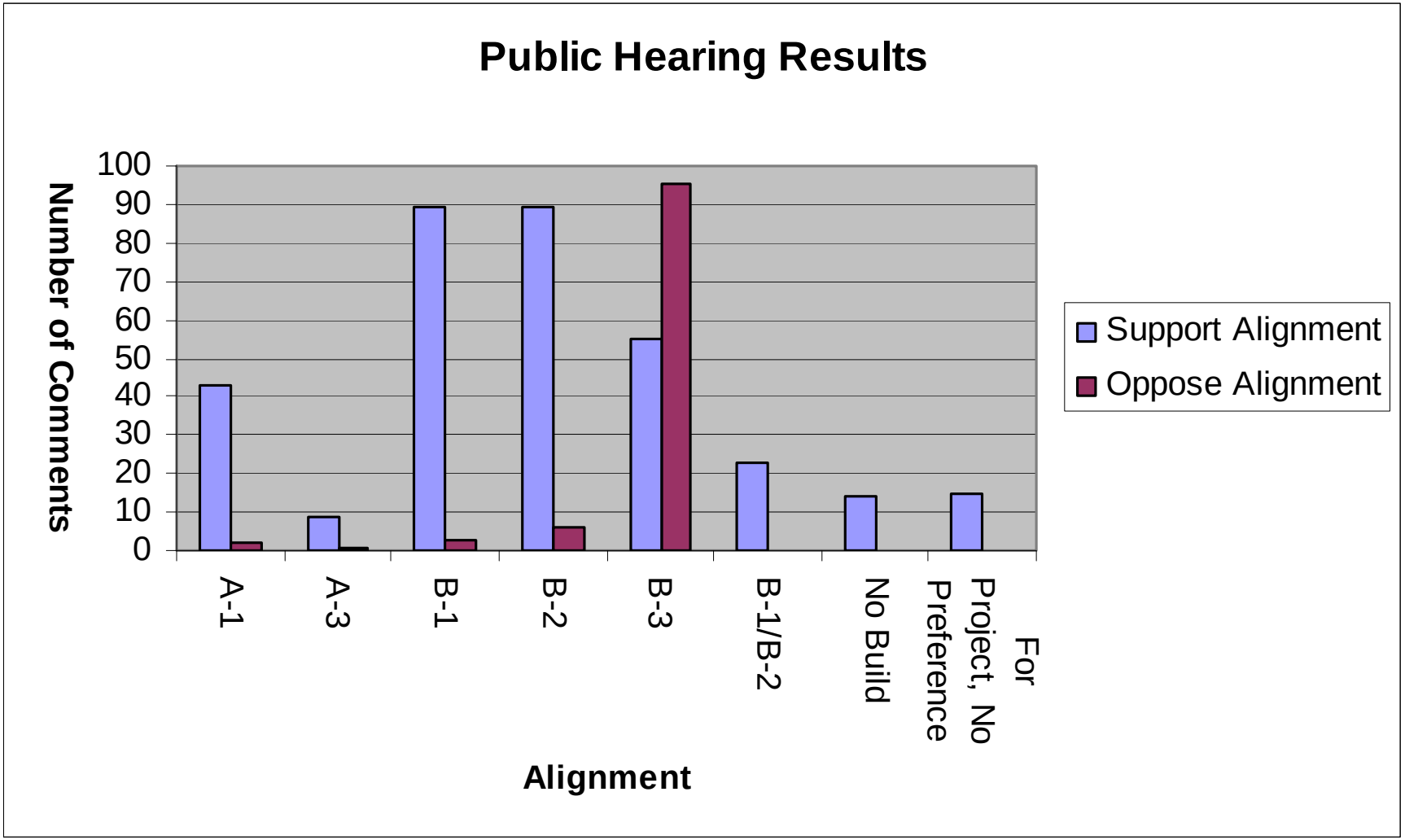
Disposition: The proposed project will result in the unavoidable loss of wetlands. A wetland mitigation plan will be developed in consultation with State and Federal permitting agencies to

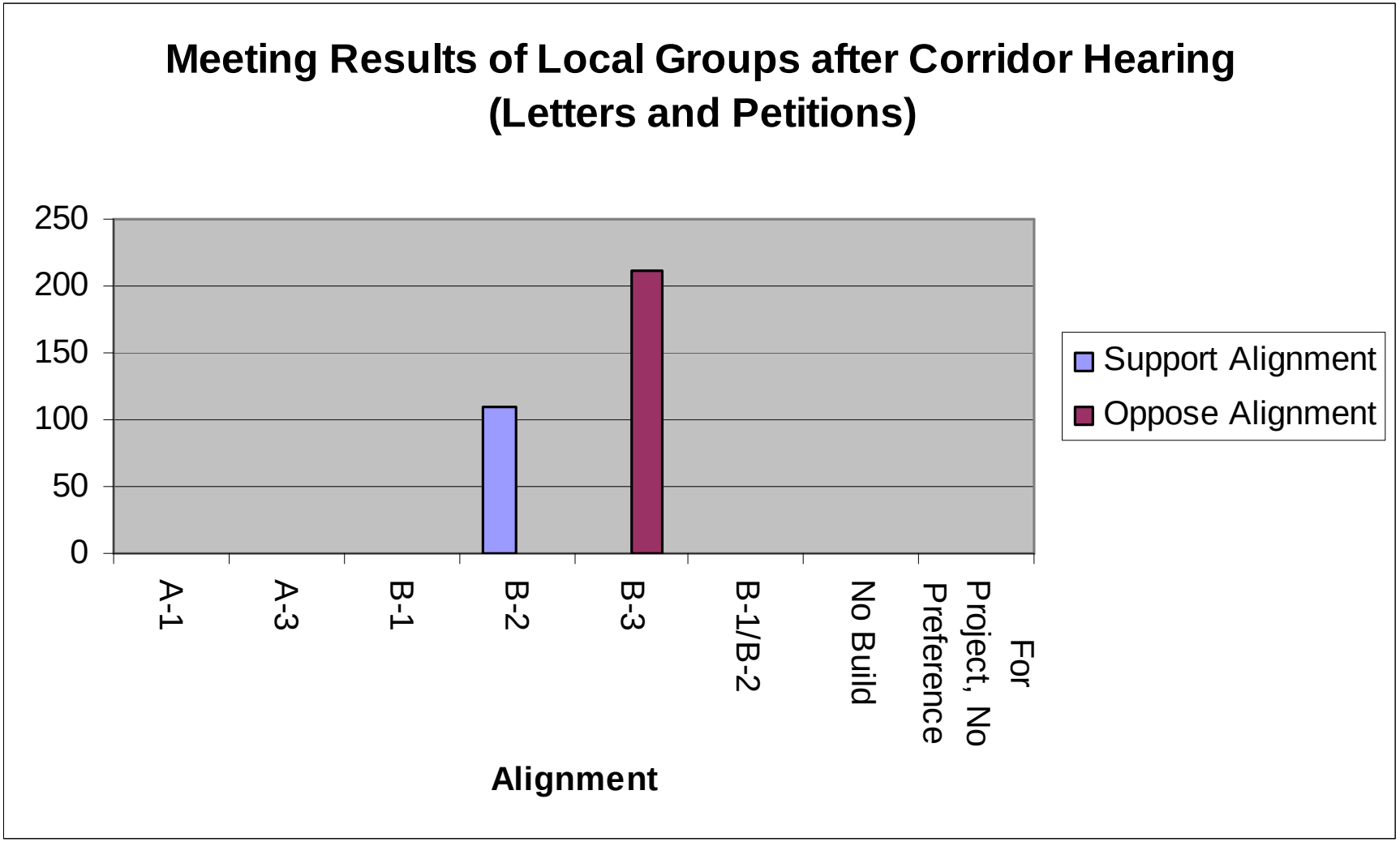
compensate for the wetland loss and appropriate permits will be secured prior to construction in the wetland areas.

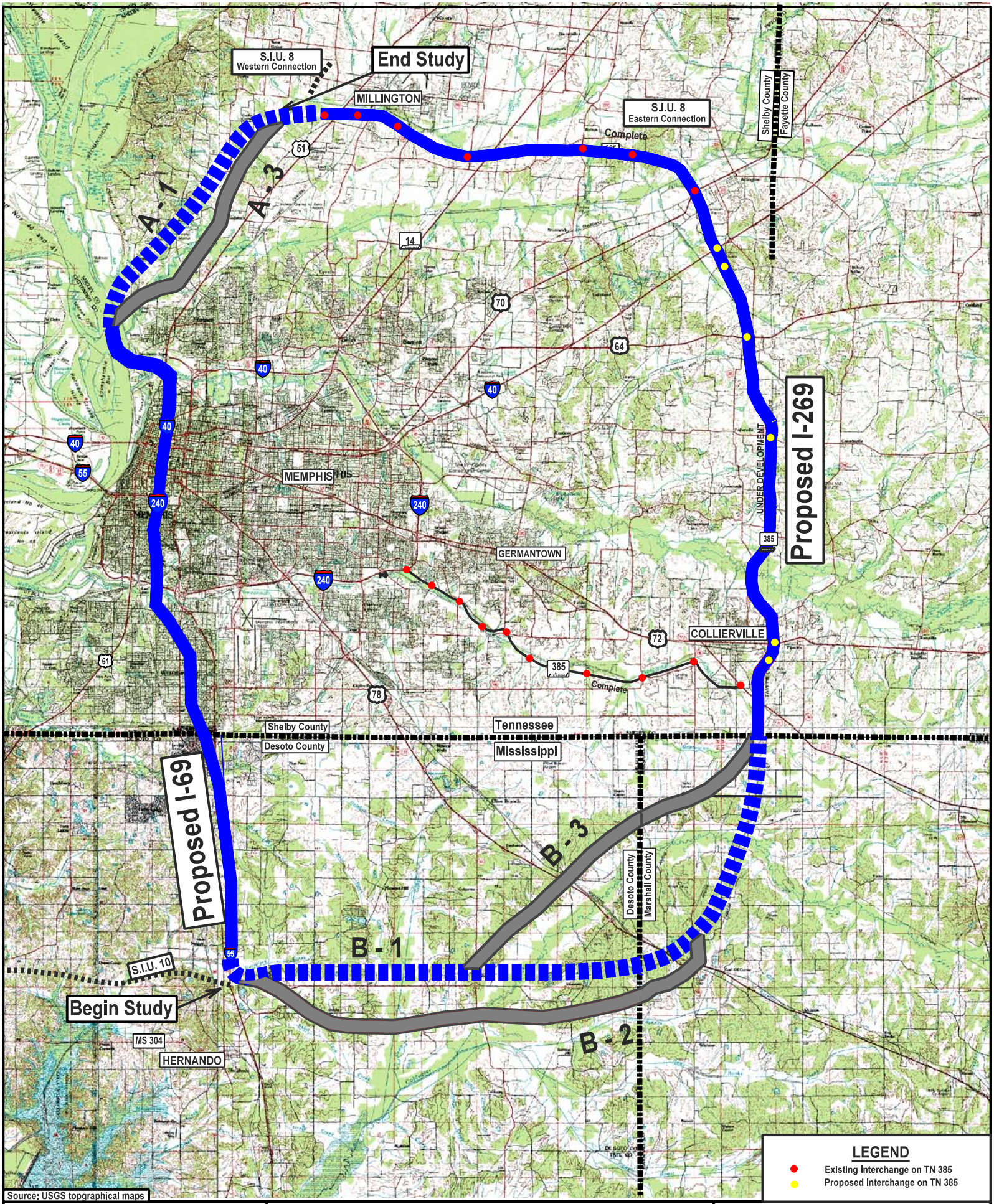
Comment: Loss of farmland

Disposition: There has been a decline in farming in the project impact area for many years. This idle farmland is being developed into residential and commercial areas to accommodate the increase in population. No prime or unique farmland that warrants special consideration has been identified in the project impact area. This project has been coordinated with the US Department of Agriculture.




Public Hearing Results
Number of Comments
100
90
80
70
60
50
40
30
20
10
0
A-1
A-3
B-1
B-2
B-3
B-1/B-2
No Build
For Project, No Preference
Alignment
Support Alignment
Oppose Alignment


Meeting Results of Local Groups after Corridor Hearing
(Letters and Petitions)
250
200
150
100
50
0
A-1
A-3
B-1
B-2
B-3
B-1/B-2
No Build
For Project, No Preference
Alignment
Support Alignment
Oppose Alignment



BLUE: SYSTEMS APPROACH ALTERNATIVE
BLUE DASHED: PREFERRED ALTERNATIVE
GRAY: NON-PREFERRED ALTERNATIVE

Figure 5-1
Preferred Alternative Location Map

5.1 COORDINATION WITH FEDERAL, STATE AND LOCAL AGENCIES AND ORGANIZATIONS

The Draft Environmental Impact Statement (DEIS) was approved by the Federal Highway Administration on April 19, 2004. The DEIS was sent to one-hundred and ten (110) Federal, State, and local agencies and officials for review and comment. It was also made available for public inspection at thirty (30) local libraries in Mississippi and Tennessee. A total of twelve responses were received. The following is a listing of the agencies that were sent the DEIS. The agencies listed in bold text returned their responses on the DEIS.

FEDERAL AGENCIES

U.S. Army Corps of Engineers
- **Regulatory Functions Branch Memphis District**
- Regulatory Functions Branch Vicksburg District

U.S. Environmental Protection Agency
- **EIS Review Section**
- Water Management Division, Wetland Section

Tennessee Valley Authority
- **Environmental Policy and Planning**

U.S. Department of Interior
- U.S. Geological Survey, MS District
- U.S. Fish and Wildlife Service, MS
- Office of Land Management
- **Office of Environmental Policy and Compliance**

Advisory Council on Historic Preservation

U.S. Coast Guard
- **Eighth Coast Guard District**
- Bridge Management

Federal Railroad Administration
- Office of Economic Analysis

Federal Energy Regulatory Commission

U.S. Department of Housing and Development
- Delta Initiative

U.S. Forest Service

Federal Emergency Management Agency

U.S. Department of Commerce

Federal Aviation Administration

U.S. Department of Agriculture
Natural Resources Conservation Service

MISSISSIPPI STATE AGENCIES

Mississippi Department of Archives and History

Mississippi Department of Environmental Quality

Mississippi Forestry Commission

Mississippi Department of Wildlife, Fisheries and Parks

Mississippi Natural Heritage Program

Mississippi Department of Finance and Administration

Mississippi Development Authority

TENNESSEE STATE AGENCIES

Tennessee Department of Conservation
Division of Solid/Hazardous Waste Management
Division of Air Pollution Control
Division of Ground Water Protection
Division of Water Supply
Division of Water Pollution Control
Division of Natural Heritage

Tennessee Historical Commission

Tennessee Wildlife Resources Agency

LOCAL AGENCIES

Memphis Metropolitan Planning Organization

Memphis Area Association of Government

Tennessee Trails Association

Sierra Club

Tennessee Chapter of the Sierra Club

The Nature Conservancy

Tennessee Conservation League

Tennessee Environmental Council

Lower Mississippi Delta Development Center

CITY MAYORS AND COUNTY OFFICIALS

Mayor, City of Memphis, TN
Mayor, City of Hernando, MS
Mayor, Town of Byhalia, MS
Mayor, City of Arlington, MS
Mayor, City ofHorn Lake, MS
Mayor, City of Holly Springs, MS
Mayor, City of Olive Branch, MS
Mayor, Town of Collierville, TN
Mayor, City of Southaven, MS
Mayor, City of Millington, TN
Mayor, City of Piperton, TN
Transportation Commissioner, Northern District, MS
Desoto County Board of Supervisors, Hernando, MS
Desoto County Administrator, Hernando, MS
Marshall County Board of Supervisors, Holy Springs, MS

TENNESSEE STATE LEGISLATORS

Tennessee Lt. Governor John S. Wilder
Tennessee Speaker of the House of Representatives Jimmy Naifeh
Tennessee State Senator
The Honorable Stephen L. Cohen
The Honorable Roscoe Dixon
The Honorable John Ford

The Honorable James F. Kyle, Jr.
The Honorable Mark Norris
The Honorable Curtis S. Person, Jr.

TENNESSEE STATE REPRESENTATIVES
The Honorable Tre Hargett
The Honorable Henri E. Brooks
The Honorable Lois M. Deberry
The Honorable Larry J. Miller
The Honorable Kathryn I. Bowers
The Honorable Barbara Cooper
The Honorable John J. Deberry
The Honorable Dolores Gresham
The Honorable Ulysses Jones, Jr.
The Honorable Joe Kent
The Honorable Mike Kernell
The Honorable Beverly Marrero
The Honorable W.C. Pleasant
The Honorable Paul Stanley
The Honorable Curry Todd
The Honorable Joe Towns, Jr.
The Honorable Larry Turner

MISSISSIPPI STATE REPRESENTATIVES
Mississippi Lt. Governor Amy Tuck
Mississippi Speaker of the House of Representatives William J. McCoy
The Honorable Kelvin O. Buck
The Honorable Larry J. Baker
The Honorable Thomas L. Woods
The Honorable John M. Mayo
The Honorable Ted Mayhall
The Honorable Wanda T. Jennings
The Honorable E. Forest Hamilton
The Honorable Jack G. Gadd

MISSISSIPPI STATE SENATORS
The Honorable Ralph Doxey
The Honorable Merle Flowers
The Honorable Robert Chamberlin

NATIVE AMERICAN GROUPS
Quapaw Tribe of Oklahoma
Tunica-Biloxi Indians of Louisiana, Inc.
Jena Band of Choctaw
Chickasaw Nation
Mississippi Band of Choctaw Indians
Choctaw Nation of Oklahoma

On April 27, 2001, the following Native American Groups were invited to participate as consulting parties under the 1999 Advisory Council on Historic Preservation regulations. An asterisk indicates a response was returned. Reference the letters in Appendix D.

NATIVE AMERICAN GROUPS

Mississippi Band of Choctaw Indians
Choctaw Nation of Oklahoma
Jena Band of Choctaw
Chickasaw Nation*
Quapaw Tribe of Oklahoma
Tunica-Biloxi Indians of Louisiana, Inc.*
Eastern Band of Cherokee Indians
Cherokee Nation of Oklahoma
Muscogee (Creek) Nation*
Seminole Nation of Oklahoma
United Keetoowah Band of Cherokee
Eastern Shawnee Tribe of Oklahoma

On February 11, 2004 a Native American Consultation Conference was held in Tunica, MS. The above twelve tribes were invited to attend. The conference included a field review and discussion of the SIU 9 alternatives between Hernando MS and Millington TN. No culturally sensitive or sacred sites were identified by the Native American representatives along the project. The Native American representatives that attended the conference requested that they be kept informed of any new discoveries as the project progressed.

5.2 SUMMARY AND DISPOSITION OF COMMENTS ON THE DEIS

FEDERAL AGENCIES

U.S. Environmental Protection Agency – Region 4

Comment: Summary - General Project Description – The general project description in the summary should describe the proposed project in more detail. The description merely states the project proposes to construct an interstate highway in Mississippi and Tennessee.

Recommendation: The FEIS project description should include the length of the proposed highway and the number of projected lanes. More emphasis should be placed on the proposed project description (Interstate 69 – Segment of Independent Utility 9).

Disposition: The summary has been revised to describe in more detail the proposed project cross-section, which is further discussed in Chapter II Alternatives.

Comment: Summary - Table of Project Impacts – The table included in the summary table is limited and fails to combine the impacts associated with the entire systems approach.

Recommendation: Table 2.8 should be included in the summary of alternatives. This summary table better incorporates the impacts associated with the system approach alternative. This table should also incorporate the number of hazardous waste and noise sites that may be impacted by the project. (Pg. 67)

Disposition: The summary table has been revised to include hazardous waste and noise sensitive receptors along the proposed alignments.

Comment: Overall Summary – The summary of the proposed project is not well organized. It does not provide a good overview of the proposed project.

Recommendation: The FEIS summary should be reorganized to first summarize the overall national I-69 description, purpose and need and then include a more detailed summary of I-69 section of Independent Utility 9 (e.g. total project length, number of lanes and other relevant project description. In addition, the project summary should also include a table of proposed mitigation commitments associated with proposed project impacts. The commitments should identify the phase of the project in which the commitments will be fulfilled.

Disposition: The summary has been revised to incorporate more detail on the overall purpose and need of I-69 and specifically I-69 as suggested. Chapter I, Purpose and Need, gives a more

detailed explanation for the project. A section on mitigation commitments has been added to the summary.

Comment: Figure 1 – Project Location Map – The project location map for Interstate 69 (SIU 9) shows two primary alternatives, one that traverses through downtown Memphis (I-69-Alt. A1 and A2) and another that bypasses Memphis to the east (I-269-Alts. B-1, B-2, and B-3). However, both the proposed I-69 corridor and I-269 corridor are part of the overall I-69 proposed route.

Recommendation: The FEIS summary should clearly state why one section of the proposed study corridor is labeled Interstate 69 and another section is labeled Interstate I-269, since both sections are proposed to be part of the overall I-69 corridor.

Disposition: In order not to confuse the traveling public, the I-69 designation will direct motorist through downtown Memphis, the I-269 designation will direct motorists whose destination is either east of Memphis or north or south of the city to an alternate route. This signing is similar to other interstates around major metropolitan areas.

Comment: Alternatives Considered (Pg. iii) - The DEIS evaluates a no-action alternative and one build alternative ("Systems Approach"). The systems approach alternative involves connecting existing and proposed interstates and highways identified in the Memphis Long Range Transportation Plan and Mississippi's Vision 21 Plan, thereby creating a route through and around the Memphis area (I-69 and I-269, sequentially). This approach appears to be unusual for a single project-level NEPA document.

In addition, the scope of the project changed between the issuance of EPA's scoping comments and the DEIS. The scoping document indicated that the primary action alternative would either pass through downtown Memphis or bypass Memphis to the east. However, the DEIS altered the scope of the project to include both action alternatives as a single build alternative. This approach will ultimately result in additional environmental and social impacts. Furthermore, the evaluation of a single build alternative is unusual for a project of this magnitude; and the proposed build alternative contains a number of sub-alternatives without an identified preferred alignment.

Recommendation: The FEIS should identify the environmentally preferred alignment for the action sub-alternative. Based on our review, EPA recommends that the FEIS examine sub-alternatives B2, A1, and A3 in more detail and eliminate sub-alternatives B1 and B2 due to adverse environmental impacts. In addition, since the DEIS utilizes a systems approach to meet the purpose and need and to explain the overall benefit of the proposed project, then the FEIS should document the indirect and/or cumulative environmental and social impacts (i.e. wetlands, aquatic resources, noise, relocations) associated with the entire system.

Disposition: "The Systems Approach Alternative" will connect all existing major highways and major traffic generators around the metropolitan area into one system that will benefit regions economy and the ever growing population. Chapters 1 and 2 further discuss the benefits of this alternative. In the early phases of project development, two alternative corridors with multiple alignments with common beginning and ending points were evaluated. One corridor through town and one corridor bypassed Memphis to the east. As the study progressed and after evaluating traffic patterns and growth patterns it became apparent that neither corridor by itself met the purpose of need of the project. While the decision was made to build two routes all five of the new location alternative alignments initially proposed during the Scoping Process were evaluated in DEIS. Two alternative alignments A-1 and A-3 were evaluated for the I-69 route. The alternative alignments B-1, B-2, and B-3 were evaluated for the I-269 route. The impacts on each of the new alignments is evaluated and compared in Chapter 2 Alternatives. An indirect and cumulative impacts section is included in Chapter 4.

Comment: Air Quality Conformity – On Page 16, Section 1.2.3. Consistency with Long Range Transportation Plans, the DEIS states that the project is a part of a draft long range transportation plan that is currently under development. The Clean Air Act under transportation conformity requires that this project should be in a conforming long range transportation plan and transportation improvement plan for it to advance under NEPA. EPA notes that the transportation plan has been adopted and a conformity determination made in March 2004. This project is in the long range plan for construction or open to traffic by 2016. Consequently, this project meets that requirement.

Recommendation: The FEIS should be altered to reflect that the transportation plan has been adopted and found in conformity.

Disposition: The Long Range Plan was not adopted prior to the approval of the DEIS. The FEIS will acknowledge that the Long Range Plan has been adopted and found in conformity.

Comment: Air Quality Impact Summary (Pg. 151) – The DEIS states that the proposed project is located in an air quality maintenance area effective August 31, 1994 for CO and February 16, 1995 for ozone.

Recommendation: This section of the FEIS should be updated to reflect the designation of Shelby County as a "moderate" nonattainment area under the new 8-hour ozone standard.

Disposition: Based on the EPA website (http://www.epa.gov/, reviewed January 5, 2006), on September 15, 2004 EPA changed the classification from "moderate" nonattainment to "marginal" nonattainment.

Comment: Air Quality Impacts (Pgs 142 and 149) – It does not appear that an air quality analysis was conducted for the portions of the project that will utilize existing or planned roadways. The DEIS states that volumes attributed to the project will not be substantial; therefore, the project will not have substantial impacts on air quality. With increases of up to 15 to 25 percent over the no-build condition and the addition of thousands of cars, and more importantly trucks, per day, it is difficult to accept without additional information that the project will not have substantial air quality impacts.

Recommendation: The FEIS should include more detailed information to substantiate the conclusions reached.

Disposition: The existing and planned roadways were evaluated as separate projects taking into consideration future projects and found to be in conformity. An air quality analysis was performed for each project and the traffic volumes have been included in the TIP. The proposed project has also been included in the Long Range Plan which has been adopted and found in conformity.

Comment: Safety – The majority of the accident data presented in the DEIS indicates that safety is not a significant issue throughout the entire system. Most of the data indicates that the accident rates throughout the project area are below or close to the state average, with the exception of I-240, I-40, and possibly I-55 (conflicting data).

Recommendation: The FEIS should either incorporate language that indicates that overall the system does not appear to have significant safety issues or it should further explain the accident data, since the accident data indicates that the vast majority of the roadways in the system do not have excess safety deficiencies. FHWA should examine options for improving safety associated with the two or three exceptions – Interstates 240 and 40 which appear to have accident rates above the state average.

Disposition: The overall systems approach does not present a major safety issue as is presented in the DEIS. The accident rates on segments of I-55, I-40, and I-240 implies safety deficiencies; however, these sections of existing interstates have either been improved or are scheduled to be improved by adding traffic lanes which will improve traffic service and reduce accidents. This statement has been included in the FEIS.

Comment: Study Corridor (Page 15) – The systems approach alternative for I-69 and I-269 includes incorporation of a number of other roadway projects into the I-69 system. The DEIS states that "they are committed projects with funding and environmental documentation already completed or scheduled for completion..." It may be true that the construction of these projects is not dependent upon the approval of I-69. However, the approval of I-69 is dependent on the approval of these projects. For this reason, these other projects should be considered "connected actions" as described in the CEQ Regulations at 40 CFR 1508.25. It is unclear from the Draft EIS which projects have completed the NEPA process and which projects are still in the conceptual planning state.

Recommendation: The Final EIS should include a summary documenting the environmental impacts assessment for all system projects. We would expect that where there has not been a completed NEPA document within the system, that NEPA will be completed. This will provide all interested parties with a more complete analysis of the environmental impacts of the I-69 systems alternative.

Disposition: The existing and proposed roadways that will be incorporated into the I-69 Systems Approach Alternative, I-55, I-240, I-40, and SR-385 have approved documents and are under construction. There is a small segment of I-240 between the I-55 and the I-240/40 Midtown Interchange that has not been formally approved. This project utilizes the existing right-of-way and no new right-of-way is needed to accommodate the **Systems Approach Alternative.** All

NEPA studies are complete and awaiting final approval. A Section 106 "Memorandum of Agreement" (MOA) for an adverse effect to a National Register Historic District due to the need for noise barriers is being finalized. Once the MOA is signed by the appropriate agencies the NEPA document will be approved.

Comment: Land Use Impacts (Page 91) – The analysis of the potential for indirect environmental impacts associated with changes in land use after opening of I-69 and I-269 is inadequate. Statements that future projected growth in the project area will occur with or without I-69 is not plausible. On Page 20 of the DEIS, the Shelby County Growth Plan states that "development in eastern Shelby County and western Fayette County will occur rapidly because the roadway will be the chief determinant of future land use." Part of the purpose and need of I-69 is to stimulate economic development and growth. The Draft EIS identifies a number of industrial parks that will have improved access from the project. New access will be afforded in areas that are experiencing significant growth pressures. The DEIS states that, "I-269 will both redistribute growth anticipated by the base case, as well as, stimulate incremental growth in population and employment (Page 106)."

Recommendation: The FEIS should determine the extent to which existing land use will be impacted by construction of the new project. What will be the localized environmental effects of potential land use change associated with varying degrees and locations of access to the facility? The specific environmental impacts at these areas should be quantified and compared between alternatives.

Disposition: A Cumulative Impacts Section has been added to the FEIS which further discusses the past, present, and future growth in the project impact area.

Comment: Environmental Justice (EJ) (Pages 81-85 and 95-105) – The social impacts information presented in the DEIS is inadequate to determine if the project will have disproportionately high or adverse impacts on low-income and minority communities. The population characteristics indicate that the counties within the project area have higher minority populations compared to the States. In addition, three of the four counties within the proposed project area also have low-income population at or greater than the State averages. The DEIS indicates that various mobile home parks will be affected by the proposed project. For example,

a mobile home park along Alternative A3 will result in the displacement of 15 trailers. There appears to be pockets of potential EJ communities that will be adversely impacted on the proposed project.

Recommendation: The FEIS should include the complete EJ Study in the Appendix. Given incomplete information included in Chapter 3 and the fact that the majority of census tracts traversed by the project show high percentages of minorities, it does not seem plausible that the project would not have disproportionate impacts to minority or low-income populations. The FEIS should include numbers within potential EJ communities that will be impacted by noise, relocation, etc. It should also discuss the benefits and burdens associated with the proposed project and the degree to which the EJ communities will both benefit and be adversely impacted by from the proposed project relative to the reference population.

Disposition: The complete EJ Study is included as part of Technical Appendix III which accompanied the DEIS. The proposed project will displace 85 families over a 45 mile long alignment. Although the counties have a large minority and low income population based on field reviews and population data it does not appear that low income and minority populations will be disproportionately impacted. The A3 alignment that impacted the trailer park was not selected for this project. Relocation impacts are discussed further in Chapter 4.

Comment: Water Quality Impacts (Page 110) – There is no discussion or identification of any 303(d) listed impaired waters in the project area. It appears based on the latest information from Tennessee Department of Environment and Conservation (TDEC) that there area a number of water bodies that will be impacted by the project that are not meeting their designated uses.

Recommendation: The FEIS should include a commitment that TDOT will work with TDEC to determine what pollution control measures should be adopted to advance the state's nonpoint source management plans in the project area. Specifically, the status of development of Total Maximum Daily Loads (TMDLs) for any waterways in the study area should be identified and how the proposed project could affect implementation of restoration efforts in these watersheds.

Disposition: TDOT has contacted TDEC on the status of the TMDLs for impaired waters in the project area. The TMDL plan for channelized streams and sediments in the project area is not complete at this time. Soil erosion and sediment control will be addressed during the permit process. TDOT will continue to work with TDEC to insure pollution control measures are

implemented to avoid or minimize the TMDLs to area 303(d) listed impaired waters. A discussion of 303(d) listed streams has been added to the Water Quality Impact section in Chapter 4.

Comment: Noise Methodology (Page 154, 1st Paragraph) – There is a statement that no commercial or industrial receptors were analyzed. TDOT only requires facilities such as residences, schools, and churches to be modeled. However, this does not appear to be consistent with the FHWA Noise Abatement Criteria, which requires analysis of noise impacts to developed lands.

Recommendation: The FEIS should incorporate an assessment of noise impacts to commercial or industrial receptors or the document should include language that states that this methodology is consistent with FHWA's Noise Abatement Criteria.

Disposition: TDOT was required to prepare a Noise Abatement Criteria Policy by the FHWA. The policy does not require commercial or industrial receptors to be analyzed FHWA has concurred with the TDOT Noise Policy.

Comment: Noise (Page 154) – The DEIS states that a noise study has been conducted for the entire I-69 project limits (no mention of I-269). Noise abatement measures for improvements to I-55, I-240, I-40, and SR-385 were evaluated in separate documents and noise abatement measures were proposed. According to the DEIS, the I-69 system will be routed along these existing highways and interstates; however, the volume attributed to the proposed project will not be substantial and will not result in the need for additional barriers.

Recommendation: The results of this study should be better summarized in the FEIS to substantiate the claim that volumes attributed to the project will not be substantial and require additional noise barriers. This should include identification of the additional traffic and noise volumes attributed to I-69 at specific locations along the proposed routes. With increases of up to 15 to 25 percent over the no-build condition and the addition of thousands of cars and trucks, per day, it is difficult to accept without additional information that the project will not have substantial noise impacts.

Disposition: Using the FHWA guidelines for highway noise, "Fundamentals and Abatement of Highway Traffic Noise" in order to raise the existing noise levels by 3 dBA you would have to

double the noise source. Increasing traffic by 15-25% on the existing and proposed new location of SR-385 would be less than 1/3 of the total traffic and would raise the noise level by less than 1 dBA. Based on previous noise analysis a 1 dBA increase would not be discernable by the human ear. A long berm is being constructed between the SR-385 roadway and a large subdivision in Collierville that will shield this residential area that is located 500 feet from the proposed roadway. This berm will act as a visual barrier between the subdivision and roadway. No other noise barriers or berms are proposed. This segment of SR-385 in Collierville will be reevaluated prior to construction. Noise abatement measures are proposed along I-40, I-240, and I-55. The routing of I-69 along these roadways will not negate the benefits of the proposed noise barriers. The proposed barriers along I-240 from I-55 to the Midtown I-40 Interchange and the segment of I-55 from Hernando, MS. to the TN. State line will be reevaluated prior to final design and construction of these roadway segments. The noise study in Chapter 4 Environmental Consequences included the I-269 alternative alignments. A more detailed explanation on noise barriers has been included in the FEIS, Chapter 4.

Comment: Noise Impacts and Mitigation (Pages 155 – 169) – The proposed project identified a total of 152 potential noise receptor sites within the proposed project area. Most of the potential noise sites were not considered for noise abatement because they did not meet FHWA, MDOT, or TDOT noise barrier policy. According to the DEIS, barriers appear reasonable at one of the sites with 15 possible receptors.

Recommendation: The FEIS should provide the overall number of potential noise impacts associated with the proposed action or systems approach. For example, a summary table that indicates potential noise impacts for A3B3 or A1B3 should be incorporated within the noise section and included in the overall environmental impacts chart. Since many of the proposed noise abatement strategies evaluated were not feasible, additional noise abatement measures should be examined such as vegetated berms, relocation and acquisition, use of dense vegetation, or noise reducing pavement technology.

Disposition: The noise location points and number of residents impacted is shown on the noise study map and tables for each alignment in the DEIS. A summary table combining the individual alignment tables shown in the DEIS has been included in the FEIS. Other forms of abatement such as vegetated berms may be considered during the design of the project. Any

noise abatement proposed must meet the criteria of MDOT and TDOT noise policies, as well as FHWA noise abatement guidelines. Relocation and acquisition are not approved methods of abatement. The use of dense vegetation does not provide an acceptable level of noise reduction to be feasible.

Comment: Aquatic Resources – The proposed project may impact the 100-yearfloodplain, 122 acres of wetlands, and 30,570 linear feet of streams (67 stream crossings). The wetlands and streams occur in three river watersheds: the Coldwater River, the Loosahatchie River, and the Wolf River, which eventually flows into the Mississippi River. Some of the wetlands are large bottomland forested wetlands; however, most of the wetlands in the proposed project area have been altered by past agricultural related activities. Similarly, many of the streams have been dredged and channelized causing increased associated with past and present development in Shelby County, EPA has concerns regarding additional impacts to the proposed project area, particularly in wetlands and streams with good to fair functional value. Avoiding impacts to forested wetlands is also a major concern since they are extremely hard to successfully replicate.

Recommendation 1: EPA recommends that every effort should be made to further avoid and minimize impacts to the 100 year floodplain, wetlands and streams affiliated with the proposed project. The FEIS should include commitments to bridge, wherever possible, major floodplain, river and drainage canal crossings associated with the Loosahatchie, Coldwater, and Wolf Rivers.

Recommendation 2: In addition, EPA has concerns regarding Alternatives B1 and B3 which both cross the Coldwater River and its associated floodplains. Alternative B3 appears to avoid the additional crossing of the Coldwater. Alternatives A1 and A3 both open new aquatic resource crossings over the Loosahatchie River bottoms; however, overall the direct, indirect, and cumulative impacts associated with Alt. A3 on aquatic resources may be less than Alternative A1. Consequently, based on our review, EPA recommends that sub-alternatives A3, A1, and B3 should be examined in more detail in the FEIS as opposed to B1 and B2.

Disposition: During the design of the river and stream crossings, special attention will be given to minimize fill and extend bridge lengths to further avoid or minimize impacts to the floodplains and associated wetlands. These commitments will be included under mitigation measures. The

impacts associated with each section of each alternative alignment are discussed in detail in Technical Appendix 1 Ecology.

Comment: Aquatic Resource Mitigation – The DEIS describes potential opportunities for restorative, enhancement, or preservation for the purposes of wetland and stream mitigation. The document also identifies potential mitigation banks in both Tennessee and Mississippi. However, the document states that appropriate mitigation for unavoidable impacts and an analysis of "on-site verses off-site" mitigation will occur during the permitting phase. In addition, the document does not identify the amount of mitigation and the type of mitigation that will be needed to offset potential impacts.

Recommendation: 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. In an effort to both streamline the project and provide adequate disclosure regarding proposed mitigation of project impacts, the FEIS should identify the type, location, and amount of mitigation that will be proposed to aquatic resource impacts.

Disposition: The proposed mitigation measures are discussed in Chapter 4, Environmental Consequences. Because a ground survey has not been conducted and detailed construction plans have not been developed, a detailed mitigation plan is premature at this time. The commensurate mitigation ratios will be determined in consultation with the Federal and State resource and permitting agencies as soon as possible and before any permit applications are submitted.

Comment: Cultural Resources – The DEIS identifies up to 33 recorded archeological sites which could be impacted by the proposed project. EPA defers to the parties involved in the Section 106 analysis, such as the State Historic Preservation Office (SHPO) and the Tribes, to consider and address any potential adverse effects associated with the proposed project.

Recommendation: EPA recommends that FHWA include the results of the completed Phase 1 assessment in the FEIS. In addition, the FEIS should also include the results of the Section 106 process and Memorandum of Agreement (MOA) in the FEIS. This will ensure that any adverse impacts to cultural resources and potential mitigation measures are identified.

Disposition: The Phase I results are presented in the FEIS (Chapter 4, Section 4.12) along with correspondence from the Tennessee and Mississippi State Historic Preservation Officers.(See

Appendix D) The proposed project is in compliance with Section 106 of the National Historic Preservation Act of 1966. A Memorandum of Agreement was not required for this project.

Comment: Cumulative Impact/Connected Action – Based on the information provided in the DEIS, EPA has concerns regarding the methodology associated with the development of the action scenario or sub-alternatives for the systems approach. The impacts associated with the proposed project appear to be segmented and therefore the results of this analysis yield pieces of the project, but do not disclose the total proposed project impacts associated with the entire system. It should include other connected actions because it cannot proceed unless other actions are taken previous or simultaneously. The proposed action scenario or sub-alternatives are based on connected actions that may or may not have undergone the NEPA process. Consequently, the DEIS cannot adequately be evaluated for the potential cumulative environmental impacts. In addition, the proposed project does not attempt to evaluate the cumulative environmental and social impacts associated with the proposed project or the "systems approach".

Recommendation: The FEIS should examine the cumulative impacts associated with the proposed project and its connected actions. Cumulative impacts are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future action. The document appears to examine the direct and indirect actions associated with the proposed project, but it does not address the cumulative impacts associated with the proposed system. The proposed system alternative is an interdependent part of a larger action and depends on the larger action for its justification.

Disposition: A Cumulative Impact Section is included in the FEIS. The existing and proposed interstate and highway projects incorporated into the I-69 Systems Approach Alternative have been evaluated in separate environmental documents. The cumulative effect has been addressed in the DEIS. The increase in population and the expansion of the Memphis economic distribution center is well documented.

U.S. Army Corps of Engineers – Regulatory Branch - Memphis District

Comment: A §404 permit from the Corps of Engineers (USACE) is required prior to the disposition of dredged or fill material into waters of the United States. The USACE recommends that impacts to wetlands and other waters of the United States be avoided or minimized to the

extent practicable. They recommend that alignments be shifted within the wider study corridor to avoid wetlands located closer to the edges and to avoid bisecting some of the larger wetlands. Documenting steps taken to avoid and minimize impacts to waters of the U.S. could facilitate the permit application process.

Disposition: TDOT and MDOT will work closely with the USACE, as soon as project details are available and prior to submitting permit applications to further minimize and mitigate unavoidable wetland impacts.

Comment: The USACE also recommends initiating the permit process before all plans and right-of-way have been finalized. Their concerns expressed during the permitting process may result in alterations to the project. They feel it would be worthwhile to contact representatives of the regulatory and resource agencies involved to view proposed impact sites and discuss potentially controversial aspects of the project prior to the submittal of permit applications.

Disposition: Water quality issues were discussed with resource and permitting agencies during the early scoping meetings. The methodology used to assess impacts and mitigation issues were also discussed. TDOT and MDOT will initiate the permitting process prior to the finalization of ROW and construction plans in order to address any issues that arise.

Comment: The letter also states that impacts to groundwater are not within the regulatory jurisdiction of the USACE, and they must be considered during the permitting process. They recommend that it may be beneficial to add a section on potential groundwater impacts to the EIS.

Disposition: Groundwater impacts are likely to occur as secondary and cumulative impacts to the project. Due to residential, commercial and industrial development in the project area, groundwater impacts are likely to occur. Most new developments in the area will not depend on the use of groundwater wells. Throughout the project area, the local utility companies should upgrade the infrastructure so that water and sanitary sewer are available to those that request it. Additionally, there are no area sinkholes that could be used to dispose of wastewater or storm water.

Comment: The USACE points out that federally authorized flood control projects are located within the project corridors within the Wolf and Loosahatchie River basins. They would like TDOT to remain in contact with the Memphis District to ensure that the proposed project does not impact these projects. During the design phase, it is important to ensure proper stabilization measures at stream and river crossings.

Disposition: TDOT and MDOT will work closely with the USACE to ensure that the proposed project does not impact on-going flood control projects.

Comment: The USACE is concerned that the Draft EIS does not address impacts associated with the section of State Route 385, much of which is under construction, between I-40 near Arlington and Nonconnah Parkway near Collierville. A substantial portion of the alignment near the Wolf River in Collierville has not been permitted. Many of the residents adjacent to the State Route 385 alignment voiced opposition to the project, and one of their concerns was the possible inclusion of State Route 385 in the I-69 corridor. These comments were dismissed in the Final EIS for that project as "very precipitous" because of the length of time associated with the environmental studies and planning that would be required for I-69. The USACE states that as a result, it appears that the impacts associated with the inclusion of State Route 385 in the I-69/269 corridor may not have been fully studied.

Disposition: The proposed I-269 alignment will follow the State Route 385 alignment under construction between Arlington and Collierville. This project will not add any additional traffic lanes or acquire any new right-of-way; the only change will be the route designation. The required permits are being applied for on the remaining sections of State Route 385, which will be constructed long before the I-269 section is ready for construction. The referenced State Route 385 EIS addressed environmental concerns for that portion of the project.

Federal Aviation Administration – Airports District Office

Comment: "Because of the close proximity of the proposed project to the General Dewitt Spain Airport, it is probable that you will have to file FAA form 7460, Notice of Proposed Construction or Alteration, before construction. If construction activities (including construction equipment) or the completed project (including light poles) would exceed an imaginary surface extending outward and upward at a slope of 100 to 1 from the nearest point of the nearest

runway, then a Notice of Proposed Construction of Alteration, FAA Form 7460, must be submitted to the Southern Region, Federal Aviation Administration, Atlanta, Georgia. The forms may be obtained from our office.

"We also request that you coordinate plans with the Memphis-Shelby County Airport Authority during the design of the project, as committed in the DEIS, pages 213-215, in order to minimize any potential impacts to Dewitt Spain Airport."

Disposition: TDOT will work with the Airport Authority to ensure compatibility of the proposed roadway with the Dewitt Spain Airport and to complete and submit the appropriate forms.

Tennessee Valley Authority – Environmental Policy and Planning

Comment: "The project has the potential to require the modification of TVA transmission lines in the area, especially along the proposed new I-269 corridors B-1, B-2 and B-3 in Mississippi."

Disposition: MDOT will work closely with TVA in the event TVA transmission lines in the area of the selected B-1 alternative are impacted.

Comment: "It appears that the major issues have been addressed. In Figures 1-4A, 1-5, 1-6, and 3-3, I-55 is mislabeled. It appears that the road badge should be US 51, with I-55 appropriate for the roadway to the east (the I-69 proposed alignment)."

Disposition: The maps have been corrected in the Final EIS to show I-55 and US 51 in the correct locations.

U.S. Coast Guard – Eighth Coast Guard District

Comment: Coast Guard bridge permits will not be required since SIU 9 will not cross any waterways over which the Coast Guard exercises jurisdiction for bridge administration.

U.S. Department of the Interior - Office of Environmental Policy and Compliance

Comment: "The proposed project will impact streams, numerous wetlands, and the fish and wildlife resources that utilize those habitats. Placement of fill material and construction of bridges and approaches can have significant adverse impacts on stream hydrology and water quality, and can significantly impact the quality and functions of wetlands. The draft EIS indicates that Best Management Practices will be employed to control erosion and sedimentation

of streams, but it does not contain plans for mitigation for unavoidable losses of stream or wetland resources. Proposed Alignments A-1, A-3, and A-8 included extensive wetlands along the Loosahatchie River bottoms. The magnitude of potential wetland and aquatic ecosystem impacts leads us to recommend eliminating those alternative alignments from further consideration. For I-269, we recommend Alignment B-3 as the preferred alternative due to its avoidance of the Coldwater River and associated wetlands."

Disposition: The unavoidable losses of wetlands and stream resources will be mitigated. The exact level of mitigation is unknown at this time. When plan details are known they will be coordinated with the permitting agencies to determine the appropriate mitigation. With the exception of the No-Build Alternative, there are no alternatives that completely avoid wetlands and meet the purpose and need of the project. This is discussed further in Chapters 2 and 4. Alternative A-1 was selected because it has the least number of wetlands. Alternative B-3 was not selected as the preferred alternative because of the large number of existing and potential family displacements in the Forest Hill Community. The Tennessee and Mississippi Departments of Environment and Conservation have reviewed the draft EIS and their comments have been addressed. Continued coordination is ongoing with both departments. Appropriate mitigation will be addressed with both state departments during the permitting process.

Comment: "The draft EIS (p136) references a letter dated February 11, 2002, sent by the FWS' Jackson, Mississippi Field Office; however, this letter is not found in the Initial Coordination Appendix. We recommend all letters sent by the FWS regarding the proposed project be included in the EIS."

Disposition: A copy of all coordination letters from FWS offices (Cookeville and Jackson) are located under Project Correspondence of Technical Appendix I – Ecology Report that is on file at TDOT and MDOT offices.

Comment: "The FWS (Cookeville, Tennessee office) September 26, 2001 letter indicated that no federally listed or proposed endangered or threatened species are known to occur in the project impact area. However, the draft EIS indicates that the following federally listed species may occur in the project area:

1. Indiana Bat – *Myotis sodalist* (E)
2. Bald Eagle – *Haliaeetus leucocephalus* (T)
3. Least tern – *Sterna antillarum* (E)
4. American burying beetle – *Nicrophorus americanus* (E)
5. Turgid-blossom pearly mussel – *Epoblasma turgidula* (E)

For major Federal actions (i.e. those requiring preparation of an environmental impact statement), Section 7 of the Endangered Species Act requires preparation of an environmental impact assessment and written concurrence from the FWS that the proposed action is not likely to adversely affect listed species. The lead Federal agency should prepare a biological assessment and make a determination of whether or not the proposed I-69 Segment 9 project is likely to adversely affect the five endangered and threatened species listed above. A copy of the biological assessment and your finding should be submitted to the FWS for review and concurrence. A finding of "likely to adversely affect" may require initiation of formal consultation.

Disposition: This section of the FEIS has been revised. No threatened or endangered species have been identified within the impact area of this project, so a Biological Assessment is not required. A letter of concurrence from the FWS – Cookeville, Tennessee office is located under Project Correspondence of Technical Appendix I – Ecology Report. All species listed above are addressed in Chapter 4, Section 4.4 of Technical Appendix I – Ecology Report. A copy of the Ecology Report has been sent to the FWS – Mississippi and Tennessee offices. Coordination letters of concurrence will be updated as required by NEPA. The latest letter dated April 20, 2005 is contained in Appendix C.

STATE AGENCIES

Tennessee Department of Environment and Conservation - Division of Natural Heritage

Comment: The proposed build alternatives raise concerns with regard to potential adverse impacts to state listed species, loss of wetlands and wildlife habitat, and the crossing of major rivers and streams.

The DNH concurs with the USFWS and anticipates minimal impacts to federally listed species. However, potential impacts to state listed species were not evaluated in the DEIS. Our records indicate that three state listed species have been documented within a 1-mile radius of the proposed highway alignments. These species include:

Blue sucker – *Cycleptus elongates*	Threatened
Northern pine snake – *Pituophis melanoleucus melanoleucus*	Threatened
Nodding rattlesnake-root – *Prenanthes crepidinea*	Endangered

Consideration should be given to these state listed species, some of which are less common in Tennessee than some of the federally listed species that were mentioned. The DNH asks that these locally rare species, and their habitat, be considered when evaluating the alternative alignments.

Disposition: Potential impacts to state listed species, including the Blue Sucker, Northern Pine Snake, and Nodding Rattlesnake were evaluated in the Ecological Study. The complete ecology report is contained in Appendix I Ecology that is on file at TDOT. No impact to state threatened or endangered species is anticipated.

Comment: The DNH is likewise concerned over the potential filling of wetlands and streams, the conversion of wildlife habitat to road right-of-way areas, the general fragmentation of habitat, and the loss of wildlife associated with such transportation projects. To address these impacts, the CNH supports a highway alignment that would avoid or minimize impacts to vegetated wetlands and intact-forested habitats. Of particular concern are the forested wetlands occurring along the Loosahatchie River bottoms (Alignments A1, A3). Should wetland impacts to these areas be unavoidable and mitigation necessary, we ask that any lost wetland function be

replaced by restoration of degraded wetlands in the appropriate watershed. Additionally, the fragmentation of forested habitat by this project should be evaluated and quantified, and mitigation for this loss should be considered by replacing lost forested habitat with protected forested habitat near the project area.

Disposition: Mitigation for the unavoidable filling of wetlands and the fragmentation of bottomland hardwood forests will be coordinated with the Federal and State permitting agencies. Mitigation will be provided at an approved wetland mitigation site in the appropriate watershed. The ratio of replacement and other mitigation measures deemed necessary will be determined by the permitting agencies once the project design plans are available and permit negotiation begins.

The majority of the forestland found along the project corridor are remnants of the larger forested wetlands that dominated the low lying landscape in the past. The level of mitigation for these bottomland hardwoods (wetlands) will be determined during the permit phases of the project. No unique upland forest areas have been identified in the project impact area. There are some smaller scattered forested areas along the corridor that provide some wildlife habitat. The alternative alignments have been located in the field to cross the bottomland hardwoods at the narrowest point. There are no current guidelines for mitigating upland forests or agreements in place to purchase protected forest habitat. However, TDOT is willing to coordinate further with TDEC to determine if any unique sensitive wildlife habitats are impacted by the project and any appropriate mitigation.

Comment: The loss of wildlife associated with transportation projects should also be evaluated and can be mitigated to some extent by providing for safe passages under the interstate, particularly for small mammals and amphibians. We suggest that such passages be incorporated into the project design.

Disposition: There are numerous culverts and bridges along the proposed new location alignments that can be used by area wildlife. There are no known migratory trails identified in the project area where safe passages are warranted. However, TDOT and MDOT will consider wildlife passages, if new information becomes available and migratory trails are warranted.

Comment: Highway construction activities often result in excessive erosion and stream sedimentation. Adherence to stringent, site-specific Best Management Practices (BMPs) will be crucial for the protection of sensitive aquatic environments. To minimize adverse impacts to the aquatic environment, construction activities should be monitored regularly and stringently enforced.

Disposition: Construction activities will be monitored by a qualified erosion control specialist on a continual basis especially after storm events to ensure that erosion control measures and permit conditions are stringently enforced.

Comment: The DNH would also like to stress that care be taken to prevent revegetation of the area with plants listed by the Tennessee Exotic Pest Plant Council as harmful exotic plants. We advocate planting and restoring the impacted areas with native plant species, preferably those found onsite prior to construction activities.

Disposition: No non-native or exotic species will be used to re-vegetate the proposed project right-of-way. The re-vegetation of disturbed sites will use species native to the area of the state.

Tennessee Wildlife Resources Agency

Comment: The Tennessee Wildlife Resource Agency would prefer that Alternative Alignment A1 be selected. This alignment provides the least impact on quality wetlands of the two proposed alignments. We encourage continued consultation with our agency in future phases of this project to further reduce impacts to fish and wildlife resources.

The Tennessee Wildlife Resource Agency continues to be concerned that either of the Alignment A Alternatives will encourage secondary development of the Wolf River floodplain and associated wetlands on the north side of the river, especially if the proposed North Second Street extension project in Memphis is approved.

As you know there are farmed wetlands lying within this area of proposed protection. Mitigation for direct wetland impacts associated with the road construction could take place on those farmed wetlands albeit at a higher ratio than the 2:1 ratio normally associated with restoration mitigation.

Disposition: Wetland impacts will be mitigated in the Wolf River floodplain in the area between the Wolf River and the proposed project right-of-way. The ratio of replacement has not been determined by the permitting agencies. As soon as design plans become available and the extent of bridging and fill material is known, the appropriate permit and resource agencies will be consulted to determine the appropriate level of mitigation.

Tennessee Department of Environment and Conservation – Division of Solid Waste Management – Memphis EAC

Comment: "The existence and correct location of known solid or hazardous waste management facilities was reviewed. The review assumed that the 300-foot right-of-ways shown are the actual proposed routes. CERCLIS/Super Fund sites were not addressed.

"No active RCRA hazardous waste treatment, storage, disposal, or recycling facilities are located within the proposed 300-foot right-of-way in Tennessee.

"Several landfills are either omitted or incorrectly characterized/located in the text (Paragraph 4.13, pages 190 and 191). The James Howell Demolition Landfill (DML 79-0001) is located in the northwest corner of the US 51/TN 300 intersection. The Jimmy T. Wood Demolition Landfill (DML 79-0077) is an open/active site. The J.T. Wood Benjestown Road Landfill (DML 79-0109) is a permitted site and is incorrectly located on Constraints Map 6. It's actual location is between the dead-end of Carrolton Road and Pond 4-A on Constraints Map 6."

Disposition: These corrections and additions have been made in the Final EIS.

Comment: "Where former disposal sites are encountered along the chosen route, the waste material will be disposed of in facilities that are now permitted to receive the types of waste encountered. Untreated wood waste encountered may be burned if allowed by law."

Tennessee Department of Environment and Conservation – Division of Water Pollution Control

Comment: "A number of stream or wetland crossings are identified in the project document. At an appropriate time, staff in the local Memphis office will review determinations to ensure that proper identification of all impacted water bodies occurs."

Disposition: TDOT will coordinate with the Division of Water Pollution Control to ensure that all water bodies are accurately identified and all unavoidable impacts to streams and wetlands are accurately addressed.

Comment: "It is understood that all relevant permits issued by the Division of Water Pollution Control will be obtained by TDOT. These include Aquatic Resource Alteration Permits (ARAP) and coverage under the Tennessee General Permit for Storm Water Discharges associated with Construction Activity (TNCGP). Additional permits from the Corps of Engineers may also be required."

Disposition: TDOT will work with the Division of Water Pollution Control and the Corps of Engineers to obtain all necessary permits required for construction of the segment of the proposed project in Tennessee. MDOT and the Corps of Engineers will address the permits in Mississippi.

Comment: "The division believes that current TDOT philosophy incorporates prevention of environmental impact through context sensitive planning, design alternative evaluation, and proper installation and maintenance of erosion prevention and sediment control measures. Resulting sediment transport would not occur except when an extraordinary event occurs."

Disposition: TDOT will avoid or minimize environmental impact, except during an extraordinary event, through context sensitive planning, design alternative evaluation, and proper installation and maintenance of erosion prevention and sediment control measures.

Comment: "Inspections by TDOT Quality Assurance/Quality Control team(s) will periodically occur in conjunction with inspections performed by TDOT personnel. These inspections will identify preventative measures to employ prior to experiencing transport of sediment from within authorized areas of disturbance and prevent unauthorized disturbance beyond areas identified by applications for permits. Release of sediment should occur only as a result of an extraordinary event, and even the impact of that release will be addressed by TDOT and/or the responsible contractor to alleviate impact."

Disposition: TDOT will have QA/QC teams periodically inspect preventative sediment measures on the site in conjunction with TDOT and TDEC personnel to ensure compliance with project permits and design plans.

Tennessee Department of Environment and Conservation – Division of Air Pollution Control

Comment: "The portion of this project in Shelby County is in an area designated as non-attainment for the National Ambient Air Quality Standards (NAAQS) for ozone, and maintenance for carbon monoxide, and is therefore subject to Chapter 1200-3-34, Transportation Conformity. As mentioned in section 1.2.2 of the DEIS, that portion of the project described in Shelby County must demonstrate Conformity in the latest Long Range Transportation Plan for the Memphis Metropolitan Area in order to proceed. If the design concept or scope of the project changes, it will need to undergo a new conformity determination. Similarly, due to changes in EPA's ozone standard, the project will need to be included in a new conformity determination conducted by the Memphis Metropolitan Planning Organization to meet the requirements of the new 8-hour ozone standard."

Disposition: TDOT will work with the Memphis MPO to demonstrate conformity.

Comment: "Should any structures need to be demolished, Chapter 1200-3-11, Hazardous Materials, requires that the structure be inspected for the presence of asbestos. Should asbestos prove to be present, this Division must be notified prior to its removal. Additionally, this Division should be notified ten working days before any structure is demolished, whether asbestos is present or not. In Shelby County, the Memphis and Shelby County Health Department has jurisdiction, therefore, they must be contacted, and all applicable local regulations must be observed.

"Additionally, this agency should be contacted before any burning of waste materials is attempted, to ensure compliance with Chapter 1200-3-4, Open Burning. We also recommend you contact State Division of Forestry and the local fire department before attempting any open burning. In Shelby County, the Memphis and Shelby County Health Department has jurisdiction, therefore, they must be contacted, and all applicable local regulations must be observed.

This agency's other interests, above what would be addressed through the standard NEPA process, concerns the control of fugitive dust and equipment exhaust emissions during the construction phase."

Disposition: TDOT will comply with all state and local air quality regulations.

LOCAL AGENCIES AND OFFICIALS

Sierra Club - Tennessee Chapter - Chickasaw Group

I. ALTERNATIVE FORMS OF FREIGHT TRANSPORTATION

Comment: The DEIS does not consider alternative forms of transport of freight and people from Canada to Mexico. The absence of substantive analysis of rail and barge transport is a major oversight.

Disposition: Legislation passed by Congress since 1991 (1991 ISTEA Legislation, The National Highway System Designation Act of 1995, and TEA 21 of 1998) defines Corridor 18 (officially designated as Interstate 69) as a high priority corridor from Indianapolis to the Lower Rio Grande Valley. Several previous studies of the overall corridor have been completed, namely; 1) Corridor 18 Feasibility Study (1995); 2) Corridor 18 Special Issues Study (1997); and 3) Statement of Purpose and Need for Interstate Highway 69 (2000). These studies addressed the overall economic feasibility of the corridor as well as the examination of freight movements by truck, rail, air, and barge. In the report on the Statement of Purpose and Need, it is stated,

> "An examination of all freight movements (truck, rail, air, and water) shows that most are relatively short with dispersed origins and destinations. These movements are best served by a highway system with many of the longer trips making use of other modes. Not all of Corridor 18 can be effectively served by waterways even though there are many ports connected by the proposed I-69."

The studies considered the Modal/Freight Relationships and how the proposed corridor would connect major urban areas, port facilities, industrial areas, space industry, airports, public transportation facilities, and intermodal transportation facilities with more direct international border crossings for Mexico and Canada. The conclusion reached from these studies is stated in the Statement of Purpose and Need Report as, *"The length of the corridor, its location, and*

travel needs along the corridor indicate that transportation service can be provided best by an Interstate Highway type of facility."

Comment: Use of the Existing Interstate System: Another major absence is the analysis of the present Interstate System for handling transport from Canada to Mexico.

Disposition: Previous studies considered existing routes for the I-69 corridor, both existing Interstate and other US Highways. The studies concluded that *"Existing routes that are candidates for I-69 include a number of congested facilities."* The studies also concluded *"the I-69 corridor could provide some relief to other Interstate corridors."* SIU 9 does include some portions of the existing Interstate system as part of the Systems Approach alternative.

Comment: No-Build Alternatives: There is an inadequate no-build alternative analysis.

Disposition: In the Statement of Purpose and Need Report, February, 2000, the following paragraph from that report states,

"The need for improved transportation service in Corridor 18 along the I-69 corridor alignment emanates from travel demand, social advancement, and economic development concerns. The full corridor of over 1600 miles (Texas/Mexico border to Michigan/Canada border) has a primary need for enhanced transportation service for relatively short trips as well as for long distance travel. The majority of the trips are best served by an interstate highway extension from Indianapolis to the LRGV in conjunction with upgrading the existing I-69 north of Indianapolis. Transportation along this I-69 corridor would make use of air, rail, and water modes using existing and improved facilities."

The no-build alternative will not satisfy the purpose and need of the overall corridor nor the SIU 9 section from Millington, Tennessee to Hernando, Mississippi.

II. UNREASONABLE EXPENDITURE OF PUBLIC FUNDS

Comment: Will the expected truck traffic materialize?

Disposition: A travel demand model was used to forecast the usage of all types of vehicular traffic (including truck trips) for the corridor. These traffic projections were then incorporated into the local traffic model for the Memphis MPO area in order to add the local traffic as well as

future local projections to the overall corridor assignments. Accepted procedures and traffic assignments methodologies were used to forecast the traffic for the I-69 corridor.

Comment: Is I-69 a financial disaster in the making?

Disposition: In the Corridor 18 Special Issues Report, 1997, Chapter 2 addresses the Economic Feasibility of the overall corridor. The conclusions reached are stated as follows:

1. *An interstate-type highway built in the Corridor 18 area from Indianapolis to the Lower Rio Grande Valley is an economically feasible project.*
2. *An investment of tax dollars in the corridor is a reasonable use of tax dollars.*
3. *Corridor 18 is sufficiently viable that the sensitive tests found that the project is feasible under a range of scenarios.*
4. *This feasibility conclusion applies to the Corridor 18 in the location which was analyzed. Other alternative routings may be more or less feasible.*
5. *Conservative evaluation procedures were used in this analysis.*

Comment: Where will I make my next fuel stop?

Disposition: While it is true that the tax per gallon of motor fuel varies from state to state, Tennessee's per gallon tax is 18.4 cents per gallon while the national average is 21.9 cents per gallon. The impact of refueling will have minimal impact on the state's ability to match federal funds made available for the construction of I-69. Also, the International Fuel Tax Agreement (IFTA) requires commercial operators to keep trip records for the purpose of reporting fuel used in each jurisdiction in order to receive credits for payments into the federal Highway Trust Fund and is considered in each state's formula allocations of federal funds.

Comment: Have we made an error in planning for the price and availability of petroleum products?

Disposition: There is no credible research that indicates the world will run out of oil in the foreseeable future. There is evidence that the price of oil will continue to increase and that transportation costs for the delivery of goods and services will continue to go up. However, we must continue to invest in our transportation systems to support the nation's economic health.

III. AIR QUALITY ISSUES

Comment: Ozone non-attainment designation for Shelby County. Need for additional study.

Disposition: Shelby County was designated by the EPA as an air quality non-attainment area for ozone with a classification as "Marginal." This designation is not expected to alter the approved long range transportation plan for the Memphis MPO of which the I-69 Systems Approach alternative is included. TDOT, MDOT, the Memphis MPO, and the Tennessee Department of Environment and Conservation (TDEC) will work together to implement strategies to reach attainment by the imposed June, 2007 date by the EPA.

Comment: Other Air Pollutants Resulting from Increased Traffic.

Disposition: As stated previously, TDOT, MDOT, Memphis MPO, and TDEC will work together to implement strategies to reach air quality attainment by June 2007.

Comment: Mexican Trucks, an unknown air quality issue.

Disposition: The Federal Motor Safety Carrier Administration is the agency that normally has jurisdiction over vehicles entering the United States. While EPA has air pollution concerns and studies are underway to determine the level of pollution, the President of the United States has opened the borders to Mexican trucks. The Supreme Court has ruled the President has this authority and his actions are not subject to NEPA regulations, and the federal agency responsible for truck safety cannot countermand the President.

Comment: Difficult to read tables (Air Quality)

Disposition: The tables have been reviewed and revised as necessary for clarity and ease of interpretation.

IV. TRIGGER FOR MORE URBAN SPRAWL

Comment: This is a sprawl-inducing project that will primarily benefit land developers.

Disposition: This project is approved as part of the LRTP for the Memphis Urban Area, and future land use conditions were established considering the transportation access from this proposed route, as well as all other recommended elements of the LRTP. Transportation

facilities and other infrastructure improvements are necessary to support economic growth and land use changes as designated and approved by local agencies.

V. INADEQUATE COMMUNICATIONS

Comment: Posting newsletters to the TDOT website is not an adequate response for distributing regular updates to affected communities.

Disposition: The TDOT website has been updated with the latest newsletter dated December 2004. The entire DEIS is also available on line. In addition, a mailing list with 1800 names and addresses was maintained and information was mailed to those individuals and local officials to keep them up to date on the status of the EIS process. Seven newsletters to date have been sent to individuals and local agencies informing them of the project progress.

VI. RECOMMENDATION

Comment: The Chickasaw Group of the Tennessee Chapter of the Sierra Club recommends that the no-build option be chosen.

Disposition: As stated previously, the no-build alternative does not meet the purpose and need of the overall corridor nor SIU 9 from Millington, Tennessee to Hernando, Mississippi.

Sierra Club - Tennessee Chapter - Chickasaw Group

Comment: "AN IMMEDIATE MORATORIUM on all work on SIU#9, until a 2nd draft EIS or supplemental DEIS is created that addresses ALL air quality impacts. A public comment period for a 2nd draft EIS or supplemental DEIS is also requested."

Comment: NEPA and the Clean Air Act provide that no Federal project can cause or exacerbate an air quality problem (e.g., delay attainment of any NAAQS).

Disposition: The Memphis MPO and TDOT analyzed the project's impact on air quality through a transportation conformity determination. Under the 1990 amendments to the Clean Air Act, the U.S. Department of Transportation cannot fund, authorize or approve Federal actions to support transportation programs or projects which are not first found to conform to the Clean Air Act. Section 176(c)(5) of the Clean Air Act specifically states that conformity applies to all nonattainment and maintenance areas for selected National Ambient Air Quality Standards

(NAAQS) pollutants. The Clean Air Act and the Transportation Conformity Rule (40 CFR 93.104) require that proposed transportation projects must be found to conform to the State Implementation Plan or SIP (i.e., state air quality plan) before they are adopted, accepted, approved or funded.

Transportation conformity is a way to ensure that Federal funding and approval goes to those transportation activities that are consistent with air quality goals: to eliminate violations, reduce the frequency and severity of violations and reach attainment in a timely manner. Conformity applies to long-range transportation plans, shorter-term transportation improvement programs (TIPs), and transportation projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in air quality nonattainment or maintenance areas. A conformity determination is a demonstration that the emissions from travel on an area's transportation system are consistent with the air quality goals found in the SIP.
In air quality nonattainment and maintenance areas, transportation projects must come from a currently conforming transportation plan and transportation improvement program (TIP) that have undergone a conformity determination which has been approved by FHWA and FTA. In carbon monoxide and particulate matter nonattainment and maintenance areas, additional analysis may be necessary for Federally funded or approved projects to determine if a project has localized or micro-scale air quality impacts as part of project-level conformity. This analysis is sometimes referred to as "hot-spot" analysis.

The regional emissions analysis is the key analytical component of a conformity determination. It demonstrates that transportation investments are consistent with air quality goals. Estimating regional emissions from onroad mobile sources traveling on the planned transportation system is essential to a conformity determination. The conformity rule requires that future emissions estimates include the entire horizon of the transportation plan (at least 20 years) for the region. Regional emissions are forecast through models and are compared to the motor vehicle emissions budget ("budget") from the SIP that sets a limit on emissions from onroad sources. To make a conformity determination, projected emissions from highway and transit use must be less than or equal to the budget. In the absence of an approved or adequate budget, areas must pass interim tests that basically compare emissions associated with the proposed transportation

network ("build" scenario) with a status-quo-type situation ("no build"), or with a "less than 2000 baseline"). If a conformity determination is not made by applicable deadlines, a conformity lapse occurs, and the use of Federal transportation funds is restricted.

State and local air quality agencies are responsible for the development of the SIP. The air quality agency (the Tennessee Department of Environment and Conservation) identifies how pollution from all sources will be reduced sufficiently to meet the federal air quality standards. As part of this process, the motor vehicle emissions budget is developed. Transportation agencies, including state DOTs and MPOs, consult with the air quality agency on the development of the SIP and motor vehicle emissions budget.

The DEIS details the potential impacts resulting from a project, and demonstrated compliance with all applicable environmental laws, Executive Orders and related requirements, including the conformity provisions of the Clean Air Act. A final EIS must document full compliance with transportation conformity (23 CFR 771.133).

Comment: DEIS is woefully inadequate in covering air quality impacts. Need a second draft EIS or a supplemental DEIS.

Disposition: An EIS is a disclosure document. TDOT and the Memphis MPO have completed the conformity determination for Shelby County, and emissions were estimated to be less than the 2002 baseline. TDOT has also completed project level conformity for carbon monoxide, and assessed the potential concentrations of CO at sites adjacent to the roadway. Those concentrations were determined to be less than the threshold concentration of concern.

In the future, TDOT will also be required to complete project-level conformity for PM 2.5 in PM 2.5 nonattainment areas. The details of this new air quality requirement will be contained in EPA's final rule (see next response). Shelby County is classified as attainment for PM 2.5.

Comment: Draft DEIS only evaluates air quality impacts by looking at anticipated increases in carbon monoxide concentrations.

Disposition: The DEIS references the conformity determination described above, and the associated analyses related to the eight-hour ozone NAAQS. Federal laws and regulations direct transportation agencies to address regional air quality issues through the transportation conformity process.

For PM 2.5 nonattainment areas, the U.S. Environmental Protection Agency (EPA) is under court order to issue a final rule before March 31, 2006 on project-level conformity and hot-spot analyses for PM 2.5. As of April 5, 2006, transportation projects in PM 2.5 nonattainment areas will be required to comply with this rule.

The EPA rule will address those transportation projects in PM 2.5 nonattainment areas, and will specify which projects must complete a hot-spot analysis. The rule will also define the requirements for completing a PM 2.5 hot-spot analysis.

Comment: Analysis only looks at the design year of 2030. Use of 2030 as the model year is flawed.

Disposition: A 20-year horizon year and the build year (the year in which the project is open to traffic) are commonly used for purposes of demonstrating conformity at the project level.

The preamble for April 10, 2000 EPA's transportation conformity amendment on the deletion of the grace period states that the conformity rule allows flexibility for areas to decide through the interagency consultation process how to demonstrate that hot-spots are not caused or worsened in any area. The preamble stated that the agency "continued to believe that the specific year examined in the hot-spot analysis to make the demonstration should be decided through interagency consultation, as appropriate to the individual area, on a case-by-case basis."

In this case, interagency consultation led to the choice of 2030 as the horizon year.

Comment: Does not address levels of NOx, ozone and PM 10. The DEIS must evaluate impacts on ambient levels of NOx, ozone formed by NOx and VOCs and PM 10.

Disposition: Shelby County is nonattainment for the eight-hour ozone NAAQS, and is classified as attainment for both NOx and PM 10. Conformity only applies to areas classified as maintenance and nonattainment for specific pollutants. The conformity determination for the 8-hour ozone standard assessed the impact of transportation projects on pollutant emissions, including oxides of nitrogen (NOx), affecting ozone levels.

Comment: NEPA and the Clean Air Act mandate the disclosure of the relevant air quality impacts to the public.

Disposition: Each MPO has developed an explicit Public Involvement Plan, and the draft conformity determination for Shelby County was issued for public comment under the requirements of the Memphis MPO's Public Involvement Plan. The conformity determination report is now available to interested parties at http://www.dpdgov.net/(ikcuyz45g0x2kl455jkdz1fg)/RS/RS_content.aspx?id=305.

CHAPTER 6

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CHAPTER 7
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