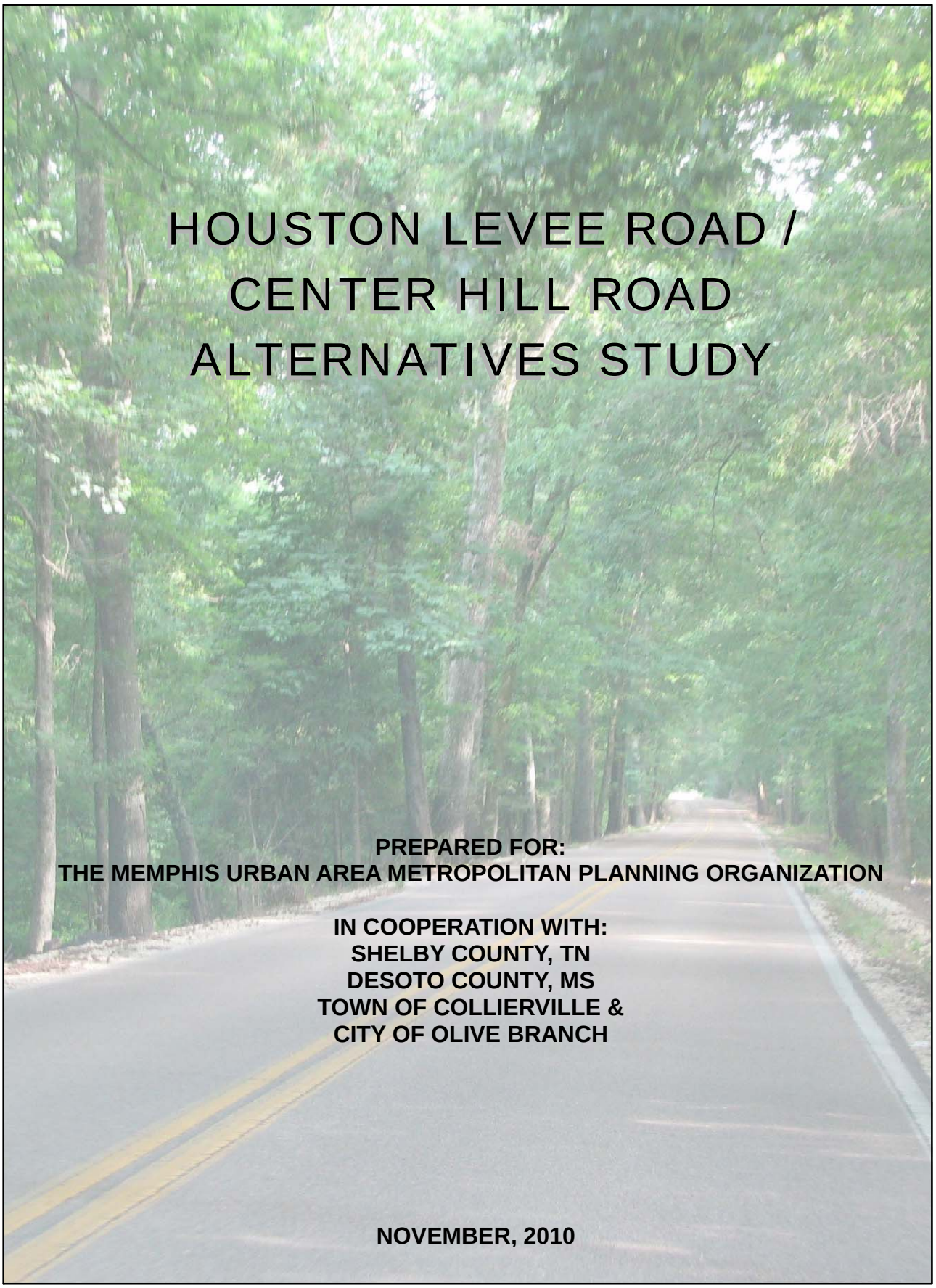

HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

PREPARED FOR:
THE MEMPHIS URBAN AREA METROPOLITAN PLANNING ORGANIZATION

IN COOPERATION WITH:
SHELBY COUNTY, TN
DESOTO COUNTY, MS
TOWN OF COLLIERVILLE &
CITY OF OLIVE BRANCH

NOVEMBER, 2010

Final Report

HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

November, 2010

By Parsons

For the Memphis Urban Area Metropolitan Planning Organization,
In cooperation with:

DeSoto County, Mississippi
The City of Olive Branch

Shelby County, Tennessee
The Town of Collierville

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Table of Contents

Section Page

Executive Summary S-1

1 Introduction 1
Existing Houston Levee Road 1
Study Area 3

2 Purpose and Need 11

3 Study Process 12
Oversight and Community Involvement 13
Study Progress 16
Alternatives 19
Issues and Concerns 23

4 Anticipated Traffic Operations 25
Trucks 27

5 Environmental Concerns 30
Creeks and Streams 31
Wetlands Considerations 32
Floodplains 33
Wildlife 33
Social Environment 34
Cultural Issues 37

6 Engineering Issues 38
Typical Section 38
Roadway Design 40
Bridges 40
Terrain 42
Estimated Costs 42
Other Modes 42
Future Development 44

7 Potential Funding Sources 44

8 Findings 45
Feasibility Criteria 47
Remarks 47

9 Next Steps 48

Figures

Figure — Page

Figure S.1 Study Area S-2
Figure S.2 All Alignments Considered S-6
Figure S.3 Alternatives Taken Forward S-8

Figure 1.1 Vicinity Map 2
Figure 1.2 Study Area 4
Figure 3.1 Alignment Suggestions from the Public 14
Figure 3.2 All Alternatives Considered 17
Figure 3.3 Alternatives Taken Forward 20
Figure 4.1 No-build Traffic 26
Figure 4.2 Build Alternatives 1 or 2 Average Daily Traffic and Levels of Service 28
Figure 4.3 Build Alternative 3 Average Daily Traffic and Levels of Service 29
Figure 5.1 Census Blocks 36
Figure 6.1 Typical Sections 40

Tables

Table — Page

Table S.1 Comparative Matrix S-9

Table 1.1 Existing Houston Levee Road Route Sections 3
Table 3.1 Comparative Matrix 21
Table 4.1 Levels of Service at Key Intersections 27
Table 5.1 Minority Populations 35
Table 6.1 Estimated Costs 42
Table 8.1 Comparative Matrix 46
Table 8.2 Collierville Planning Commission's Rankings 45

Appendices

Appendix A
Appendix B

Executive Summary

HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

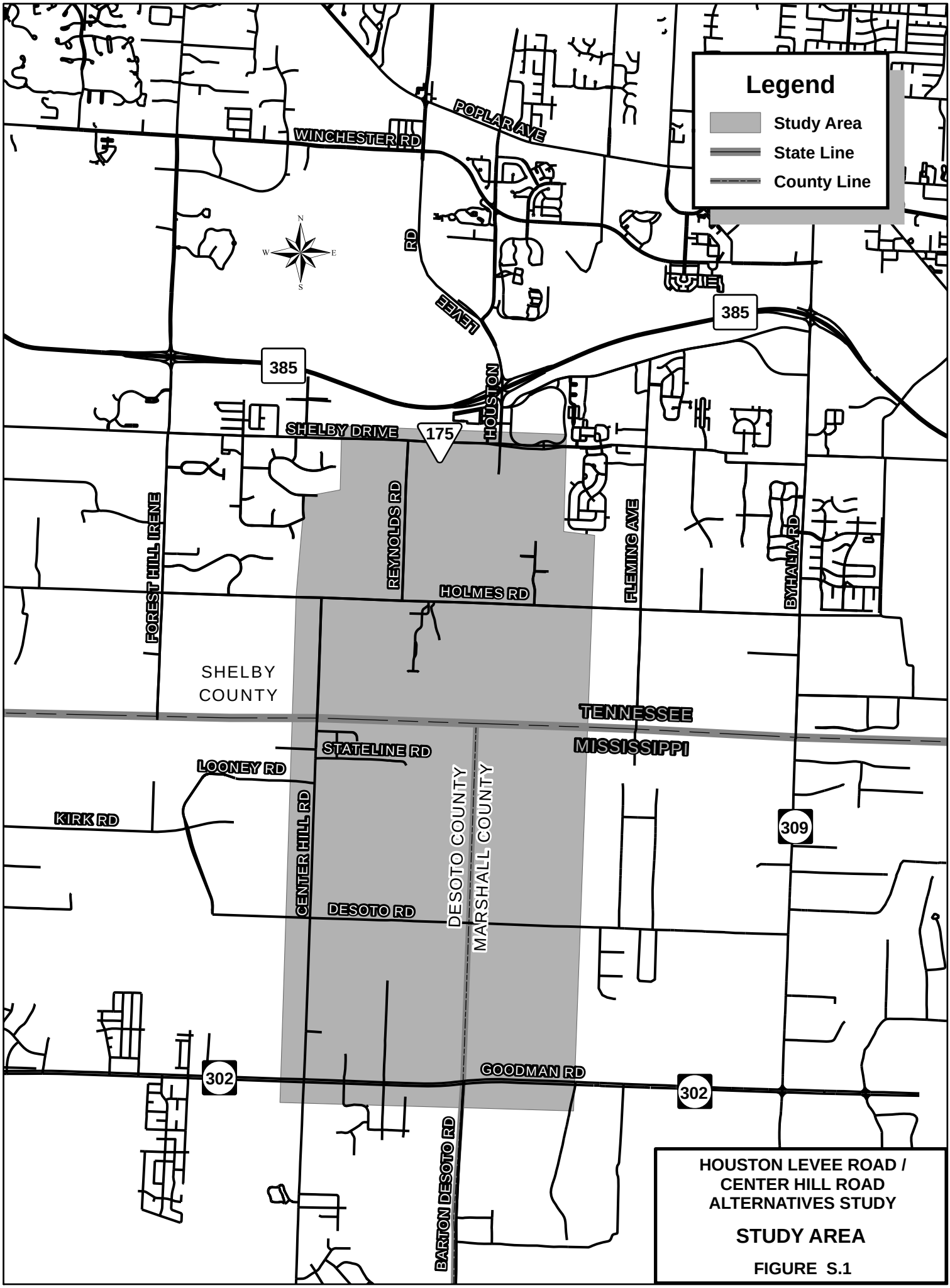
1. Introduction

This study was undertaken to consider the need for and feasibility of extending Houston Levee Road southward from Shelby Drive (SR 175) in Shelby County to Goodman Road (MS 302) in DeSoto County. As part of the feasibility study, Preliminary Alignments were prepared and evaluated. This was done so that the study would simultaneously serve as a Location Study of potential routes for the proposed facility.

The study area is shown in Figure S.1.

Study Area

South of the intersection of Houston Levee Road with Shelby Drive there is an area of mixed residential and agricultural uses that stretches south to the Coldwater River. The study area is bounded on the north by Shelby Drive and on the south by Goodman Road. The western boundary of the study area is the vicinity of Center Hill Road. The eastern boundary was originally stated as the DeSoto-Marshall County line. After consideration, this was changed to include the first section in Marshall County.


Legend
Study Area
State Line
County Line
WINCHESTER RD
POPLAR AVE
LEVEE RD
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HOUSTON
SHELBY DRIVE
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FOREST HILL IRENE
REYNOLDS RD
FLEMING AVE
BYHALIA RD
HOLMES RD
SHELBY COUNTY
TENNESSEE
MISSISSIPPI
STATELINE RD
LOONEY RD
KIRK RD
CENTER HILL RD
DESOTO COUNTY
MARSHALL COUNTY
309
DESOTO RD
302
GOODMAN RD
302
BARTON DESOTO RD
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
STUDY AREA
FIGURE S.1

Land Use

The Tennessee portion of the study area is located entirely within Collierville or the Collierville Reserve Area. In the southeast quadrant of the intersection of Houston Levee Road with Shelby Drive is the Carriage Crossing Market Place Shopping Center. The other quadrants of this intersection have approved plans for development as commercial property. The only other business on the Tennessee side of the study area is the Puppy Corral on Holmes Road. The remainder of the study area in Tennessee is either residential or is agricultural and anticipated for future residential development. There are several working farms.

The portion of the study area in Mississippi is all rural DeSoto and Marshall Counties

There are two businesses on Center Hill Road and two churches, with another church on Desoto Road. Two of the churches have cemeteries. There are several working farms.

On the north side of Goodman Road, there are three businesses. There are two small residential subdivisions. There are two planned subdivisions within the study area near Goodman Road.

Existing Roadway Network

There are no north-south roads that provide continuous service through the study area.

At its south end, Houston Levee Road terminates in a signalized intersection with Shelby Drive. South of Shelby Drive, there is a short piece of Houston Levee Road that provides access to the Carriage Crossing Marketplace shopping center.

There are several east-west roads that cross the study area: Goodman Road, Desoto Road, Stateline Road, Holmes Road and Shelby Drive. There are two roads that serve north-south through traffic: Reynolds Road and Center Hill Road. Center Hill Road serves as an arterial road and provides a vital north-south connection in eastern DeSoto County.

Since Center Hill Road extends south of Goodman Road, there is great potential for north-south route continuity if it can be incorporated into the future extension of Houston Levee Road.

Approximately two miles south of Goodman Road, the Coldwater River crosses the County Line. The Coldwater River will likely prevent further extension of a new roadway, due to the costs and environmental concerns associated with a new river crossing. South of the Coldwater River is the proposed location of the future I-269, which would add additional complexity and costs to the southward extension of a roadway facility in that area. These impediments to southward extension of any proposed facility make the existing Center Hill Road alignment an attractive choice for the development of a higher-capacity thoroughfare for north-south travel through the study area.

2. Purpose and Need

The purpose of the proposed Houston Levee Road extension to Goodman Road is to provide a safe and efficient transportation facility for projected traffic in the project area, to provide an improved connection between eastern DeSoto County and eastern Shelby County, to complete a needed element of the regional arterial thoroughfare plan that is on the Long Range Transportation Plan, and to enable and support economic development within the study area.

In the Memphis area generally, and specifically in the study area, there exists a thoroughfare planning deficiency due to the lack of good facilities for north-south travel The City of Memphis, situated on the east bank of the Mississippi River, naturally grew eastwardly, and the pattern of roadways that serve the region reflect this orientation. This pattern of development was reinforced by the east-west drainage basins of the Loosahatchie River, the Wolf River, and Nonconnah Creek, and now the southern limit of urbanization is the Coldwater River basin. Throughout the region there are good roadway facilities for east-west travel, but north-south travel is hampered by a lack of through roadways. Because Houston Levee Road provides one of only three Wolf River crossing locations in Shelby County east of the Walnut Grove Road bridge (itself an east-west facility), it is an important arterial that serves a corridor that is eight miles wide.

The specific deficiency in the study area is that there are no continuous routes for north-south travel between Hacks Cross Road and Byhalia Road, which is a distance of six miles. The proposed project would provide a continuous route, and would therefore be anticipated to divert traffic from other congested north-south routes such as Byhalia Road, Hacks Cross Road, and the future Forest Hill Irene Road.

3. Study Process

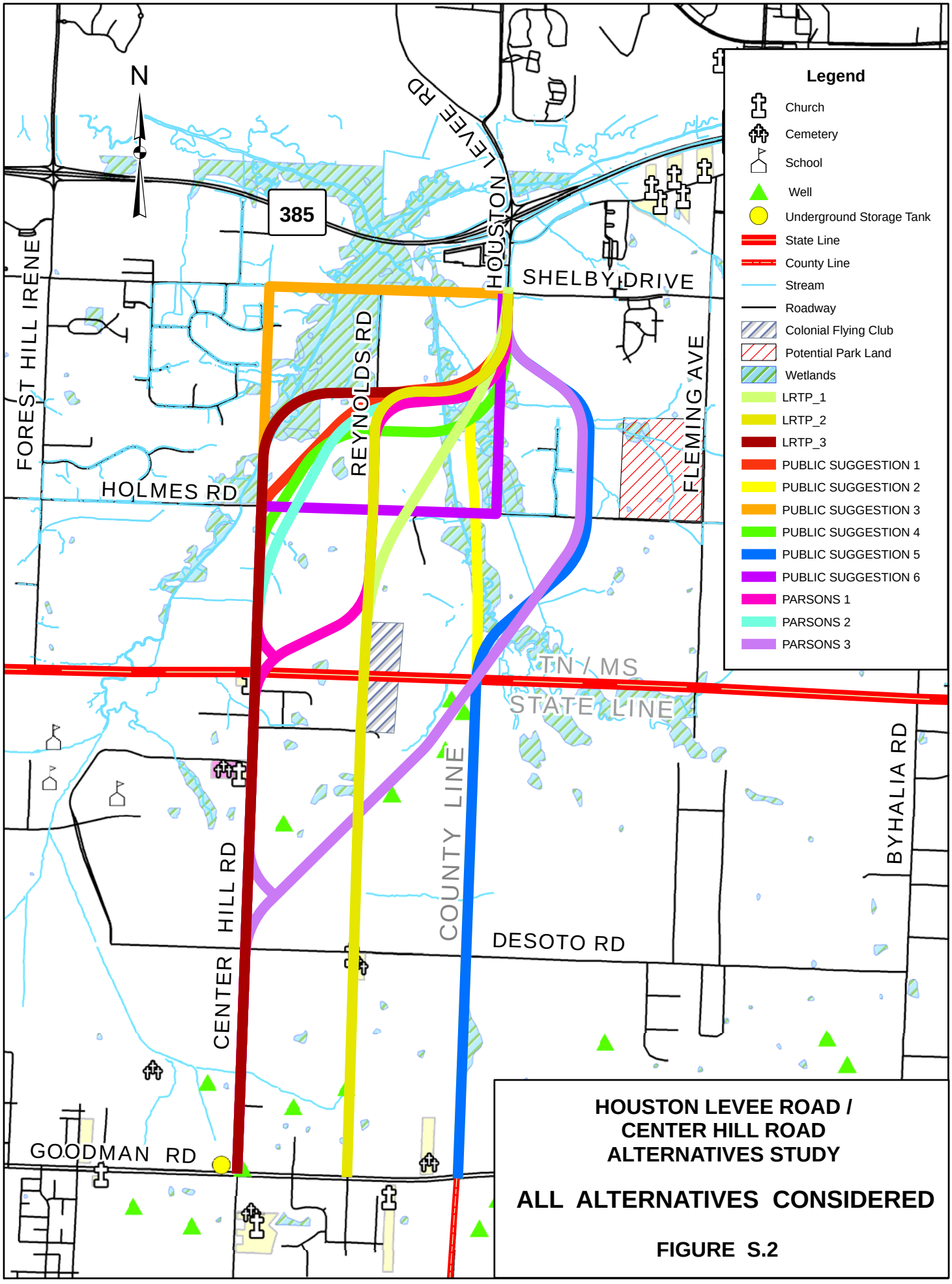
The study was conducted in accordance with the public participation provisions of the MPO process, and includes a review of a variety of potential environmental issues. If the project proceeds using federal funds (such as regular program Surface Transportation Program funding) then an Environmental Assessment will be needed. This study may serve as the first stage of the production of an Environmental Assessment.

Oversight and Community Involvement

A Study Oversight Committee was formed by the MPO to guide the study and to provide input as the study progressed. The Study Oversight Committee is made up of representatives from Desoto County, Shelby County, the Town of Collierville, the City of Olive Branch, and MPO staff.

In addition to this committee, presentations were given to the MPO's Freight Committee, the Bicycle and Pedestrian Committee, the Citizens Advisory Committee, the Engineering and Technical Committee (ETC) and the MPO Transportation Policy Board (TPB). Each presentation allowed for comments and questions from members. Commentary was evaluated and incorporated into the deliberations of the Study Oversight Committee and into the study.

In an effort to keep the community involved in this study, public meetings were held four times over the course of a year. The first two meetings were held in June of 2009. They were used as an opportunity to inform the public of the study and to get insight on anything that may be located within the corridor that would need to be avoided. These meetings also provided an opportunity for area residents to suggest potential alignments. The second set of meetings was held in January of 2010 to solicit comments from the public on the alternatives that made it through the screening processes of the Oversight Committee.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385
HOUSTON LEVEE RD
SHELBY DRIVE
FOREST HILL IRENE
REYNOLDS RD
FLEMING AVE
HOLMES RD
TN / MS
STATE LINE
COUNTY LINE
BYHALIA RD
CENTER HILL RD
DESOTO RD
GOODMAN RD
Legend
Church
Cemetery
School
Well
Underground Storage Tank
State Line
County Line
Stream
Roadway
Colonial Flying Club
Potential Park Land
Wetlands
LRTP_1
LRTP_2
LRTP_3
PUBLIC SUGGESTION 1
PUBLIC SUGGESTION 2
PUBLIC SUGGESTION 3
PUBLIC SUGGESTION 4
PUBLIC SUGGESTION 5
PUBLIC SUGGESTION 6
PARSONS 1
PARSONS 2
PARSONS 3
HOUSTON LEVEE ROAD /
CENTER HILL ROAD
ALTERNATIVES STUDY
ALL ALTERNATIVES CONSIDERED
FIGURE S.2

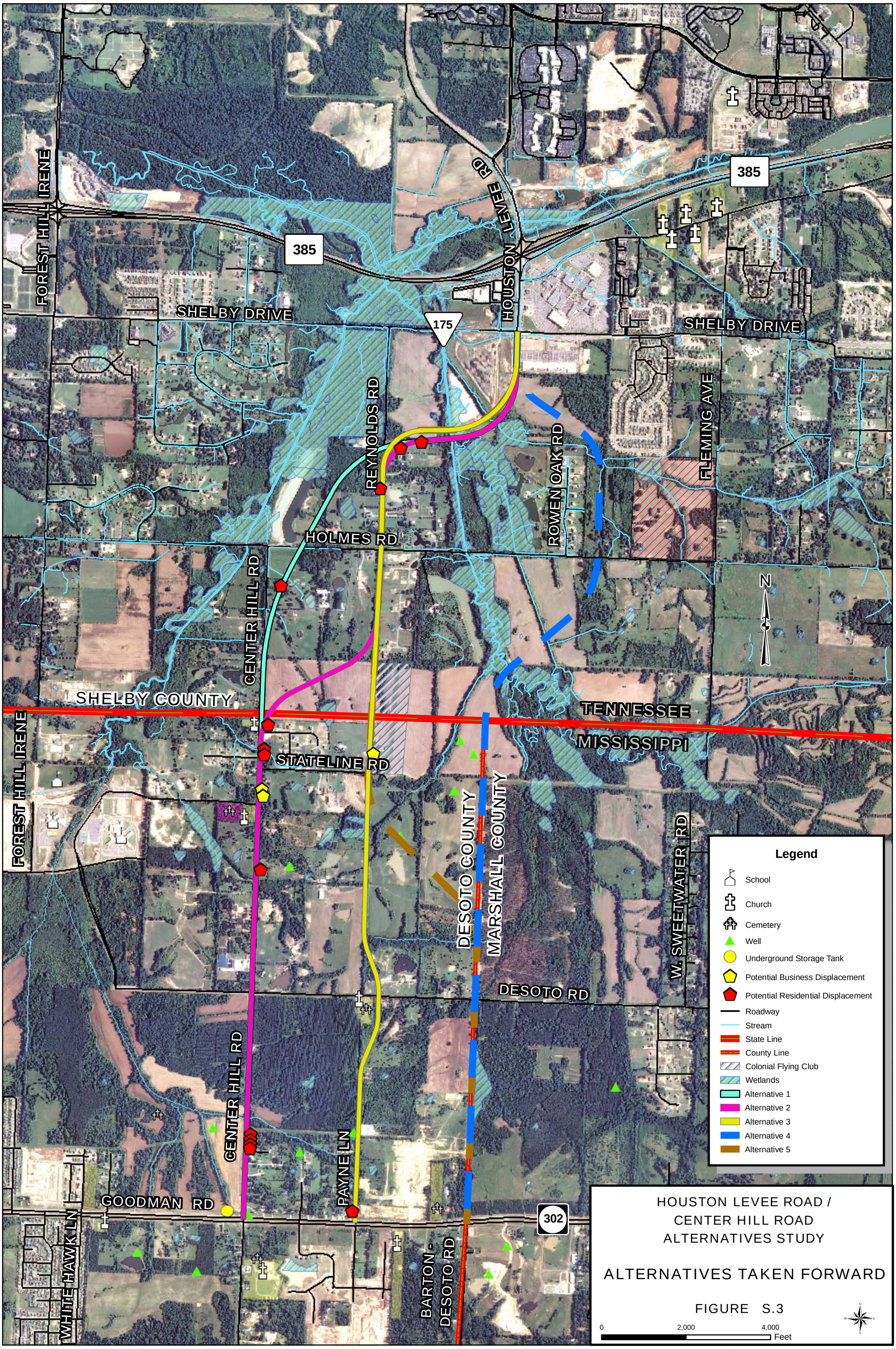
Study Progress

An effort was made to identify all feasible alternatives to extend Houston Levee Road to Goodman Road. Area constraints were mapped. Alternatives were then developed from suggestions from the public, past Long Range Transportation Plan alignments, and suggestions by the engineering consultant. These alternatives were presented to the Citizens' Advisory Committee and the ETC.

Four alternatives were retained through the screening process and were presented to the ETC and the TPB for comment, and this was expanded to five alternatives in response to a comment. See Figure S.3 for locations of the five alternatives. A comparative matrix was generated to weigh the impacts of the alternatives against one another.

It was decided that Alternatives One, Two, and Three would be studied further while Alternative Four would be shelved as a potential future corridor to build another north-south roadway in lieu of widening the Houston Levee extension. It was noted that Alternative Four, which follows the county line between DeSoto and Marshall Counties, would be most appropriately developed as a collector street and not as an arterial route. Alternative Five was eliminated.

Table S.1 shows the comparative matrix for the three alternatives that were shown to the public in January of 2010. These were determined to be "Feasible Alternatives."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FOREST HILL IRENE
SHELBY DRIVE
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HOUSTON LEVEE RD
REYNOLDS RD
ROWEN OAK RD
FLEMING AVE
HOLMES RD
CENTER HILL RD
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SHELBY COUNTY
TENNESSEE
MISSISSIPPI
STATELINE RD
FOREST HILL IRENE
DESOTO COUNTY
MARSHALL COUNTY
W. SWEETWATER RD
DESOTO RD
CENTER HILL RD
PAYNE LN
GOODMAN RD
WHITE HAWK LN
BARTON - DESOTO RD
302
Legend
School
Church
Cemetery
Well
Underground Storage Tank
Potential Business Displacement
Potential Residential Displacement
Roadway
Stream
State Line
County Line
Colonial Flying Club
Wetlands
Alternative 1
Alternative 2
Alternative 3
Alternative 4
Alternative 5
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
ALTERNATIVES TAKEN FORWARD
FIGURE S.3
0
2,000
4,000
Feet

Table S.1 Comparative Matrix

Matrix Item	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Total Length (miles)	4.61	4.64	4.42	4.36
Length in Tennessee (miles)	2.33	2.36	2.12	2.10
Length in Mississippi (miles)	2.28	2.28	2.30	2.26
Length on New Alignment (miles)	1.94	2.03	3.27	4.20
2030 Estimated Traffic (ADT)	14,750 to 17,000	14,750 to 17,000	12,000 to 16,900	12,000 to 16,900
Estimated Opening Day Costs in 2009 Dollars (Millions)	$ 55.3	$ 55.6	$ 58.0	$ 60.0
Estimated Opening Day Costs in 2009 Dollars for Tennessee (Millions)	$31.6	$31.7	$28.3	$29.2
Estimated Opening Day Costs in 2009 Dollars for Mississippi (Millions)	$23.7	$23.9	$29.7	$30.8
Potential Displacements:				
Approximate Potential Residential Displacements	10	11	2	0
Approximate Potential Business Displacements	2	2	1	0
Approximate Potential Church Displacements	0	0	0	0
Approximate Potential Cemetery Displacements	0	0	0	0
Potential Environmental Effects				
Potential Wetland (Hydric Soils) Acres Impacted	20	13	23	29
Potential WMA, NWR, or State Lands Acres Impacted	0	0	0	0
Approximate Acres Needed for New Roadway	36.4	35.7	49.5	56.1
Potentially Affected Sites Listed on the National Register of Historic Places (NRHP)	1	1	0	0
Potentially Affected Recorded Archaeological Sites	0	0	0	0
Potentially Affected Known Hazardous Material Sites	0	0	0	0
Potentially Affected Known Rare or Threatened Species	7	7	7	7
Potential Relocation of Electrical Transmission Lines	N	N	Y	Y

The **No-build Alternative** was retained throughout the study process as a possible option. For this study, the No-build Alternative would amount to removing the proposed new alignment lines from the Collierville Town Plan and from the MPO's Long Range Transportation Plan.

By implication then, as traffic congestion appears in the future in the study area, the existing roads would be improved to alleviate the delays. The anticipated result of the No-build Alternative would be new turning lanes for the intersections of Shelby Drive with Reynolds Road, and for Holmes Road at Center Hill Road and at Reynolds Road. Eventually all of these roads would require widening, and the intersections would require signalization. This is consistent with the DeSoto County Land Use Plan. The consequence would be that north-south travel through the study area would continue to follow the "double dog-leg path" that must be traveled today between Houston Levee Road and Center Hill Road.

4. Anticipated Traffic Operations

Traffic volumes in the study area have been growing steadily for many years. Continued growth and development will result in traffic congestion becoming a problem in the area. The main factor that influences the traffic operational character of the study area is traffic flow at intersections. The few operational problems that exist are all at intersections. Currently, there are short time periods in which long delays are experienced by turning traffic. These delays are expected to increase rapidly as the area develops.

By 2030, Level of Service F is anticipated to be common at study area intersections unless significant roadway improvements are made. This problem is not unique to the study area, and improvements in the study area would help relieve congestion in other nearby areas.

5. Environmental Concerns

If federal funds are used to pursue development of the proposed facility, then an Environmental Assessment will be required. However, if local funds are to be used, then this study may be a satisfactory identification of the potential environmental issues to be considered as the project proceeds.

Environmental Concerns that are addressed in the study include:

- Creeks and Streams
- Wetlands
- Floodplains
- Wildlife
- Environmental Justice
- Cultural and Historic Properties.

Potential issues were identified and constraints to be avoided were discussed. None of these topics present a major difficulty to ordinary roadbuilding through the study area.

6. Engineering Issues

Potential road widening or roadbuilding for the proposed facility was considered from an engineering perspective, to identify problem issues and to define the potential impacts that may be anticipated in connection with the various environmental issues. The topics that are discussed in the study are:

- Typical Section
- Roadway Design
- Bridges
- Terrain.

None of these issues were considered to present challenges that are outside the ordinary expectations for this area.

The potential for transit service was considered to be small and not an influence on the potential project. Other modes of transportation were considered. Connections for future greenways were discussed, and bicycle travel needs influenced the deliberations regarding the proposed typical section.

7. Potential Funding Sources

There is no funding in place for further study, design, right-of-way purchase or construction of the proposed facility.

The proposed facility would not be designated as a state route by either Tennessee or Mississippi. It would be eligible for Surface Transportation Program funds, in competition with all the other similar projects in the region. Competition for these funds will be intense. Otherwise, local capital improvements funding will be necessary.

The project can possibly be divided into segments for implementation as discrete projects that can be taken in a logical sequence. This will reduce the amount of funding needed in any particular year, and allow for it to be accumulated over many years. The ability to break the project into small pieces for multiple stages of construction is a feature that makes Alternative 2 favorable over Alternative 1, which from this point of view would be favored over Alternative 3.

8. Findings

A data comparison of the Alternatives is shown in Table 8.1. The potential impacts appear to be modest and manageable. These numbers are not based on final design, but on preliminary alignments that would be expected to be refined if the project progresses. The data summary is a good representation of the likely impacts if the project were to be implemented in the next few years. If the project is delayed, additional impacts would be expected, since continued development is anticipated in the study area.

Feasibility Criteria

In determining the feasibility of a roadway project such as this, the FHWA has identified three required elements that must be considered:

- *The degree to which a given alternative mode, management strategy, design or location is economically justified,*
- *The degree to which such an alternative is considered preferable from an environmental or social perspective, and,*
- *The degree to which eventual construction and operation of such an alternative can be financed and managed.*

Remarks

Based on the thoroughfare planning need for improved travel in the north-south direction, an improved arterial roadway link will be needed to serve the area through a period of continued suburban growth. There do not appear to be any impediments to the development of the proposed facility.

Collierville has expressed greater interest in Alternative 1 and Alternative 2 than in Alternative 3, and both Alternative 1 and Alternative 2 make use of the existing Center Hill Road in the Mississippi portion of the study area. Since DeSoto County has expressed a preference for using the existing Center Hill Road alignment, then the selection of either Alternative 1 or Alternative 2 would keep the jurisdictions in agreement and need no further effort of resolution.

The assessment of feasibility is:

- *The degree to which a given alternative mode, management strategy, design or location is economically justified.* Roadway improvements will be needed to support the anticipated development in the study area. It is appropriate to plan the roadway improvements that support the development of the arterial grid.

- *The degree to which such an alternative is considered preferable from an environmental or social perspective.* Though some potential impacts to

environmental and cultural resources have been identified, none of these are considered serious. The reduction of such potential impacts has been an important part of the deliberations in the project planning process. The new roadway will benefit the public by providing a more direct route for north-south travel through the study area than is currently available.

- *The degree to which eventual construction and operation of such an alternative can be financed and managed.* Funding for a needed element of the arterial grid will be available over time, if the project is divided into logical elements for sequenced construction.

Final Report

HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

November, 2010

By Parsons

For the

Memphis Urban Area Metropolitan Planning Organization,

In cooperation with:

DeSoto County, Mississippi

Shelby County, Tennessee

The City of Olive Branch

The Town of Collierville

1. Introduction

Houston Levee Road is a north-south arterial roadway in eastern Shelby County. It is an important route because it provides a critical link in the area thoroughfare plan grid. North of the Wolf River, the road serves the Gray's Creek area of Memphis and Shelby County. South of the Wolf River, Houston Levee Road passes through western Collierville just east of the town's boundary with the City of Germantown. At its south terminus it makes an intersection with Shelby Drive (SR 175). The road varies in volume and character as it traverses approximately 13.5 miles.

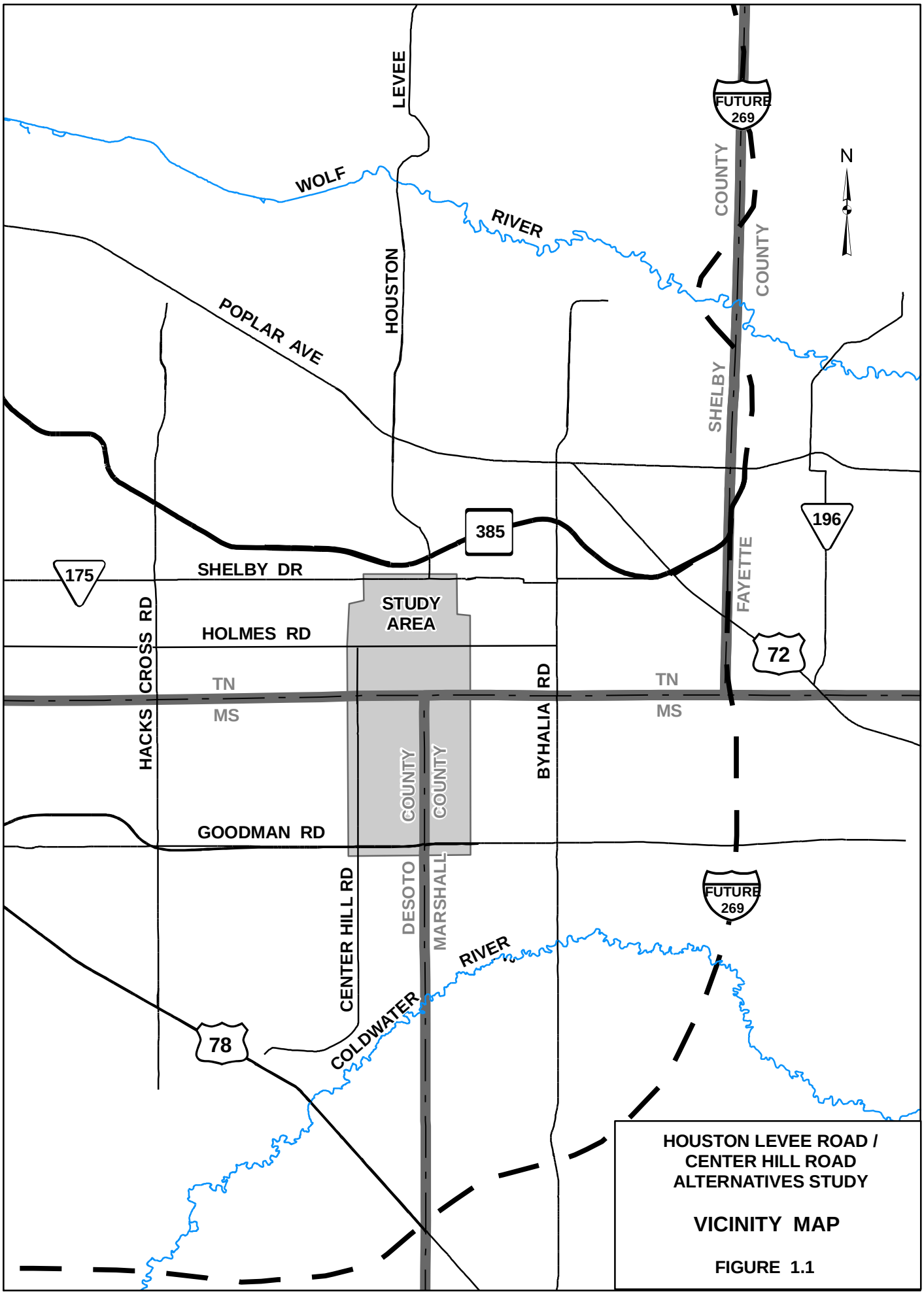
This study was undertaken to consider the feasibility of extending Houston Levee Road southward from SR 175 to Goodman Road (MS 302) in DeSoto County. See the section on Purpose and Need for a detailed description of the intent of this study. As part of the feasibility study, Preliminary Alignments were prepared and evaluated. This was done so that the study would simultaneously serve as a Location Study of potential routes for the proposed facility.

The location of the study area is shown in Figure 1.1. The study area is shown in Figure 1.2.

Existing Houston Levee Road

At its north end, Houston Levee Road is aligned with Canada Road, at an intersection with U.S. 64. This provides a connection for area residents to gain access to the Canada Road interchange with I-40. See Table 1.1 for a summary of the lengths and distances of existing route segments on Houston Levee Road.

The segment from Macon Road to the Wolf River Bridge has been recently reconstructed, with new alignment south of the intersection with Walnut Grove Road. This portion of roadway is comprised of two eleven-foot lanes, and is posted for 35 miles per hour as a result of a Shelby County initiative in context sensitivity. There are wide paved shoulders that serve pedestrians and bicycle riders.


LEVEE
WOLF
RIVER
HOUSTON
POPLAR AVE
FUTURE 269
COUNTY
COUNTY
N
SHELBY
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196
175
SHELBY DR
STUDY AREA
FAYETTE
HOLMES RD
72
CROSS RD
TN
MS
TN
MS
HACKS
BYHALIA RD
COUNTY
COUNTY
GOODMAN RD
FUTURE 269
CENTER HILL RD
DESOTO
MARSHALL
RIVER
COLDWATER
78
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
VICINITY MAP
FIGURE 1.1

Houston Levee Road crosses the Wolf River at a point on the river that is approximately mid-way between the Germantown Parkway (SR 177) bridge and the bridge for Collierville-Arlington Road (SR 205). This leaves Houston Levee Road as the only roadway that crosses the Wolf River to serve a corridor that is over eight miles wide. Houston Levee Road is a very important north-south arterial route because it provides this critical connection of the thoroughfare plan grid.

Table 1.1 Existing Houston Levee Road Route Sections

Route Section	Length	Number of Lanes
US 64 to Macon Road	3.5	2
Macon Road to Wolf River	3.7	2
Wolf River to Shelby Drive	6	6

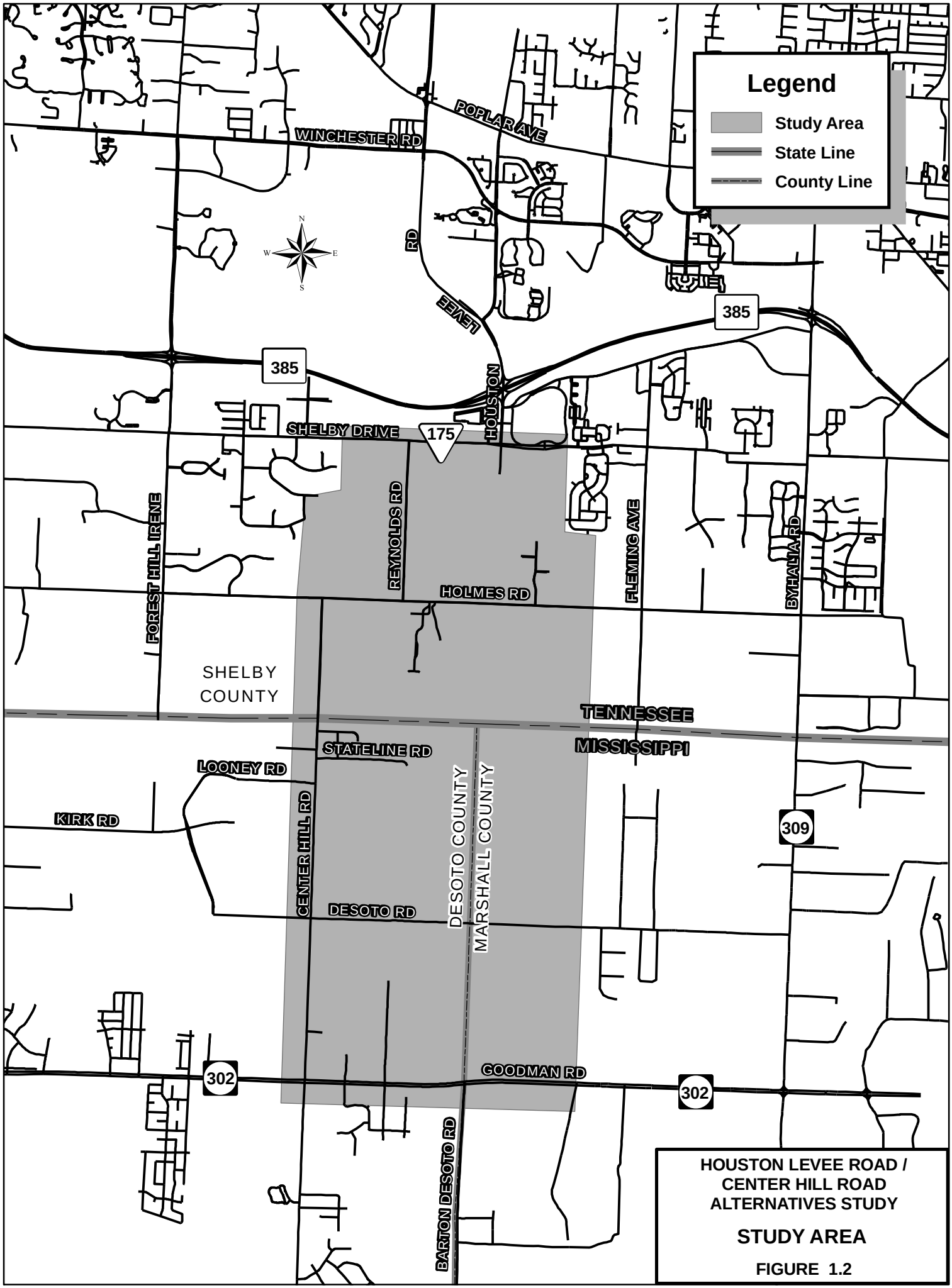
In Collierville, Houston Levee Road is a six-lane arterial with a raised median from the Wolf River to the intersection with Shelby Drive.

The southern end of Houston Levee Road, from Bailey Station Road to Shelby Drive, is eight tenths of a mile. This portion of the road is six lanes divided, with multiple auxiliary lanes and four signalized intersections that serve the interchange with Bill Morris Parkway (SR 385, aka Nonconnah Parkway) and the Carriage Crossing Mall.

Houston Levee Road terminates in a signalized intersection with Shelby Drive, about 700 feet south of the entrance to the Carriage Crossing shopping mall. South of Shelby Drive, there is a short piece of Houston Levee Road (1000 feet long) that provides access to the Carriage Crossing Marketplace shopping center in the southeast quadrant of the intersection.

Study Area

South of the intersection of Houston Levee Road with Shelby Drive there is an area of mixed residential and agricultural uses that stretches south to the Coldwater River. This


Legend
Study Area
State Line
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LEVEE RD
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FOREST HILL IRENE
REYNOLDS RD
FLEMING AVE
BYHALIA RD
HOLMES RD
SHELBY COUNTY
TENNESSEE
MISSISSIPPI
STATELINE RD
LOONEY RD
KIRK RD
CENTER HILL RD
DESOTO COUNTY
MARSHALL COUNTY
309
DESOTO RD
302
GOODMAN RD
302
BARTON DESOTO RD
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
STUDY AREA
FIGURE 1.2

study considered the feasibility of extending Houston Levee Road southwards through this area. The character of the area was assessed, and information was gathered about the constraints that would limit potential roadbuilding. This information was used throughout the study process to inform study decisions.

The study area is bounded on the north by Shelby Drive and on the south by Goodman Road. The western boundary of the study area is the vicinity of Center Hill Road. When the study scope was first described, the eastern boundary was stated as the DeSoto-Marshall County line. After consideration and at the recommendation of the project Oversight Committee, this was changed to include the first section in Marshall County.

The study area is nearly bisected by the Tennessee-Mississippi State Line. The distance south from Shelby Drive to the state line is 1¾ miles, and the distance from the state line south to Goodman Road is 2 ¼ miles.

Land use in Tennessee

The Tennessee portion of the study area is located entirely within Collierville or the Collierville Reserve Area. In the northeast quadrant of the intersection of Houston Levee

Road with Shelby Drive is the Carriage Crossing Mall. In the southeast quadrant of this intersection is the Carriage Crossing Market Place Shopping Center. The other quadrants of this intersection have approved plans for development as commercial property. The only other business on the Tennessee side of the study area is the Puppy Corral on Holmes

Road. The remainder of the study area in Tennessee is either residential or is agricultural and anticipated for future residential development. There are several working farms.

One unique land use is located on the north side of Holmes Road, opposite the intersection with Center Hill Road. It is a parcel with two small lakes. The longer one is approximately 2300 feet long. These lakes are leased to the Collierville Ski Club for waterskiing.

Land use in Mississippi

The portion of the study area in Mississippi is all rural DeSoto and Marshall Counties

There are two businesses on Center Hill Road, but these are both relatively low traffic generators (Michael Hatcher Landscaping and Brussel's Bonsai Nursery). There are three churches. Two of these are on Center Hill Road (Center Hill Baptist and Liberty Institutional Baptist), and one on Desoto Road (New Halliburton Missionary Baptist). There are accompanying cemeteries located at the Center Hill Baptist and New Halliburton Missionary Baptist Church sites. There are several working farms.

On the north side of Goodman Road, there are three businesses (Hartsell Realty, Action Pest Control, and 302 Car Wash). Also on the north side of Goodman Road is an unoccupied building that was used previously as a church. Geographic Information Systems (GIS) data received from Desoto County suggests that there may be a cemetery or grave sites on this unoccupied property as well.

On the south side of Goodman Road (outside the study area) there is a church and a corner that serves as the location of seasonal businesses (fireworks tent, etc.); there are a couple of farms and a recently-developed subdivision. Goodman Road is anticipated to have some future commercial development oriented to the highway.

There are two unique land uses in the Mississippi portion of the study area. On Payne Lane there is an electric power substation. At the end of Stateline Road is the Colonial Flying Club, with a grass landing strip that extends northward approximately 2700 feet, crossing the state line into Tennessee. The Colonial Flying Club has four buildings, at least one of which is a hangar for small aircraft.

There are two planned subdivisions within the study area near Goodman Road. The larger of the two is Center Hill Plantation, an 1,130-lot development located on both sides of Center Hill Road between Goodman Road and Desoto Road. The other is Magnolia

Commons, a 280-lot development located at the northeast corner of Payne Lane and Goodman Road. Both subdivisions are made up primarily of residential lots, with several commercial lots located along Goodman Road. Any alternative that ties to Goodman Road in Desoto County would pass through one or both of these subdivisions.

Existing Roadway Network

There are no north-south roads that provide continuous service through the study area. There are three north-south local streets that serve residential subdivisions that have no alternate access: Rowen Oak and Garden Trail Lane intersect Holmes Road, and Payne Lane intersects Goodman Road.

There are two roads that serve north-south through traffic:

- Reynolds Road is a short local road that serves as a north-south connector between Shelby Drive and Holmes Road, a distance of one mile. The roadway provides two eleven-foot lanes with narrow gravel shoulders. The

north half of this road is bordered by undeveloped land, and much of this land appears to be wooded wetlands. The south half of this road is primarily developed as single-family large-lot residential housing. One house is approximately fifty feet from the edge of traveled way, but the others are all over two hundred feet from the road.

- Center Hill Road is the western edge of the study area, and runs south from Holmes Road to south of Goodman Road, eventually tying to Mississippi State Route 178 (approximately four miles south of Goodman Road). It chiefly serves a mix of residences and farms. See the further discussion of existing Center Hill Road below.

There are several east-west roads that cross the study area.

- Goodman Road is Mississippi State Route 302, and is a four-lane divided arterial highway that is posted for high-speed traffic (65 mph).

- Desoto Road extends from Mustang Road on the west to Byhalia Road on the east. Mustang Road provides access to the Center Hill Schools off of Kirk Road (Center Hill Elementary, Center Hill Middle, and Center Hill High). Desoto Road is a two-lane collector street. It is the only paved street in the Marshall County portion of the study area, other than Goodman Road.

- Stateline Road is a narrow local street east of Center Hill Road. It is only half a mile long, and is not in the location shown on the Long Range Transportation Plan for the future Stateline Road. The future alignment is an extension of an existing segment of Stateline Road that is west of the study area. This new alignment would extend from Polk Lane east to the future I-269.

- Shelby Drive is Tennessee State Route 175. It is a major arterial road that traverses Shelby County for 27.5 miles. West of Houston Levee Road, Shelby Drive is a two-lane road. East of Houston Levee Road, Shelby Drive is six lanes with a median.

- Holmes Road is a major arterial road that traverses the southern edge of Shelby County for a distance of 26.5 miles. Within the study area Holmes Road is a two-lane road that provides direct access to farms, four residences and one business (the Puppy Corral).

Existing Center Hill Road

Center Hill Road is a two-lane arterial road in eastern DeSoto County, Mississippi. It runs north-south, and is approximately one mile west of theDeSoto/ Marshall County Line. It is the western edge of the study area where it mostly serves a mixture of residences and farms. There are a few undeveloped wooded tracts that have frontage along it, as well as two businesses. There are two farm outbuildings near the road (approximately 25 and 30 feet from the edge of the roadway), and there are two churches, both on the west side of the road.

At its south end Center Hill Road begins at an intersection with Mississippi Route 178 (Old Highway 78), at a point approximately one mile northwest of the Route 178 bridge over the Coldwater River. From this intersection it runs eastward before bending to the north to avoid the Coldwater River bottomlands. It continues north into Tennessee before ending approximately three quarters of a mile north of the state line at a terminal intersection with Holmes Road. The total length of Center Hill Road in the study area from Goodman Road to Holmes Road is three miles. Since Center Hill Road extends south of Goodman Road, there is great potential for north-south route continuity if it can be incorporated into the future extension of Houston Levee Road.

The intersection of Center Hill Road with Goodman Road serves as the southwest corner of the study area. This intersection is signalized. One mile north of Goodman Road is an intersection with Desoto Road, which is also signalized.

Approximately two miles south of Goodman Road, the Coldwater River crosses the County Line. The Coldwater River will likely prevent further extension of a new roadway, due to the costs and environmental concerns associated with a new river crossing. South of the Coldwater River is the proposed location of the future I-269, which would add additional complexity and costs to the southward extension of a roadway facility in that area. These impediments to southward extension of any proposed facility make the existing Center Hill Road alignment an attractive choice for the development of a higher-capacity thoroughfare for north-south travel through the study area.

2. Purpose and Need

The purpose of the proposed Houston Levee Road extension to Goodman Road is to provide a safe and efficient transportation facility for projected traffic in the project area, to provide an improved connection between eastern DeSoto County and eastern Shelby County, to complete a needed element of the regional arterial thoroughfare plan that is on the Long Range Transportation Plan, and to enable and support economic development within the study area.

Good practices in transportation planning for urban areas include the development of a grid of roadways to conveniently provide access to neighborhoods and serve travel throughout the region. Most communities try to space arterial roads at a one-mile spacing in both directions. In the Memphis area generally, and specifically in the study area, the

thoroughfare planning deficiency is a lack of good facilities for north-south travel The City of Memphis, situated on the east bank of the Mississippi River, naturally grew eastwardly, and the pattern of roadways that serve the region reflect this orientation. This pattern of development was reinforced by the east-west drainage basins of the Loosahatchie River, the Wolf River, and Nonconnah Creek, and now the southern limit of urbanization is the Coldwater River basin. Throughout the region there are good roadway facilities for east-west travel, but north-south travel is hampered by a lack of through roadways. Because Houston Levee Road provides one of only three Wolf River crossing locations in Shelby County east of the Walnut Grove Road bridge (itself an east-west facility), it is an important arterial that serves a corridor that is eight miles wide.

The specific deficiency in the study area is that there are no continuous routes for north-south travel between Hacks Cross Road and Byhalia Road, which is a distance of six miles. The proposed project would provide a continuous route, and would therefore be anticipated to divert traffic from other congested north-south routes such as Byhalia Road, Hacks Cross Road, and the future Forest Hill Irene Road.

The decision to conduct this study at this time is a result of the realization that the Collierville Town Plan has a future alignment shown for Houston Levee Road that does not match the line that appears on the Long Range Transportation Plan of the Memphis Area Metropolitan Planning Organization. (This realization occurred during the last periodic update of the regional Long Range Transportation Plan.) The DeSoto County Land Use Plan shows widening of Center Hill Road. Hopefully this study may be used to reconcile these three planning documents to bring these three agencies into agreement regarding the future thoroughfare plan for this study area.

3. Study Process

The proposed extension of Houston Levee Road would be likely to require the preparation of an environmental study report prepared in compliance with the National Environmental Policy Act (NEPA). The MPO process has public involvement provisions that are similar to requirements found in NEPA, and the environmental issues are definitely matters of consequence and so need to be identified. The study was conducted in accordance with the public participation provisions of the MPO process, and includes a review of a variety of potential environmental issues. If the project proceeds using federal funds (such as regular program Surface Transportation Program funding) then an Environmental Assessment will

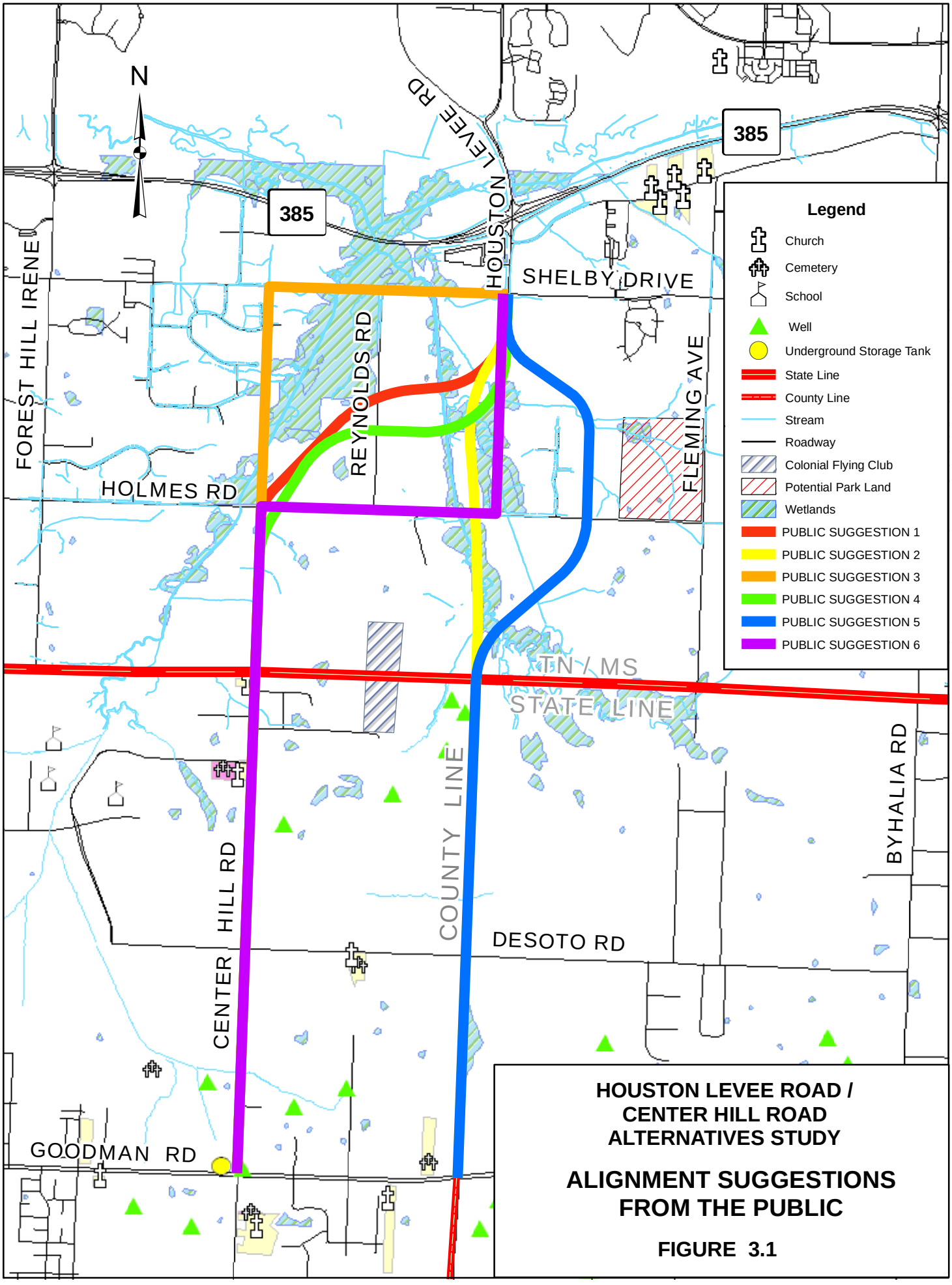
be needed. This study may serve as the first stage of the production of an Environmental Assessment.

Oversight and Community Involvement

A Study Oversight Committee was formed by the MPO to guide the study and to provide input as the study progressed. The Study Oversight Committee is made up of representatives from Desoto County, Shelby County, the Town of Collierville, the City of Olive Branch, and MPO staff. Three workshops were held with this committee to give updates on the status of the study, review and screen alternatives, and gain opinions and ideas on design preferences. Notes from these workshops can be found in Appendix A.

In addition to this committee, presentations were given to the MPO's Freight Committee (which is also the Major Roads Committee of the Greater Memphis Chamber), the Bicycle and Pedestrian Committee (Bike/ Ped), the Citizens Advisory Committee, the Engineering and Technical Committee (ETC) and the Transportation Policy Board (TPB). Each presentation allowed for comments and questions from members. Commentary was evaluated and incorporated into the deliberations of the Study Oversight Committee and into the study. Additional informal communications between the study team and members of the Study Oversight Committee were conducted using phone and e-mail to make sure that study issues were understood and that the members of the Oversight Committee could inform their respective elected officials.

In an effort to keep the community involved in this study, public meetings were held four times over the course of a year. The first two meetings were held in June of 2009, one in Collierville and one in Olive Branch. They were used as an opportunity to inform the public of the study and to get insight on anything that may be located within the corridor that would need to be avoided. These meetings also provided an opportunity for area residents to sketch on a map where they felt the best location for a new road would be. These sketched alignments can be seen in Figure 3.1. The second set of meetings was held to solicit comments from the public on the alternatives that made it through the screening processes of the Oversight Committee. These were held in Collierville and eastern DeSoto County in January of 2010.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385
HOUSTON LEVEE RD
SHELBY DRIVE
FOREST HILL IRENE
REYNOLDS RD
FLEMING AVE
HOLMES RD
TN / MS STATE LINE
COUNTY LINE
BYHALIA RD
CENTER HILL RD
DESOTO RD
GOODMAN RD
Legend
Church
Cemetery
School
Well
Underground Storage Tank
State Line
County Line
Stream
Roadway
Colonial Flying Club
Potential Park Land
Wetlands
PUBLIC SUGGESTION 1
PUBLIC SUGGESTION 2
PUBLIC SUGGESTION 3
PUBLIC SUGGESTION 4
PUBLIC SUGGESTION 5
PUBLIC SUGGESTION 6
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
ALIGNMENT SUGGESTIONS FROM THE PUBLIC
FIGURE 3.1

At the first round of public meetings, there were no attendees from the Mississippi portion of the study area. The consultant team, the MPO staff, and the Study Oversight Committee agreed that improved measures would be needed to boost the turnout for the second round of public meetings. In addition to advertisements and press releases, notices were sent to public agencies, postcards were mailed to addresses in the study area, and two Wednesday night visits were made to churches in the study area to publicize the public meetings. These measures were judged to be successful. Attendance in June, 2009 was 14, while attendance in January, 2010 was 55.

During the course of the study, the title was changed. In the spring of 2009, it began as the "Houston Levee Road Alignment Corridor Study." In workshops with the Study Oversight Committee in July and October of 2009, it was remarked that poor attendance at the June meetings from the Mississippi portion of the study area may have been in part a result of the name. It was determined that for the purpose of public meetings in January, 2010, that the name "Center Hill Road" would be added to advertisements and notices. This was believed to be one of the elements that successfully yielded improved attendance at the public meetings.

The January, 2010, public meetings were held after the completion of the analysis phase of the study, subsequent to the development of information presented below in the sections on engineering and environmental issues. At the January meetings, participants were asked to view the three Alternatives and provide comments. The questionnaire and a summary are included in the Appendix. Included in the questionnaire was this question, with the number of responses received:

Which Alternative do you prefer for an extension of Houston Levee Road? (Check one)

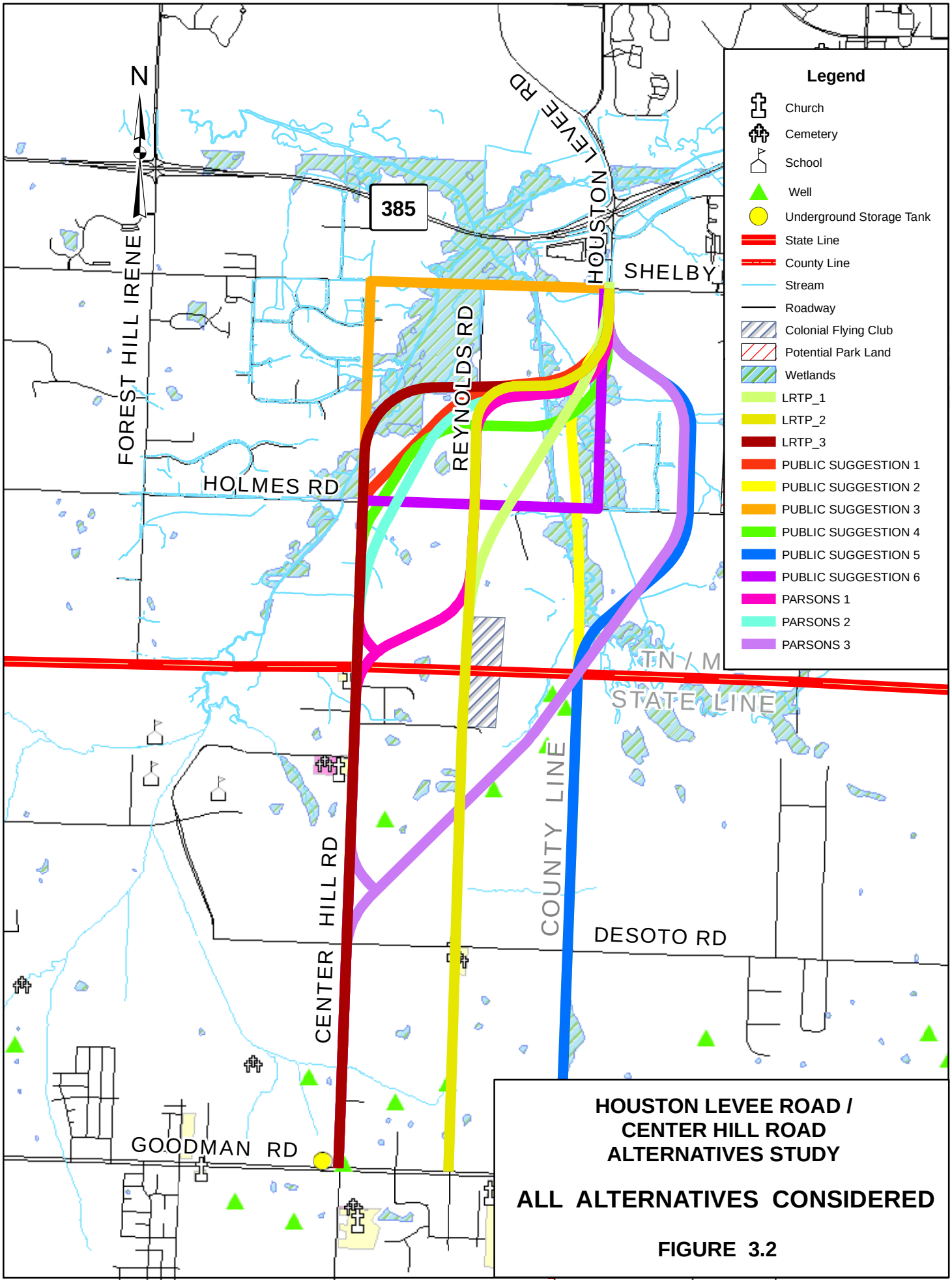
___**4**___No build (do not construct the proposed roadway)
___**3**___Alternative 1 (turquoise – westernmost alignment)
___**5**___Alternative 2 (fuchsia – runs along Reynolds Rd, then over to Center Hill Rd)
___**5**___Alternative 3 (yellow – runs along Reynolds Rd then ties to Payne Ln)
___**2**___Other(s) – Please describe below

Both of the "other" alignments suggested were alignments that had been previously considered by the Oversight Committee. (we haven't shown them these alignments yet in the report. I'm not sure this should be included until the findings chapter [No, we need to keep this because it was inserted in response to an MPO comment.])

At a workshop in February, 2010, the Study Oversight Committee decided to formally change the name of the study to the "Houston Levee Road/ Center Hill Road Alternatives Study."

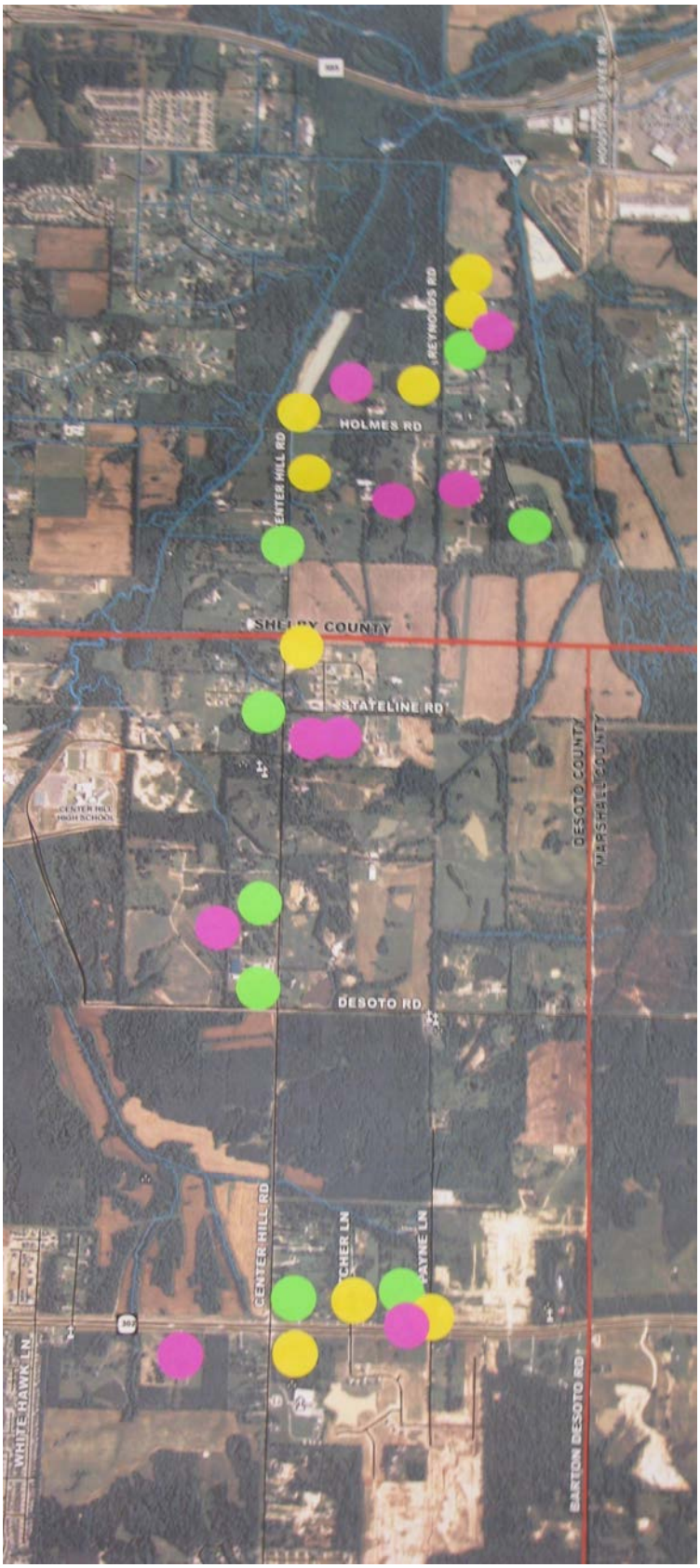
Study Progress

An effort was made to identify all feasible alternatives to extend Houston Levee Road to Goodman Road. A GIS base map of the study area was created which included locations of all the known constraints superimposed on recent aerial photography. Constraint data as well as the aerial photo were obtained from various internet databases and government entities. DeSoto County and the Town of Collierville were major contributors. Plots of this base map were shown to the public and the MPO to identify any additional constraints that had not already been mapped. Alternatives were then developed from suggestions from the public, past Long Range Transportation Plan alignments, and suggestions by the engineering consultant. Twelve alignments were presented to the Study Oversight Committee for evaluation and screening. Figure 3.2 shows these alternatives. These alternatives were presented to the Citizens' Advisory Committee and the ETC.


N
385
LEVEE RD
HOUSTON
SHELBY
FOREST HILL IRENE
REYNOLDS RD
HOLMES RD
TN / MS STATE LINE
COUNTY LINE
CENTER HILL RD
DESOTO RD
GOODMAN RD
Legend
Church
Cemetery
School
Well
Underground Storage Tank
State Line
County Line
Stream
Roadway
Colonial Flying Club
Potential Park Land
Wetlands
LRTP_1
LRTP_2
LRTP_3
PUBLIC SUGGESTION 1
PUBLIC SUGGESTION 2
PUBLIC SUGGESTION 3
PUBLIC SUGGESTION 4
PUBLIC SUGGESTION 5
PUBLIC SUGGESTION 6
PARSONS 1
PARSONS 2
PARSONS 3
HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY
ALL ALTERNATIVES CONSIDERED
FIGURE 3.2

Comments from the discussions at these committees were reported to the Study Oversight Committee and were considered at length. See the discussion below in the section labeled "Issues and Concerns."

Details of the screening process including reasons why alternatives were dropped from further consideration are included in the notes from the Oversight Committee workshops in Appendix A. Four alternatives were retained through the screening process and were presented to the ETC and the TPB for comment. One commenter suggested adding a crossover south of the state line between the two alternatives that were furthest east. This was done bringing the total number of alternatives to five. See Figure 3.3 for locations of the five alternatives. A comparative matrix was generated to weigh the impacts of the alternatives against one another. This matrix considered numerous items such as displacements, total right-of-way needed, various environmental impacts, and forecasted traffic volumes.



The five alternatives were presented to the Study Oversight Committee for evaluation on an *apples to apples* basis. The notes from this meeting can be found in Appendix A.

It was decided that Alternatives One, Two, and Three would be studied further while Alternative Four would be shelved as a potential future corridor to build another north-south roadway in lieu of widening the Houston Levee extension. It was noted that Alternative Four, which follows the county line between DeSoto and Marshall Counties, would be most appropriately developed as a collector street and not as an arterial route. The strategy of developing good collector roads would potentially eliminate the need for widening the arterial roads to seven-lane roadways in the future, by "spreading out the pavement" in the study area. See Figure 3.3 for the three alternatives that were carried forward.

Alternative Five was eliminated from further consideration as it was decided that it added little to making a determination of feasibility for constructing the new roadway and it varied little from Alternatives Three and Four. Alternatives One, Two and Three were taken to the ETC and to the Transportation Policy Board for comment. No comments were received so the three alternatives were studied in detail. The comparative matrix was updated and cost estimates were generated. Table 3.1 shows this matrix. The three alternatives were shown to the public in January of 2010.

The study was presented to the Collierville Planning Commission at their regular meetings on November 5, 2009, and March 4, 2010. The study was presented to the DeSoto County Board of Supervisors at their regular meeting on March 2, 2010.

Alternatives

Because the north end point of the proposed roadway facility was known to be the intersection of Houston Levee Road with Shelby Drive, that is the point of beginning for all of the alternatives, which are briefly described below from north to south.

Alternative 1 begins with a curve that bends westward leading to a curve that bends southward, crossing Reynolds Road at a skew. It crosses Holmes Road at a skew approximately 800 feet east of the existing intersection of Holmes Road with Center Hill Road. The skewed alignment was developed in order to reduce impacts to homes in the area. This alignment is similar to alignments gathered from previous plans and from the

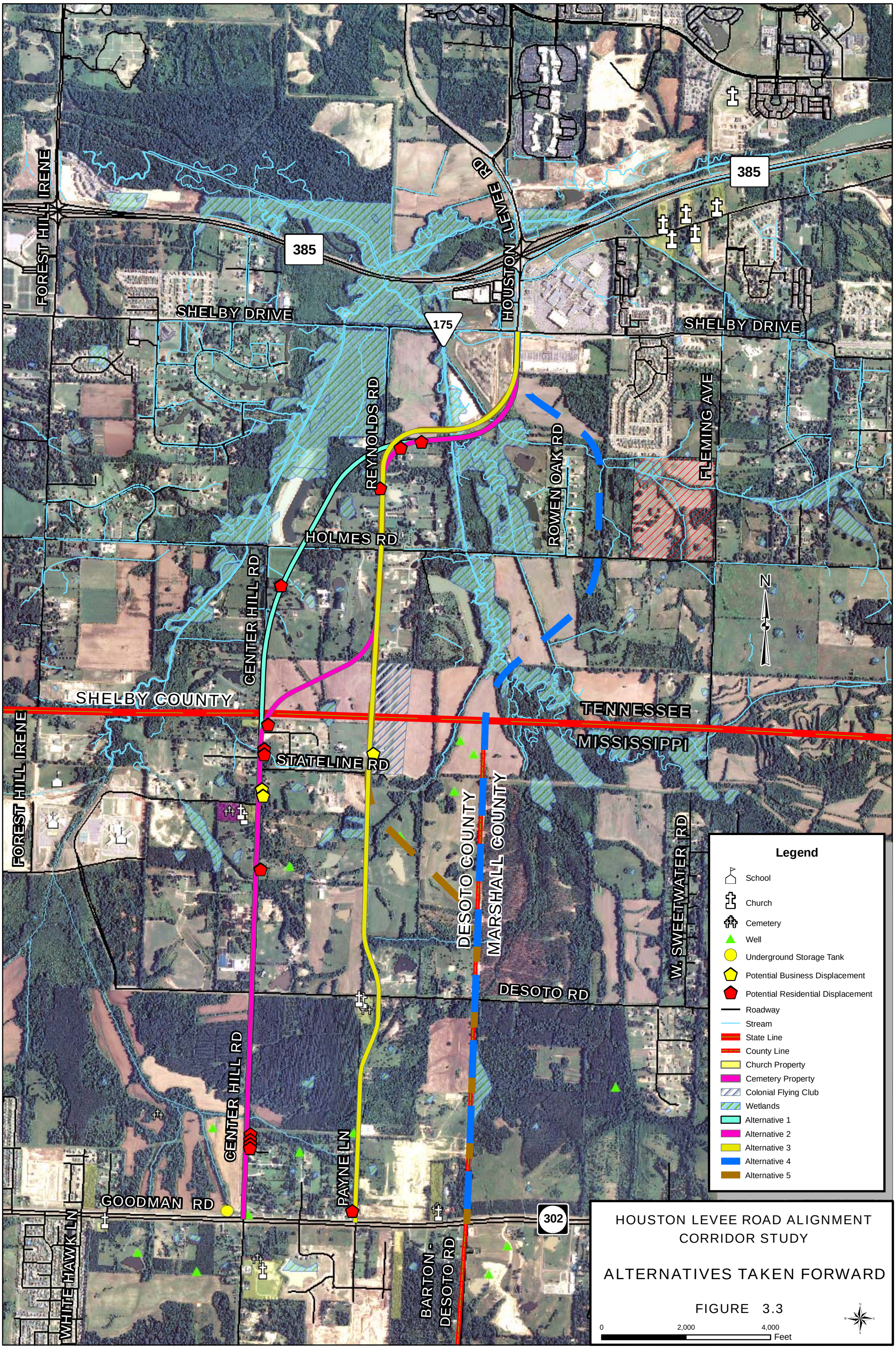

385
385
FOREST HILL IRENE
SHELBY DRIVE
SHELBY DRIVE
175
HOUSTON LEVEE RD
REYNOLDS RD
ROWEN OAK RD
FLEMING AVE
HOLMES RD
CENTER HILL RD
SHELBY COUNTY
TENNESSEE
MISSISSIPPI
STATELINE RD
FOREST HILL IRENE
DESOTO COUNTY
MARSHALL COUNTY
W. SWEETWATER RD
DESOTO RD
CENTER HILL RD
PAYNE LN
GOODMAN RD
WHITE HAWK LN
302
BARTON - DESOTO RD
N
Legend
School
Church
Cemetery
Well
Underground Storage Tank
Potential Business Displacement
Potential Residential Displacement
Roadway
Stream
State Line
County Line
Church Property
Cemetery Property
Colonial Flying Club
Wetlands
Alternative 1
Alternative 2
Alternative 3
Alternative 4
Alternative 5
HOUSTON LEVEE ROAD ALIGNMENT
CORRIDOR STUDY
ALTERNATIVES TAKEN FORWARD
FIGURE 3.3
0
2,000
4,000
Feet

Table 3.1 Comparative Matrix

Matrix Item	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Total Length (miles)	4.61	4.64	4.42	4.36
Length in Tennessee (miles)	2.33	2.36	2.12	2.10
Length in Mississippi (miles)	2.28	2.28	2.30	2.26
Length on New Alignment (miles)	1.94	2.03	3.27	4.20
2030 Estimated Traffic (ADT)	14,750 to 17,000	14,750 to 17,000	12,000 to 16,900	12,000 to 16,900
Estimated Opening Day Costs in 2009 Dollars (Millions)	$ 55.3	$ 55.6	$ 58.0	$ 60.0
Estimated Opening Day Costs in 2009 Dollars for Tennessee (Millions)	$31.6	$31.7	$28.3	$29.2
Estimated Opening Day Costs in 2009 Dollars for Mississippi (Millions)	$23.7	$23.9	$29.7	$30.8
Potential Displacements:				
Approximate Potential Residential Displacements	10	11	2	0
Approximate Potential Business Displacements	2	2	1	0
Approximate Potential Church Displacements	0	0	0	0
Approximate Potential Cemetery Displacements	0	0	0	0
Potential Environmental Effects				
Potential Wetland (Hydric Soils) Acres Impacted	20	13	23	29
Potential WMA, NWR, or State Lands Acres Impacted	0	0	0	0
Approximate Acres Needed for New Roadway	36.4	35.7	49.5	56.1
Potentially Affected Sites Listed on the National Register of Historic Places (NRHP)	1	1	0	0
Potentially Affected Recorded Archaeological Sites	0	0	0	0
Potentially Affected Known Hazardous Material Sites	0	0	0	0
Potentially Affected Known Rare or Threatened Species	7	7	7	7
Potential Relocation of Electrical Transmission Lines	N	N	Y	Y

public, and was prepared as an improvement upon those alignments. The Alternative 1 alignment ties in to Center Hill Road a short distance south of Holmes Road, then continues along Center Hill Road south to Goodman Road. This alignment makes an effort to minimize wetlands impacts and avoid ponds that the referenced alignments crossed. It also makes good use of the existing Center Hill Road, which would reduce impacts to the environment.

Alternative 2 begins at the existing south end of Houston Levee Road with a curve that bends westward and then a curve bending back southward to tie into existing Reynolds Road. This curve would require the acquisition of at least two residences. From this point the alternative follows the existing Reynolds Road alignment south to Holmes Road. The section of existing Reynolds Road that would be widened has fourteen residences and lined on both sides by mature trees. South of Holmes Road Alternative 2 makes use of existing right-of-way previously dedicated for Houston Levee Road along the western edge of the Collierville Gardens subdivision. Near the end of that existing right-of-way it curves westward and then southward to tie to existing Center Hill Road near the state line. This alignment offers the curvilinear appeal that was discussed through the study process. It was noted that this feature would be attractive and would serve to keep speeds low. Like Alternative 1, Alternative 2 makes an effort to minimize wetlands impacts and avoid ponds that the referenced alignments crossed. It minimizes the amount of new right-of-way that would be needed to construct the proposed facility.

Alternative 3 begins with a curve that bends ninety degrees to the west, paralleling Shelby Drive before bending southward ninety degrees to tie into existing Reynolds Road. It follows the existing Reynolds Road alignment south to Holmes Road then continues directly southward until joining existing Payne Lane and ending at the existing intersection of Payne Lane with Goodman Road. Alternative 3 would become discontinuous at Goodman Road and southbound travelers would have to travel a half mile to the west on Goodman Road in order to continue a trip southward on Center Hill Road.

In Mississippi, the alignment would run parallel and adjacent to a grass landing strip that belongs to the Colonial Flying Club, and would have to align slightly to the west of the section line if impacts to the landing strip and associated improvements are to be avoided, impacting residences. This alignment was adjusted to bend approximately 300 feet to the east of the section line as it crosses Desoto Road, to avoid the New Halliburton Missionary Baptist Church and cemetery. On Payne Lane, there are eight residences, half of which are only approximately 100 feet from the road. There is also an electric transmission substation near Payne Lane, approximately 2000 feet north of Goodman Road.

The three alignments described above were evaluated as "Feasible Alternatives." This label does not indicate that other alternatives are infeasible, but that these were deemed by the Study Oversight Committee to be the most feasible, and the most worth the effort of evaluation.

The **No-build Alternative** was retained throughout the study process as a possible option. For this study, the No-build Alternative would amount to removing the proposed new alignment lines from the Collierville Town Plan and from the MPO's Long Range Transportation Plan.

By implication then, as traffic congestion appears in the future in the study area, the existing roads would be improved to alleviate the delays, and new roads would not be constructed. The anticipated result would be new turning lanes for the intersections of Shelby Drive with Reynolds Road, and for Holmes Road at Center Hill Road and at Reynolds Road. Eventually Reynolds Road, Center Hill Road, Shelby Drive and Holmes Road would all require widening, and the intersections would require signalization. This is consistent with the DeSoto County Land Use Plan. The consequence would be that north-south travel through the study area would continue to follow the "double dog-leg path" that must be traveled today between Houston Levee Road and Center Hill Road. If the No-build Alternative were to be selected, one logical long-range outcome would be a widening of Reynolds Road in front of the houses that are north of Holmes Road, which is a common feature of Build Alternative 2 and Build Alternative 3. Likewise, if the No-build Alternative were to be selected, a logical long-range outcome would be a widening of Center Hill Road in front of the homes and businesses in the Mississippi portion of the corridor. In this way, impacts of Alternative 1 or Alternative 2 due to road widening in these areas would be the same as the impacts that would be expected for the No-build Alternative.

Issues and Concerns

Several of the project meetings included discussions about sprawl. At the Citizens Advisory Committee, the need for the facility was disputed, with one commenter noting that the proposed facility would only promote continued urban sprawl. There were conflicting comments received from the Freight Committee which ultimately lead to a suggestion that two new north-south roads should be built in the corridor instead of a single

alignment. They reasoned that having two roads would divide the traffic load and take away the need for widening either of them in the future. The Study Oversight Committee considered this point of view, but determined that the study area as defined was not so wide as to justify the need for two arterial routes in the north-south direction, and concluded that, while two roads would be useful to distribute the traffic load and provide access, only one arterial route is needed. It was pointed out that there is a future Forest Hill Irene Road connection proposed to the west, and widening of Byhalia Road (MS 309) is proposed to the east. This matter was concluded by recommending the Alternative 4 alignment along the DeSoto/ Marshall County Line for potential development as a collector road.

The potential for this proposed connection of Houston Levee Road to Center Hill Road to promote sprawl development was discussed extensively with the Study Oversight Committee. A wide-ranging conversation spanning several meetings included discussion of context-sensitive design elements and consideration of the land uses anticipated in the study area. Talks also touched on basic thoroughfare planning issues, economic development issues, anticipated traffic volumes and freight movement. See the discussion above in Section 2, Draft Purpose and Need.

An extension of Houston Levee Road will help to alleviate the deficiency of good choices for north-south travel through the region. Also, by developing the proposed facility, fewer future lanes will be needed on some other area north-south routes, such as Hacks Cross Road, Forest Hill Irene Road, or Byhalia Road.

During deliberations, part of the discussion addressed context-sensitivity. An understanding of the complete context of the proposed facility is required to justify the project. Recognition of the need to be sensitive to land use along the route, as well as retaining a sensitivity to the needs of the corridor as a whole, requires that project planning be informed by the balancing of sometimes competing interests. As a result, the proposed extension of Houston Levee Road, while deemed necessary as a north-south arterial to serve the greater corridor, is considered in light of the needs of the occupants of the study area. Also considered are the interests of the local agencies and area property owners with respect to economic growth and development. The Study Oversight Committee recommended that the local agencies consider Alternative 4 as a possible location for a future collector street, so that the potential future widening of the proposed facility to more than four through lanes might be avoided.

4. Anticipated Traffic Operations

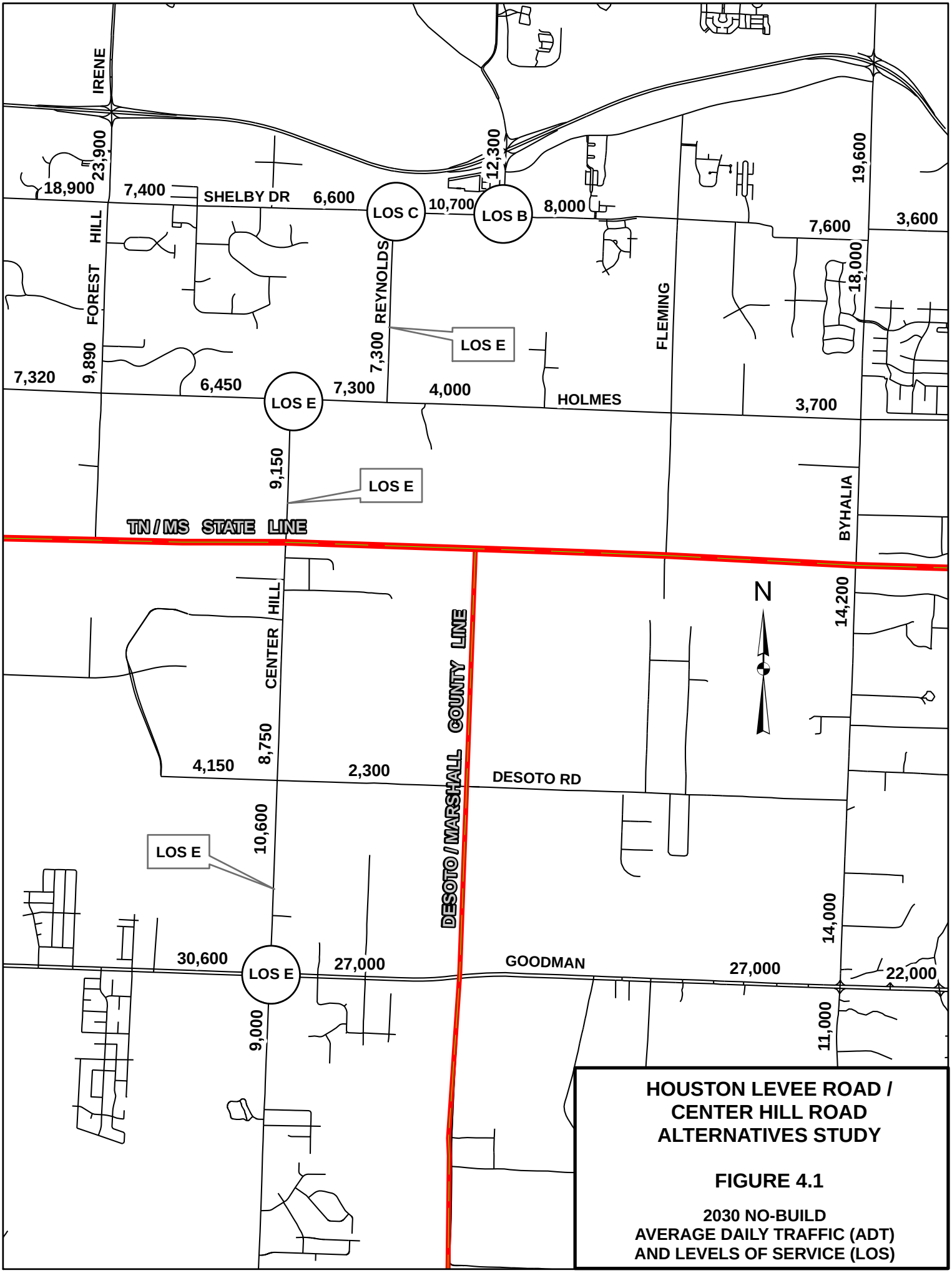
Traffic volumes in the study area have been growing steadily for many years. Only recently has traffic congestion developed. Continued growth and development will result in traffic congestion becoming a problem in the area. The main factor that influences the traffic operational character of the study area is traffic flow at intersections. The few operational problems that exist are all at intersections. Currently, there are short time periods in which long delays are experienced by turning traffic. These delays are expected to increase rapidly as the area develops.

The common measures of traffic congestion are collectively known as capacity analysis. The most commonly cited output of capacity analysis is the Level of Service, which is like a school grade given to an intersection or roadway segment. Level of Service A indicates "free-flow" operations, and Level of Service F indicates congested, stop-and-go operations, with long queues and significant travel delays. The key parameter used to determine the level of service of an intersection is travel delay. Detailed information on Levels of Service and capacity analysis is included in Appendix B. See Figure 4.1 for traffic volumes and associated Levels of Service anticipated for No-build conditions. The forecasts are provided as estimates of daily traffic totals (Average Daily Traffic).

Existing and anticipated levels of service for key intersections are also shown in Table 4-1. These intersections are indicative of operations at all the study area intersections, since they have similar volumes and generally lack turn lanes.

By 2030, Level of Service F is anticipated to be common at study area intersections unless significant roadway improvements are made. This problem is not unique to the study area, and improvements in the study area would help relieve congestion in other nearby areas.

There are many unsignalized intersections in the areas surrounding the study area in which minor intersections experience Level of Service F, primarily due to delays on minor street approaches to intersections on major collector or arterial roads. In many cases delays associated with Level of Service F is not by itself adequate justification for the installation of a traffic signal. The reason that Level of Service F may be an acceptable condition is that some delay is acceptable and the costs to reduce side street delay may be quite high. Level of Service for an intersection is associated with an average delay of approximately 60 seconds per vehicle. If delays of over a minute do not become extreme (over two minutes)



HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

FIGURE 4.1

2030 NO-BUILD AVERAGE DAILY TRAFFIC (ADT) AND LEVELS OF SERVICE (LOS)

and if no queues of waiting vehicles are formed, then it is usually better to accept the delays rather than undertake the expense of signalization, which also would introduce new delays to the major street.

See Figure 4.2 for travel forecasts and Levels of Service anticipated to be associated with Alternative 1 or Alternative 2. See Figure 4.3 for travel forecasts and Levels of Service anticipated to be associated with either Alternative 3 or Alternative 4 or Alternative 5. Some key intersections Level of Service findings are included in Table 4.1.

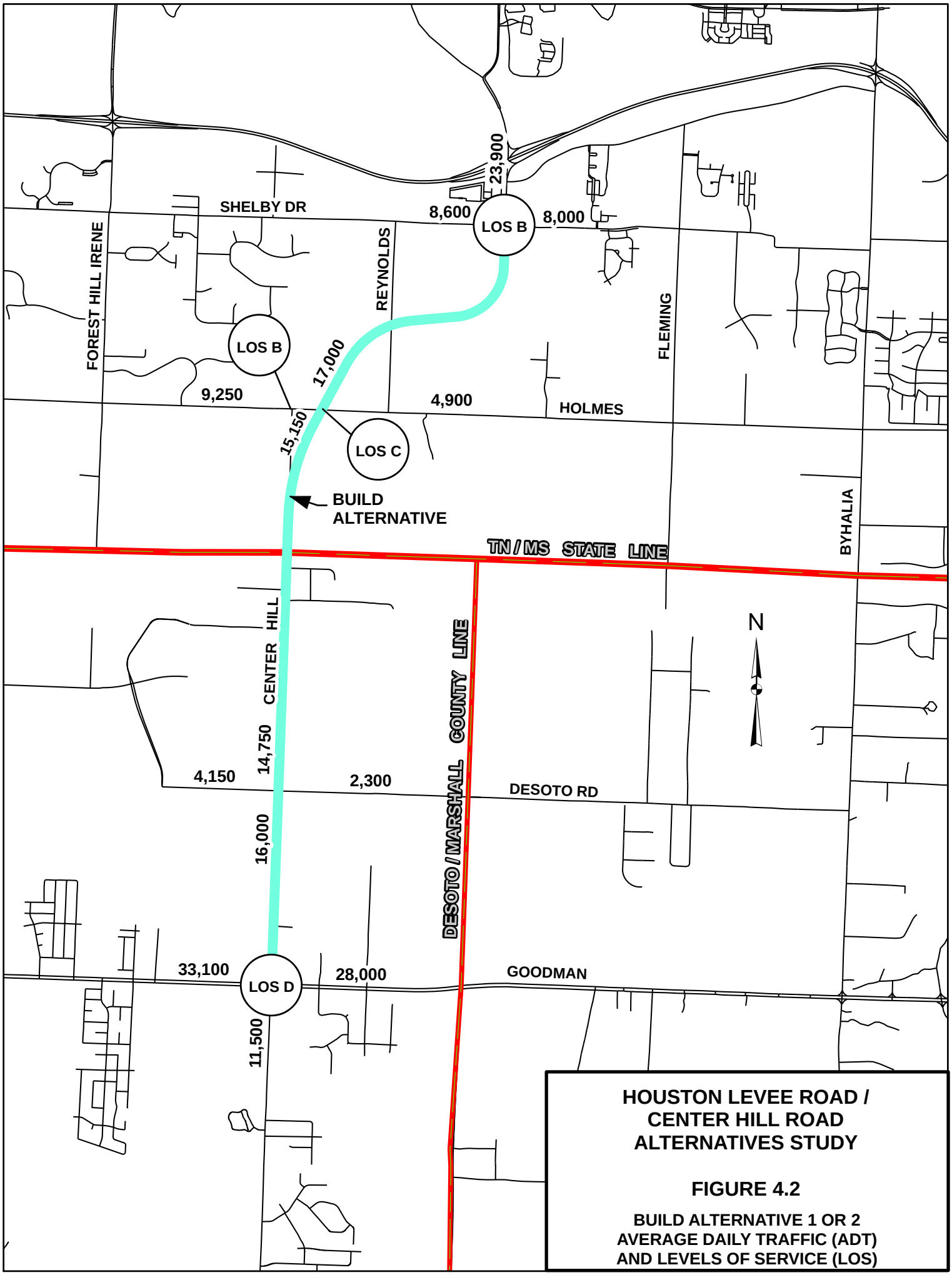
Table 4.1 Levels of Service at Key Intersections

	Location	*No-build*	*Alternatives* 1 & 2	*Alternatives* 3 & 4
Center Hill Road	Goodman Road (MS 302)	E	D	D
	Holmes Road	A [1]	B	B
Houston Levee Raod	Shelby Drive	D	B	C
	Holmes Road	NA	C	C
	Goodman Road	NA	NA	C

Note 1: This intersection is unsignalized, and would decline to LOS F even with the addition of turn lanes. If signalized and turn lanes are added, LOS A may be anticipated.

Trucks

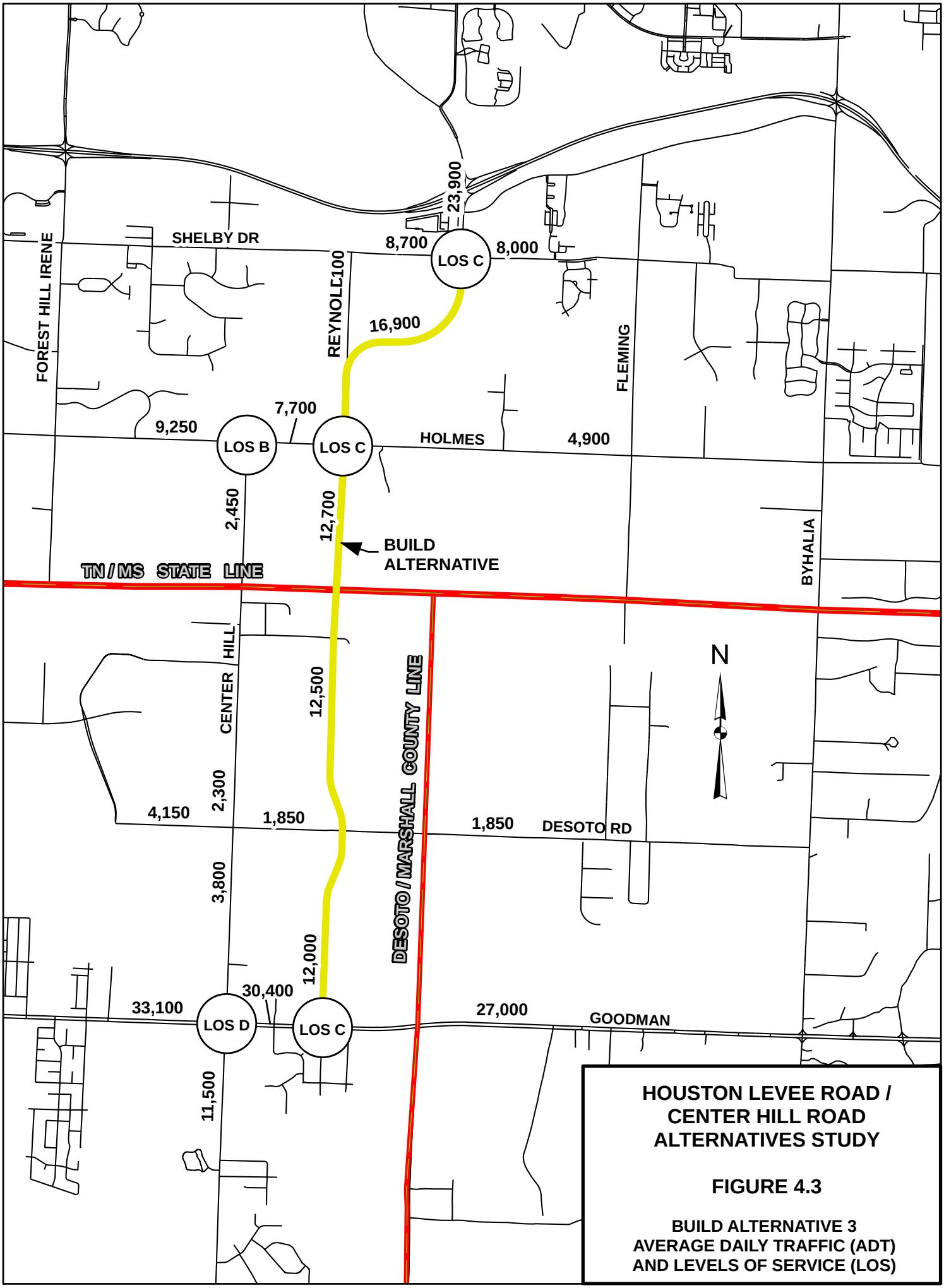
Anticipated truck movements were considered in the course of the traffic investigation. Currently very few trucks use this corridor in the study area. Houston Levee Road between Poplar Avenue and Shelby Drive carries a small amount of truck traffic, providing



HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

FIGURE 4.2

BUILD ALTERNATIVE 1 OR 2 AVERAGE DAILY TRAFFIC (ADT) AND LEVELS OF SERVICE (LOS)



HOUSTON LEVEE ROAD / CENTER HILL ROAD ALTERNATIVES STUDY

FIGURE 4.3

BUILD ALTERNATIVE 3
AVERAGE DAILY TRAFFIC (ADT)
AND LEVELS OF SERVICE (LOS)

access to area businesses from SR 385. Houston Levee Road north of the Wolf River has been very unattractive as a truck route due to extreme poor alignment issues. These alignment problems have been resolved with very recent construction from the Wolf River north to Macon Road, but Shelby County has pledged to post the road for "no through trucks" if truck volumes become a problem.

Both at the Study Oversight Committee and at the Collierville Planning Commission there were discussions of the potential for area truck congestion to result in pressure for truckers to use the proposed facility as a route between US 78 in DeSoto County and SR 385 in Collierville. Congestion that involves high truck percentages is a well-known problem on US 78, especially north of the state line in Memphis. This congestion results in truckers taking alternate routes, and it was suggested that the proposed new facility might become an attractive alternative for through truck diversion traffic.

Upon consideration, it is not believed that significant truck traffic would materialize on the route through the study area. One reason is that more attractive alternatives exist, in Riverdale Road/ Germantown Road, Hacks Cross Road, and Byhalia Road. Another reason is that, even if the alignment is improved through the study area, the Center Hill Road alignment between US 78 and Goodman Road is circuitous and is only planned for very minor alignment improvements. Another consideration of this discussion was the potential for the Houston Levee Road corridor to become attractive to truck traffic because it serves a corridor that is so wide. However, as noted above, Shelby County intends to prevent the development of Houston Levee Road as a truck route. In addition, the completion of future I-269 will dominate the entire area as the north-south truck route of choice, serving the larger corridor, and also serving as a new and very attractive alternate route for traffic diverting due to congestion on US 78.

5. Environmental Concerns

If federal funds are used to pursue development of the proposed facility, then an Environmental Assessment will be required. However, if local funds are to be used, then this study may be a satisfactory identification of the potential environmental issues to be considered as the project proceeds. Potential environmental issues were requested from the public, and the the local jurisdictions. Information was obtained from the Tennessee Department of Environment and Conservation, the Tennessee Historic Preservation Office, the Tennessee Division of Archaeology, the Mississippi Natural Heritage Program, and the

Archaeology Section and the Historic Preservation Division of the Mississippi Department of Archives and History.

The environmental issues below were reviewed for the five alternatives that were in consideration during the early fall of 2009. Subsequently, and based in part on this review, Alternative 4 and Alternative 5 were deleted from futher consideration. See the discussion above, in the section titled "Study Progress (I still like process better)."

Creeks and Streams

Two tributaries of Nonconnah Creek flow northward through the study area. Lateral BA flows northwest through the study area, originating in Marshall County and flowing west for over five miles before turning northwest and crossing into Shelby County. It crosses Holmes Road approximately 2000 feet east of Reynolds Road, and continues northwest. It crosses Shelby Drive approximately 1200 feet east of Reynolds Road. Nonconnah Creek Lateral B flows mainly to the northeast through the study area originating in Desoto County and primarily flowing to the northeast on the west side of Center Hill Road. It crosses Holmes Road approximately 3200 feet west of Reynolds Road and crosses Shelby Drive approximately 1100 feet west of Reynolds Road. Lateral B and Lateral BA flow together north of Shelby Drive, and join Nonconnah Creek on the north side of SR 385.

Both Lateral B and Lateral BA are listed on the 2008 303(d) list for Tennessee. Section 303(d) of the Federal Clean Water Act requires states to identify waters within their jurisdictions for which water quality is impaired. Neither tributary is listed on the 2008 303(d) list for Mississippi. These lists were obtained from the Tennessee Department of Environment and Conservation (TDEC) and the Mississippi Department of Environmental Quality (MDEQ).

Each alternative crosses Lateral BA while only Alternative 1 and Alternative 2 cross some of the headwaters of Lateral B close to Goodman Road. An attempt was made to cross

Lateral BA as close to perpendicular as possible to cut down on bridge length, reduce the complexity of bridge design in the future, and to minimize the length of stream and wetlands being crossed. Due to water quality issues for both of these streams, stringent erosion control measures coupled with other Best Management Practices (BMP) will need to be employed to protect against degrading effluent quality to an even lower level.

Wetlands Considerations

There are extensive wetlands found throughout the northern portion of the study area. These wetlands are located primarily along the two tributaries of Nonconnah Creek, Lateral B and Lateral BA. Using the National Wetlands Inventory (NWI) database hosted by the United States Fish and Wildlife Service (USFWS), known wetlands were delineated and added to constraints mapping for avoidance. These delineations can be seen in Figure 3.1. Along with the NWI data, soils data for the area was obtained to determine where hydric soils were located. Hydric soils are defined by the Natural Resources Conservation Service (NRCS) as "having formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part." This simply means that hydric soils tend to indicate areas with a high probability for wetlands to form. Since the true extent of existing wetlands is not known, the presence of hydric soils was used as an indicator of the potential for wetlands. Due to the abundance of hydric soils in the study area, there was no way to avoid crossing them with any alignment, so a quantity of hydric soils crossed within the proposed right-of-way was determined for each alignment to serve as proxy acreage of potentially impacted wetlands.

Floodplains

The Federal Emergency Management Agency (FEMA) has determined that both Lateral B and Lateral BA have significant floodplains of varying width, but generally from 2000 to 2500 feet wide. Since crossing one or both of these floodplains at some point is unavoidable, flood studies will need to be done to determine the required lengths for bridge structures and in turn the allowable amount of embankment that can be used. These studies are beyond the scope of this report and thus will not be used in making the determination of feasibility, but they will be necessary during subsequent design phases or environmental studies. They are vital for ensuring that the elevation of the design flood is not raised by more than the allowable amount set by FEMA.

Wildlife

Wildlife in the area consists mainly of those animals found around watercourses, such as snakes and beavers. Deer can be spotted throughout the study area, more often in the less populated areas, as well as the occasional raccoon, possum, coyote, and armadillo. Many birds and squirrels make their homes in the trees throughout the area.

The Tennessee Division of Water Pollution Control issued a watershed report for Nonconnah Creek in 2002, which is available at:
http://www.tennessee.gov/environment/watersheds/one/nonconnah/
This report describes the upper reaches of this watershed as situated in the Loess Plains ecoregion, which is characterized as follows:

> "The region is a productive agricultural area of soybeans, cotton, corn, milo, and sorghum crops, along with livestock and poultry. Soil erosion can be a problem on the steeper, upland Alfisol soils; bottom soils are mostly silty Entisols. Oak-hickory and southern floodplain forests are the natural vegetation types, although most of the forest cover has been removed for cropland. Some less-disturbed bottomland forest and cypress-gum swamp habitats still remain. ... Streams are low-gradient and murky with silt and sand bottoms, and most have been channelized."

According to the watershed report, there are seven threatened or rare species that have been spotted in the Nonconnah Creek watershed system. Included are one plant, one amphibian, four birds and, of special interest, a rare snail was identified: the *Triodopsis multilineata,* or striped whitelip snail.

None of the stream or water quality measuring and monitoring sites included in the watershed report are in Nonconnah Creek Lateral B or Lateral BA.

If federal funding is to be used for a project that includes a new crossing of Nonconnah Creek Lateral B or Lateral BA, then further investigations of potential effects on the sensitive species that may be found in the stream ecology may be required.

Social Environment

On February 11, 1994, President Clinton issued Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.* This Order was issued to provide that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." A minority community is classified by the U.S. Census as African American, Hispanic American, Asian and Pacific American, Native American, Eskimo, or Aleut, and other non-white persons whose composition is at least 25 percent or more of the total population of a defined area or jurisdiction. A low-income community or population was classified as having an aggregate mean annual income level for a family of four correlating to $17,463 in 2000, adjusted for inflation, whose composition is at least 25 percent or more of the total population of a defined area or jurisdiction. The threshold of poverty for a family of four in 2009 as defined by the U.S. Census Bureau was $22,050.

The initial step in the environmental justice analysis process is the identification of minority and low-income populations that might be affected by implementation of the proposed action. Potential environmental justice issues were evaluated for the study area. Income data was collected at the census block group level, which is a collection of census blocks in the same area whose population totals from 600 to 3,000 people. After a review of the income data, it was clear that there is not an apparent environmental justice issue as far as income is concerned. The poverty level for the census block groups within the study area is consistently lower than 10 percent. However; there are potential environmental justice issues based on minority populations.

Information obtained for race was on the census block level, which is the smallest U.S. Census geographic unit. The minority percentages for the total study area were determined using the applicable census data of the blocks within the study area. Table 5.1 shows the

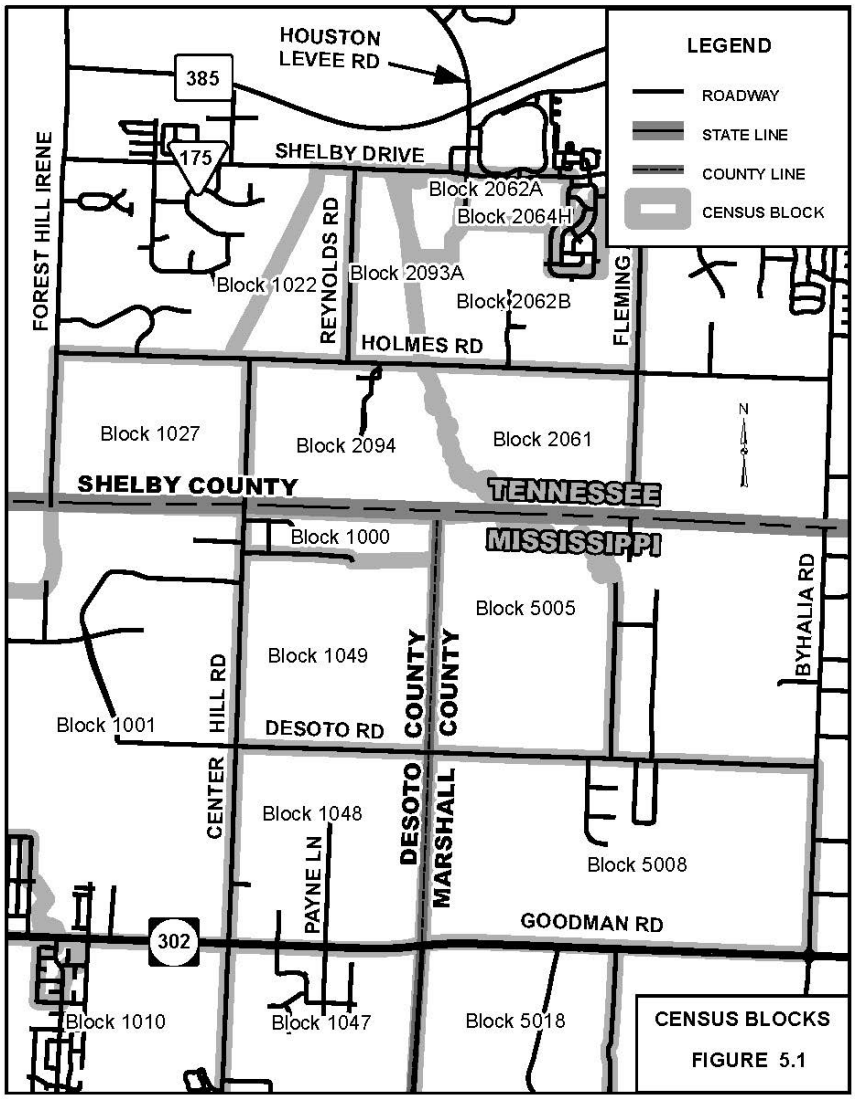
percent of minority population for the total study area, as well as a break down by state, including a list of census blocks for which the percentage of minority inhabitants exceeds those of the total study area within their respective states. These percentages were determined using U.S. census data from the year 2000.

There are two census blocks within Tennessee and four census blocks in Mississippi that have a higher minority population than that of the study area within their respective state. These census tracts are listed in Table 5.1.

Table 5.1 Minority Populations

Geographic Area	Total Population	Percent Minority Population
Total Study Area	1978	24
Within Tennessee	186	17
Within Mississippi	1792	25
Tennessee		
Block 2061	16	56
Block 2062	68	26
Mississippi		
Block 1001	323	28
Block 1047	73	79
Block 1048	157	97
Block 5008	67	60

Source: Bureau of the Census, 2000 Census Data.



Due to the presence of multiple minority populations within the study area, it would be impossible to avoid every census block that may have a potential environmental justice issue. Each of the alternatives carried forward basically touch the same number of blocks containing high percentages of minorities. Although Alternative 1 and Alternative 2 are aligned with the existing Center Hill Road and border high minority census blocks for the whole Desoto County segment, the existing facility is an established community separation and so these alternatives would not introduce a new separation. Alternative 3, which follows the Payne Lane alignment (projected south from Reynolds Road) in Desoto County would not add a new community separation by the same logic. (Of note, Alternative 4 does divide the two minority blocks in Tennessee, as well as bordering the minority blocks along the county line. This alternative seems to have the most potential for creating environmental justice issues.)

Cultural Issues

There are several sites of cultural interest located in the study area. There are three churches and two cemeteries. One of the churches, Center Hill Baptist Church, is a historic structure and is identified as a location of interest by the Mississippi Department of Archives and History. Center Hill Baptist Church was constructed in 1854, and it has an accompanying cemetery. The church is on the west side of Center Hill Road on the south side of Looney Drive. The building is set back so that it is slightly more than 300 feet from the roadway edge, and for this reason was not considered an impediment to the potential widening of Center Hill Road. Liberty Institutional Baptist Church is also on the west side of Center Hill Road, near the state line. New Halliburton Missionary Baptist Church is on the south side of Desoto Road. It is midway between Center Hill Road and the Marshall County line, which puts it in the alignment that would connect Reynolds Road with Payne Lane. The alignment of Alternative 3 was shifted eastward to avoid the church and cemetery.

There are two recreational uses in the study area. The first is at the east end of State Line Drive, where there is a grass landing strip and three buildings that are in use by the Colonial Flying Club. The landing strip is approximately 2200 feet long, and it crosses the state line

into Tennessee. The second is on the north side of Holmes Road, opposite the intersection with Center Hill Road, where there are two ponds that are leased to the Collierville Ski Club for waterskiing. The ponds are approximately 2300 feet long.

The Tennessee Department of Environment and Conservation advised that there are no known sites of special interest in the study area, either for historic or prehistoric interest. The Mississippi Department of Archives and History advised that there are no known sites of archaeological interest.

The Mississippi Department of Archives and History advised about the existence of Center Hill Baptist Church and of a vague report of a historic Greek Revival style house. This house is reputed to be located in the woods in Marshall County north of Goodman Road and west of Byhalia Road. The study team was not able to determine if this structure still exists, but there is no evidence that such a structure exists in the path of Alternative 4, which follows the Marshall County line for over two miles.

6. Engineering Issues

In order to develop an assessment of potential issues for roadbuilding associated with the proposed project, it was first necessary to describe the road. The study process included a debate at the Oversight Committee that began with whether an arterial facility is needed and proceeded to discussions of appropriate design speed and appropriate features for the typical section. It was determined that the proposed facility should be considered as a minor arterial.

Typical Section

The development of appropriate typical sections for the facility was incorporated into the study process. Initial typical section options were discussed with the project Oversight Committee and then discussed in detail with the Bicycle and Pedestrian Committee. These were reviewed with the ETC and presented to the Major Roads Committee. The comments received were discussed in detail with the Oversight Committee. Contributions included making provisions for bicyclists and pedestrians.

Several times the project team was urged to avoid a recommendation for another seven-lane roadway. After traffic analyses and much discussion about sustainable communities and design preferences, it was decided that two typical sections would be recommended.

One of these is a four-lane divided roadway with raised median, bike lanes, curb and gutter and sidewalks to be used for the Tennessee portion of the roadway. These segments are in Collierville and the Collierville Reserve Area, and are in more urbanized settings. The median is wide enough to accommodate a future widening if it becomes necessary. This section is intended to be constructed on a right-of-way width of 114 feet.

The second typical section is a five-lane roadway with wide shoulders for accommodating shared use by bicyclists and pedestrians, and is to be used in the Mississippi portion of the study area, where the surroundings are more rural in nature. This typical section is intended to be constructed on a right-of-way width of 106 feet. Both of these typical sections are illustrated in Figure 6.1 .

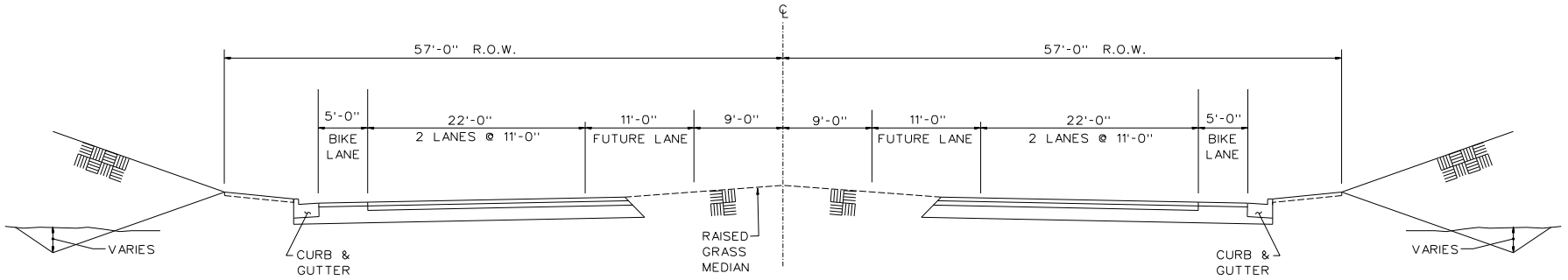
Roadway Design

The anticipated design speed for the roadway is 45 mph, which would support a posted speed of 40 mph, which is appropriate for a minor arterial route. There do not appear to be any roadbuilding issues on the Preliminary Alternatives alignments that would be uncommon to this area.

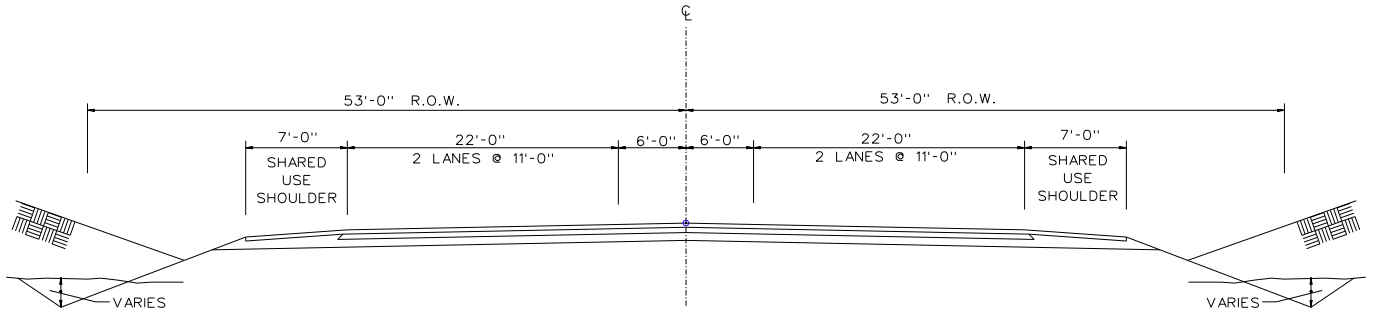
Bridges

There is an existing bridge on Holmes Road over Nonconnah Creek Lateral B that provides an indication of the likely length needed for a bridge on the proposed facility. This is a three-span bridge that crosses the channel at a ninety-degree angle. The bridge is 96 feet long and was constructed in 1966. An inspection in June of 2009 found the bridge to be in fair condition.

If a new bridge is to be constructed over Nonconnah Creek Lateral B at a location downstream of Holmes Road (north of Holmes Road), then the crossing would be over a larger channel. Since bridge standards have changed since the Holmes Road bridge was constructed, a longer span would be expected for a new bridge. Alternative Two crosses



4 LANE SECTION
WITH RAISED MEDIAN



FOUR LANES WITH CENTER TURN LANE

HOUSTON LEVEE ROAD /
CENTER HILL ROAD
ALTERNATIVES STUDY

TYPICAL SECTIONS

FIGURE 6.1

Lateral B at a location approximately 2300 feet south of Shelby Drive. Alternatives One and Three cross Lateral B approximately 200 – 250 feet upstream of Alternative Two. All of the Alternatives cross at a very slight skew. These locations are approximately one half mile downstream of the bridge over Holmes Road. In the intervening distance there is an unnamed tributary that flows into Lateral B that contributes to a larger watershed at these crossing locations compared to the Holmes Road bridge. The assumed bridge length for these locations is approximately 110 feet. A flood and hydraulic study would be needed in order to determine the main span requirement for any new bridge.

Lateral B is channelized to a point approximately 800 feet south of Holmes Road. If an alignment is to be developed that crosses Lateral B upstream of this point, then the stream channel meanders and braids and the associated wetlands would cause the structure to be much longer. (Of note, Alternative Four crosses Lateral B in the area of these meanders, and it crosses at an angle of approximately seventy degrees. The assumed length of a bridge for Alternative Four is approximately 140 feet.)

Terrain

The study area is low rolling terrain. There are no problem slopes or topographic features that would present an impediment to roadbuilding. It is anticipated that some of the existing soils would be unsuitable, and so would have to be removed as "undercut." This would result in a requirement for some fill material to be obtained from other sites ("borrow") during road construction.

Estimated Costs

Costs were estimated for the construction of the proposed facility using planning-level information obtained from TDOT. These are the same per-mile rough estimating values that are used in all the Transportation Planning Reports in Tennessee. In order to have even comparisons, these same costs were applied to the Mississippi portion of the study area. The Mississippi members of the Oversight Committee observed that the costs per mile for roadway construction seem high, but were satisfactory for planning purposes.

Table 6.1 Estimated Costs

Tennessee	**Alt. 1**	**Alt. 2**	**Alt. 3**
Total Length (miles)	2.33	2.36	2.12
Total Approximate Acres of New Right of Way	29.2	27.2	22.3
Total Estimated Opening Day Costs in 2009 Dollars (Millions)	$31.6	$31.7	$28.3
Mississippi			
Total Length (miles)	2.28	2.28	2.30
Total Approximate Acres of New Right of Way	7.2	8.5	27.2
Total Estimated Opening Day Costs in 2009 Dollars (Millions)	$23.7	$23.9	$29.7

Other Modes

The study area is in the suburbs of the Memphis region, and is beyond the area reached by transit service. Travel needs in this corridor could not be served by transit. The area is in the suburban fringes, where low densities of residential housing make service difficult. Also, regional employment is widely scattered such that it would be difficult to structure transit expansion to serve this area. There is little likelihood of adequate demand to support transit service.

The anticipated deficiencies in roadway capacity could not be well-served by congestion management measures alone, though it is anticipated that the installation of traffic signals at key area intersections may become necessary in the period before implementation of the proposed roadway facility.

Bicycle transportation in the study area is almost entirely recreational in nature. The typical section proposed for the urban segments features a wide lane to provide bike lanes, plus sidewalks. The typical section proposed for the rural segments features a wide shoulder to permit pedestrian usage.

Greenways facilities are planned for the area, and connections to greenways facilities and allowance for the development of trails will be an element of project final design. Collierville has adopted a Collierville Greenbelt Network that includes a proposed local trail along Lateral B south from Shelby Drive, and then turning eastward approximately one half mile south of Shelby Drive. All of the alternative alignments considered for the project cross this proposed trail.

In the Tennesse portion of the study area, sidewalks are proposed.

In order to better accommodate bicycle travel, the roadway lanes are proposed to be reduced to eleven feet wide from the standard width of twelve feet. This will reduce travel speeds and also to help make space available to provide bike lanes, which are proposed to be five feet wide. In the Mississippi portion of the study area, no sidewalks are proposed,

but seven-foot wide paved shoulders are proposed, and eleven-foot wide traffic lanes, in order to accommodate pedestrians and casual bike riders (See Figure 6.1).

Future Development

Because the proposed project is not imminent, the time delay of right-of-way purchase for the project is likely to be such that development will occur in the path selected for the project. It is for this reason that alignments are preferred that make use of existing roadway alignments and which minimize the needed future right-of-way acquisition. By adopting an alignment in current planning documents, the opportunities to obtain portions of the needed right-of-way over time through dedications will be improved, and the dedications from property developers would be better-defined. Area property developers would be able to anticipate the future roadway conditions.

7. Potential Funding Sources

There is no funding in place for further study, design, right-of-way purchase or construction of the proposed facility.

The proposed facility would not be designated as a state route by either Tennessee or Mississippi. It would be eligible for Surface Transportation Program funds, in competition with all the other similar projects in the region. Competition for these funds will be intense. Otherwise, local capital improvements funding will be necessary.

The project can possibly be divided into segments for implementation as discrete projects that can be taken in a logical sequence. This will reduce the amount of funding needed in any particular year, and allow for it to be accumulated over many years. The ability to break the project into small pieces for multiple stages of construction is a feature that favors alignment alternatives that have the greatest proportion of their length on existing roads. This makes Alternative 2 favorable over Alternative 1, which in turn would be favored over Alternative 3.

8. Findings

A data comparison of the Alternatives is shown in Table 8.1. The potential impacts appear to be modest and manageable. These numbers are not based on final design, but on preliminary alignments that would be expected to be refined if the project progresses. The data summary is a good representation of the likely impacts if the project were to be implemented in the next few years. If the project is delayed, additional impacts would be expected, since continued development is anticipated in the study area.

When a summary of findings was presented to the Collierville Planning Commission in March, 2010, the Commissioners cast a preliminary vote to indicate to the study team their preferences among the Feasible Alternatives. Their indication of preferences at that time appears in Table 8.2.

Table 8.2
Collierville Planning Commission's Rankings: March 4, 2010.

Commissioner	**Alternatives**			
	# 1	**# 2**	**# 3**	**No-build**
S.R.	2	1	3	4
J.L.	2	1	4	3
J.P.	2	3	4	1
J.W.	2	1	3	4
J.M.	2	1	3	4
D.H.	2	1	4	3
F.F.	1	2	3	4
D.J.	2	3	4	1
J.S.	1	2	3	4
Sum	**16**	**15**	**31**	**28**
Average	**1.8**	**1.7**	**3.4**	**3.1**

Ranking (1 – 4):
1 = Most preferred; 4 = Least preferred

After a similar presentation, the DeSoto County Board of Supervisors did not indicate their preferences.

Table 8.1 Comparative Matrix

Matrix Item	Alt. 1	Alt. 2	Alt. 3
Total Length (miles)	4.61	4.64	4.42
Length in Tennessee (miles)	2.33	2.36	2.12
Length in Mississippi (miles)	2.28	2.28	2.30
Length on New Alignment (miles)	1.94	2.03	3.27
Total Approximate Acres of New Right of Way Needed for Proposed Roadway Facility	36.4	35.7	49.5
In Tennessee	29.2	27.2	22.3
In Mississippi	7.2	8.5	27.2
2030 Estimated Traffic (ADT)	14,750 to 17,000	14,750 to 17,000	12,000 to 16,900
Total Estimated Opening Day Costs in 2009 Dollars (Millions)	$ 55.3	$ 55.6	$ 58.0
Estimated Opening Day Costs in 2009 Dollars for Tennessee (Millions)	$31.6	$31.7	$28.3
Estimated Opening Day Costs in 2009 Dollars for Mississippi (Millions)	$23.7	$23.9	$29.7
Potential Displacements:			
Total Approximate Potential Residential Displacements	10	11	2
In Tennessee	3	3	1
In Mississippi	7	8	1
Total Approximate Potential Business Displacements	2	2	1
In Tennessee	0	0	0
In Mississippi	2	2	1
Approximate Potential Church Displacements	0	0	0
Approximate Potential Cemetery Displacements	0	0	0
Potential Environmental Effects			
Hydric Soils (Potential Wetlands) Acres Impacted	20	13	23
Potential WMA, NWR, or State Lands Acres Impacted*	0	0	0
Potentially Affected Historical Sites	1	1	0
In Tennessee	0	0	0
In Mississippi	1	1	0
Potentially Affected Recorded Archaeological Sites	0	0	0
Potentially Affected Known Hazardous Material Sites	0	0	0
Potentially Affected Known Rare or Threatened Species	7	7	7
Potential Relocation of Electrical Transmission Lines	N	N	Y
* WMA = Wildlife Management Area, NWR = National Wildlife Refuge			

Feasibility Criteria

In determining the feasibility of a roadway project such as this, the FHWA has identified three required elements that must be considered:

- *The degree to which a given alternative mode, management strategy, design or location is economically justified,*
- *The degree to which such an alternative is considered preferable from an environmental or social perspective, and,*
- *The degree to which eventual construction and operation of such an alternative can be financed and managed.*

Remarks

Based on the thoroughfare planning need for improved travel in the north-south direction, an improved arterial roadway link will be needed to serve the area through a period of continued suburban growth. There do not appear to be any impediments to the development of the proposed facility, other than the limitations on funding.

Collierville has expressed greater interest in Alternative 1 and Alternative 2 than in Alternative 3, and both Alternative 1 and Alternative 2 make use of the existing Center Hill Road in the Mississippi portion of the study area. Since DeSoto County has expressed a preference for using the existing Center Hill Road alignment, then the selection of either Alternative 1 or Alternative 2 would keep the jurisdictions in agreement and need no further effort of resolution.

The assessment of feasibility is:

- *The degree to which a given alternative mode, management strategy, design or location is economically justified.* Roadway improvements will be needed to support the anticipated development in the study area. It is appropriate to plan the roadway improvements that support the development of the arterial grid.

- *The degree to which such an alternative is considered preferable from an environmental or social perspective.* Though some potential impacts to environmental and cultural resources have been identified, none of these are considered serious. The reduction of such potential impacts has been an important part of the deliberations in the project planning process. The new roadway will benefit the public by providing a more direct route for north-south travel through the study area than is currently available.

- *The degree to which eventual construction and operation of such an alternative can be financed and managed.* Funding for a needed element of the arterial grid will be available over time, if the project is divided into logical elements for sequenced construction.

9. Next Steps

This study will be referred by the MPO to the four participating agencies for consideration. The MPO will request that, if consensus is achieved on an Alternative, that the agencies adopt any changes that may be needed to their planning documents to reflect the consensus. If consensus can be achieved, the MPO will submit a revision to the regional Long Range Transportation Plan to the MPO Policy Board.