

Preliminary Environmental Assessment

Interstate 20 Improvements

Vicksburg between the Louisiana State Line and the US 61 North/SR 27 Interchange

Project No. IMD-0020-01(181) / 100367 002000
Warren County, Mississippi

Submitted to
U.S. Department of Transportation
Federal Highway Administration

For Presentation at a Public Hearing

Submitted by
Mississippi Department of Transportation

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Date of Approval

E. O. B.
for Federal Highway Administration

The following persons may be contacted for additional information concerning this document:

Mr. Andrew H. Hughes, P.E.
Division Administrator
Federal Highway Administration
100 West Capitol Street, Suite 1062
Jackson, Mississippi 39269-1621
Telephone (601) 965-4217

Ms. Kim Thurman
Environmental Division Administrator
Mississippi Department of Transportation
P.O. Box 1850
Jackson, Mississippi 39215-1850
Telephone (601) 359-7920

City of Vicksburg and MDOT Commitments to Environmental Excellence

Project No: IMD-0020-01(181) / 100367 002000

Roadway: Interstate 20

Revision Date: 3/20/2012

Preliminary Environmental Assessment

County: Warren

*Value Engineering Study Recommended Yes No Completed

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Commitments/Requirements	Source of Commitment	Responsible Office	Place on Plans	Requires A Special Provision	Status of Commitment/Requirement
Water Quality: A Construction Storm Water General National Pollutant Discharge Elimination System (NPDES) Permit will be required. The permit will require implementing (BMPs) for controlling the discharge of storm water during the construction.	Pages 4-35 to 4-38, 4-48 to 4-49 and 4-53	MDOT	Yes	Yes (Notice to Bidders)	To be addressed during the Preconstruction Phase of the project.
Floodplain: In accordance with the FHWA floodplain impact requirements, flood studies will be utilized at the US 61 North/SR 27 Interchange area for the design of bridges, box culverts and pipes within the floodplain. To comply with a City of Vicksburg Ordinance, the MDOT prior to construction will obtain a floodplain permit from the City of Vicksburg or an exception from the permit based on the design procedures used and the proposed construction.	Page 4-45	MDOT and City of Vicksburg	Yes	Yes	To be addressed during the Preconstruction Phase of the project.
Vicksburg National Military Park: No current or former military park property will be needed by the MDOT for additional right of way.	Pages 4-56 and 5-32	MDOT	No	No	To be addressed during the Preconstruction Phase of the project.
Vicksburg National Military Park: The MDOT will minimize through reasonable and practical measures the number of locations that need exceptions or variances from the city ordinance requiring a 25 foot buffer zone clear of construction for current and former military park property.	Pages 4-57, 5-31 and 5-32	MDOT	No	No	To be addressed during the Preconstruction Phase of the project.
All practical and standard procedures and measures, including Best Management practices will be implemented to avoid or minimize impacts.					

- These commitments should be carried throughout each phase of the project development including Design, Right of Way, Construction and Maintenance.
- *Value Engineering (VE) Studies are recommended for projects on the NHS System and/or an Intermodal Connector with an estimated project costs approaching \$25 Million.

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Commitments/Requirements	Source of Commitment	Responsible Office	Place on Plans	Requires A Special Provision	Status of Commitment/Requirement
<p>Vicksburg National Military Park: The MDOT and City of Vicksburg officials will work with the military park officials to obtain any needed exceptions or variances to the city ordinance requiring a 25 foot buffer zone clear of construction when the field survey descriptions for the areas inside the 25-foot buffer are determined and the MDOT is the adjacent landowner at all the locations requiring variances or exceptions to the ordinance.</p>	Pages 4-57 and 5-35	MDOT, City of Vicksburg and Vicksburg National Military Park	No	No	To be addressed during the Preconstruction Phase of the project.
<p>Vicksburg National Military Park: Military park property formerly acquired for transportation purposes and determined to no longer be needed for such purposes at the reconstructed Indiana Ave. Interchange will be returned to the military park in accordance with the right of way instrument under which the property was originally acquired.</p>	Pages 4-58, 5-34 and 5-36	MDOT	No	No	To be addressed during the Preconstruction Phase of the project.
<p>Vicksburg National Military Park: The MDOT will work with the military park officials to identify the monuments located in close proximity of the proposed I-20 right of way and identify limits where special reasonable and practical construction measures need implementing to minimize seismic impacts.</p>	Pages 4-61, 4-62, 4-86 and 5-32	MDOT and Vicksburg National Military Park	Yes	Yes	To be addressed during the Preconstruction and Construction Phases of the project.

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City of Vicksburg and MDOT Commitments to Environmental Excellence

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Commitments/Requirements	Source of Commitment	Responsible Office	Place on Plans	Requires A Special Provision	Status of Commitment/Requirement
Vicksburg National Military Park: I-20 guide signing and access for the military park traffic will be maintained throughout the construction.	Page 5-33	MDOT	Yes	No	To be addressed during the Preconstruction and Construction Phases of the project.
Threatened and Endangered Species: Within the year prior to the beginning of construction on the project that will include the US 61 North/SR 27 interchange, the area around the interchange will be surveyed through coordination with the USFWS, the Bureau of Land Management and the MDWFP to determine the presence of bats, particularly the Southeastern myotis; and, to determine any reasonable and practical measures that should be implemented to minimize impacts of construction on the bats. Possible measures that might need implementing include providing alternative roosting structures in the immediate area and limiting the times of the year when construction impacting their roosting sites can occur.	Pages 4-67, 4-68 and 4-71	MDOT	No	No	To be addressed during the Preconstruction and Construction Phases of the project.

All practical and standard procedures and measures, including Best Management practices will be implemented to avoid or minimize impacts.

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City of Vicksburg and MDOT Commitments to Environmental Excellence

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Commitments/Requirements	Source of Commitment	Responsible Office	Place on Plans	Requires A Special Provision	Status of Commitment/Requirement
<p>Threatened and Endangered Species: To minimize water quality impacts on the habitat for the Southern Redbelly Dace and other species, best management practices will be properly implemented, monitored and maintained, specifically measures that will prevent silt and contaminants from leaving the site in stormwater run-off.</p>	Page 4-71	MDOT	No	No	To be addressed during the Preconstruction and Construction Phases of the project.
<p>Cultural Resources: If previously undetected resources are discovered during construction, work would cease in the immediate area and federal regulations pertaining to the emergency discovery situations would be followed. The Advisory Council on Historic Preservation and the Mississippi State Historic Preservation Officer (SHPO) would be contacted for evaluation of the situation.</p>	Pages 4-73, 4-86 and 4-87	MDOT	No	No	For consideration during all phases of the project.
<p>Traffic: Construction planning and sequencing would attempt to minimize traffic delays at all levels.</p>	Page 4-84	MDOT	Yes	No	To take place during the design and construction phases of the project.

All practical and standard procedures and measures, including Best Management practices will be implemented to avoid or minimize impacts.

- These commitments should be carried throughout each phase of the project development including Design, Right of Way, Construction and Maintenance.
- *Value Engineering (VE) Studies are recommended for projects on the NHS System and/or an Intermodal Connector with an estimated project costs approaching \$25 Million.

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LIST OF ACRONYMS

AADT	Average annual daily traffic
AASHTO	American Association of State Highway Transportation Officials
APE	Area of potential effect
BMP	Best Management Practices
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	Decibel
dba	decibels as “A” weighted level
DO	Dissolved Oxygen
EA	Environmental Assessment
E.O.	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Transportation
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
GIS	Geographic Information System
JD	Jurisdictional Determination
KCS	Kansas City Southern
KCSR	Kansas City Southern Railway Company
LQG	Large Quantity Generator
LUST	Leaking Underground Storage Tank
MARIS	Mississippi Automated Resource Information System
MDAH	Mississippi Department of Archives and History
MDEQ	Mississippi Department of Environmental Quality

MDOT	Mississippi Department of Transportation
MDWFP	Mississippi Department of Wildlife, Fisheries, and Parks
MMNS	Mississippi Museum of Natural Science
MS	Mississippi
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NFRAP	No further remedial action planned
NMFS	National Marine Fisheries Service
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
N-S	Neel-Schaffer, Inc.
OAQPS	Office of Air Quality Planning and Standards
OHWM	Ordinary High Water Mark
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
SHAs	State Highway Agencies
SHWS	State Hazardous Waste Site
SQG	Small Quantity Generator
SR	State Route
TDS	Total Dissolved Solids
TMDLs	Total Maximum Daily Loads
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VE	Value Engineering

1.0 INTRODUCTION AND BACKGROUND

The Mississippi Department of Transportation (MDOT), in conjunction with the Federal Highway Administration (FHWA), is proposing to improve Interstate Highway 20 (I-20) at and near Vicksburg in Warren County, Mississippi. The section proposed for improvements is located between the Mississippi River Bridge and the eastern limit of the U.S. Highway 61 (US 61) North/State Route 27 (SR 27) Exit 5 Interchange. Within this approximate six mile section, six interchanges and the frontage road system have been studied for improvements. From west to east, the six interchanges are located at Exit 1A Washington Street/Warrenton Road, Exit 1B US 61 South, Exit 1C Halls Ferry Road, Exit 3 Indiana Avenue, Exit 4 Clay Street/US 80 and Exit 5 US 61 North/SR 27. The following sections provide an introduction, project background information, and a location and description of the affected area.

1.1 Introduction

I-20 between the Mississippi River Bridge and the eastern limit of the US 61 North/SR 27 Exit 5 Interchange was originally constructed in separate contracts that were completed between 1963 and 1973. Over the past 35 plus years, no major reconstruction has occurred to improve sight distances, provide additional traffic lanes, or improve traffic operations and safety. As a result, this section of I-20 has become substandard. Major reconstruction is needed to address its deficiencies and to provide the additional lanes needed to accommodate the traffic demand.

The MDOT and the FHWA are conducting this Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to evaluate the impacts of the alternatives identified for improving I-20 through Vicksburg.

1.2 Background

I-20 is a major national, regional, and local transportation corridor. The Mississippi River is a formidable western boundary for the State of Mississippi and limits the locations where vehicular traffic can enter or exit the state to locations with major bridges. The I-20 Mississippi River crossing at Vicksburg is the only interstate system crossing of the River in the State of Mississippi.

Figure 1-1 depicts the existing I-20 interchanges in the study area between the Mississippi River Bridge and the US 61 North/SR 27 Exit 5 Interchange. From west to east this section of

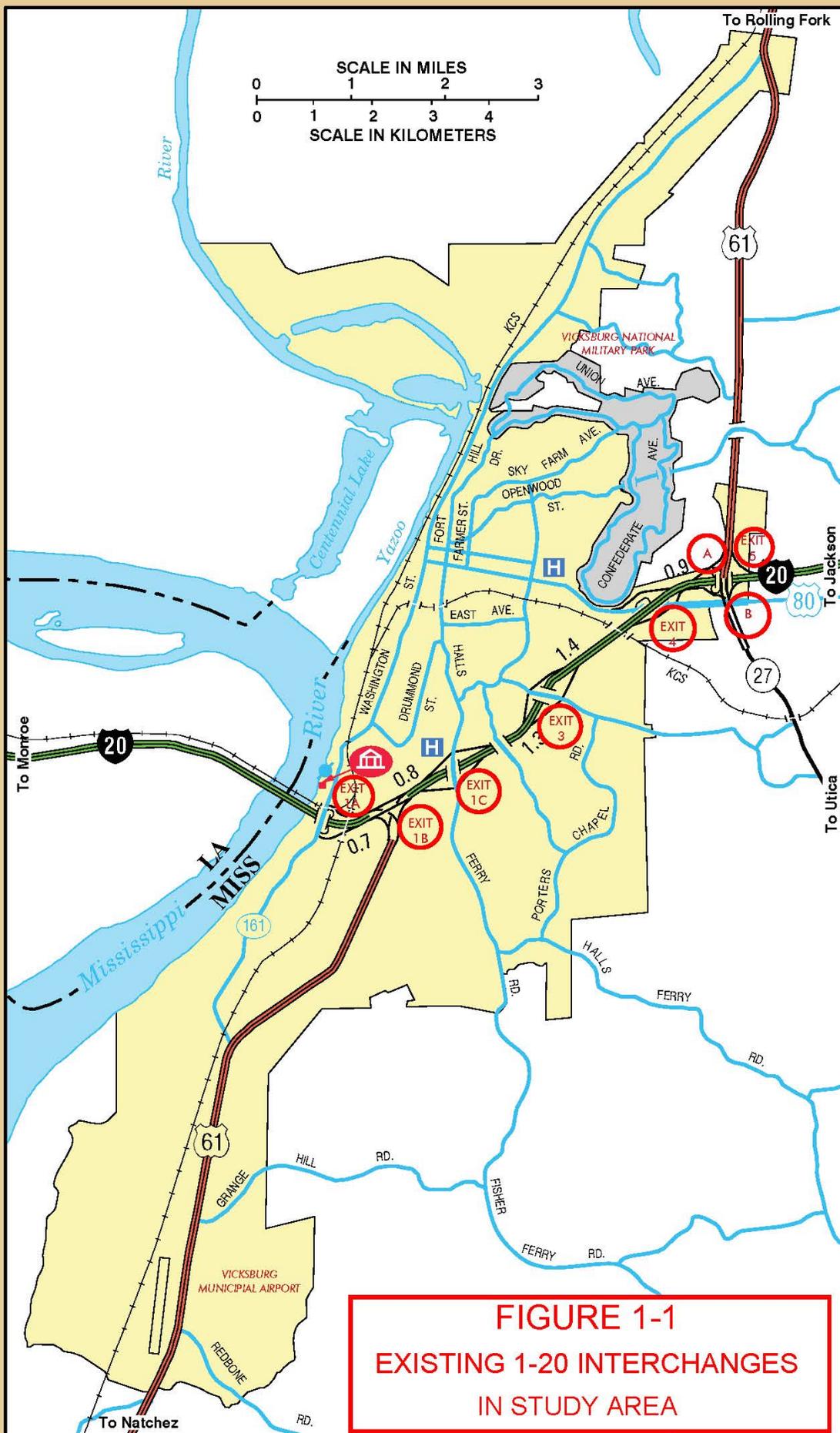


FIGURE 1-1
EXISTING 1-20 INTERCHANGES
IN STUDY AREA

I-20 has six closely spaced interchanges. These interchanges are located at Exit 1A Washington Street/Warrenton Road, Exit 1B US 61 South, Exit 1C Halls Ferry Road, Exit 3 Indiana Avenue, Exit 4 Clay Street/US 80, and Exit 5 US 61 North/SR 27. Between the interchanges at Exit 1B and Exit 5, US 61 and I-20 are concurrent routes.

Vicksburg is one of Mississippi's most historically renowned cities. As evidenced by the Siege of Vicksburg during the Civil War, the terrain in the Vicksburg area is quite severe. I-20 through Vicksburg has traffic operational problems because of poor vertical alignment, the short spacing between most of the interchanges, the short lengths of the exit and entrance ramps at most interchanges, and the left exit and entrance ramps at the two US 61 interchanges.

Vicksburg is one of the few cities in Mississippi to offer gaming. The Exit 1A Washington Street/Warrenton Road Interchange provides I-20 traffic direct access to Vicksburg's five riverfront casinos. Vicksburg's casinos have contributed to the traffic growth and need for improvements on this section of interstate.

Excluding the specialty shops in the Downtown area, Vicksburg's major commercial areas and a large portion of its residential areas are located adjacent to or near the I-20 corridor. Because the frontage roads are not continuous between the Indiana Avenue and the Clay Street/US 80 interchanges, local traffic must use the interstate for short trips between some of the interchanges. The lack of continuous frontage roads contributes to the I-20 traffic congestion through Vicksburg and increases the traffic conflicts at the short interchange entrance and exit ramps.

Recognizing the increased traffic volumes and growth in the Vicksburg area, the MDOT in the 1990s commissioned a study to evaluate the existing and future traffic volumes on I-20 and the adjacent frontage roads. That study's focus was to develop and evaluate an updated geometric design addressing the future requirements of I-20 at Vicksburg. Similar to this study, the limits for the prior study were the Mississippi River Bridge and the US 61 North/SR 27 Exit 5 Interchange. The area for the prior study included the interchanges at Exit 1A Washington Street/Warrenton Road, Exit 1B US 61 South, Exit 1C Halls Ferry Road, Exit 3 Indiana Avenue, Exit 4 Clay Street/US 80 and Exit 5 US 61 North/SR 27. **Appendix A** contains a copy of the

prior study's April 2002 Final Report titled, *Reconstruction of I-20 from Washington Street to US 61 North, Vicksburg, Warren County, Mississippi.*

Within a portion of the study area for this project, the MDOT also previously commissioned an environmental and location study for eliminating a gap in the I-20 South Frontage Road between Old SR 27 and Clay Street/US 80. The Meridian Speedway at its crossing of I-20 has a major train corridor paralleling Old SR 27 slightly to the east at an elevation significantly lower than Old SR 27. Bridges are provided on the I-20 East and I-20 West lanes over Old SR 27 and the railroad. The Meridian Speedway is owned by the Meridian Speedway LLC (MSLLC). The MSLLC is, in turn, owned by the Kansas City Southern (KCS) (who has a majority interest) and Alabama Great Southern Railroad (a subsidiary of Norfolk Southern Railway, who has a minority interest). Slightly to the north of I-20, the Vicksburg National Military Park property borders Old SR 27 to the west near where Old 27 turns to the northeast and a bridge is provided on Old SR 27 over the railroad. Continuing to the northeast, Old SR 27 intersects Clay Street opposite the access to the Vicksburg National Military Park Welcome Center. The previous environmental and location study eliminated the gap in the I-20 South Frontage Road by providing a bridge over the railroad to extend the frontage road to the east and connect the extended frontage road with an existing City of Vicksburg maintained frontage road, which provides access to East Clay Street via Berryman Road. The recommendations of the frontage road extension study were compatible with the April 2002 report, and a Finding of No Significant Impact (FONSI) was issued in May of 2007 for the Environmental Assessment performed on the frontage road extension study.

Based on the existing conditions and projected growth, traffic congestion along I-20 in Vicksburg is expected to worsen. Improving this section of interstate will be difficult and costly due to the following:

- the traffic volumes on the mainline interstate and frontage roads;
- the close spacing of the interchanges;
- the nearby boundaries of the Vicksburg National Military Park;
- the adjacent commercial and residential development;
- the severe terrain;
- maintaining traffic during the reconstruction projects; and,

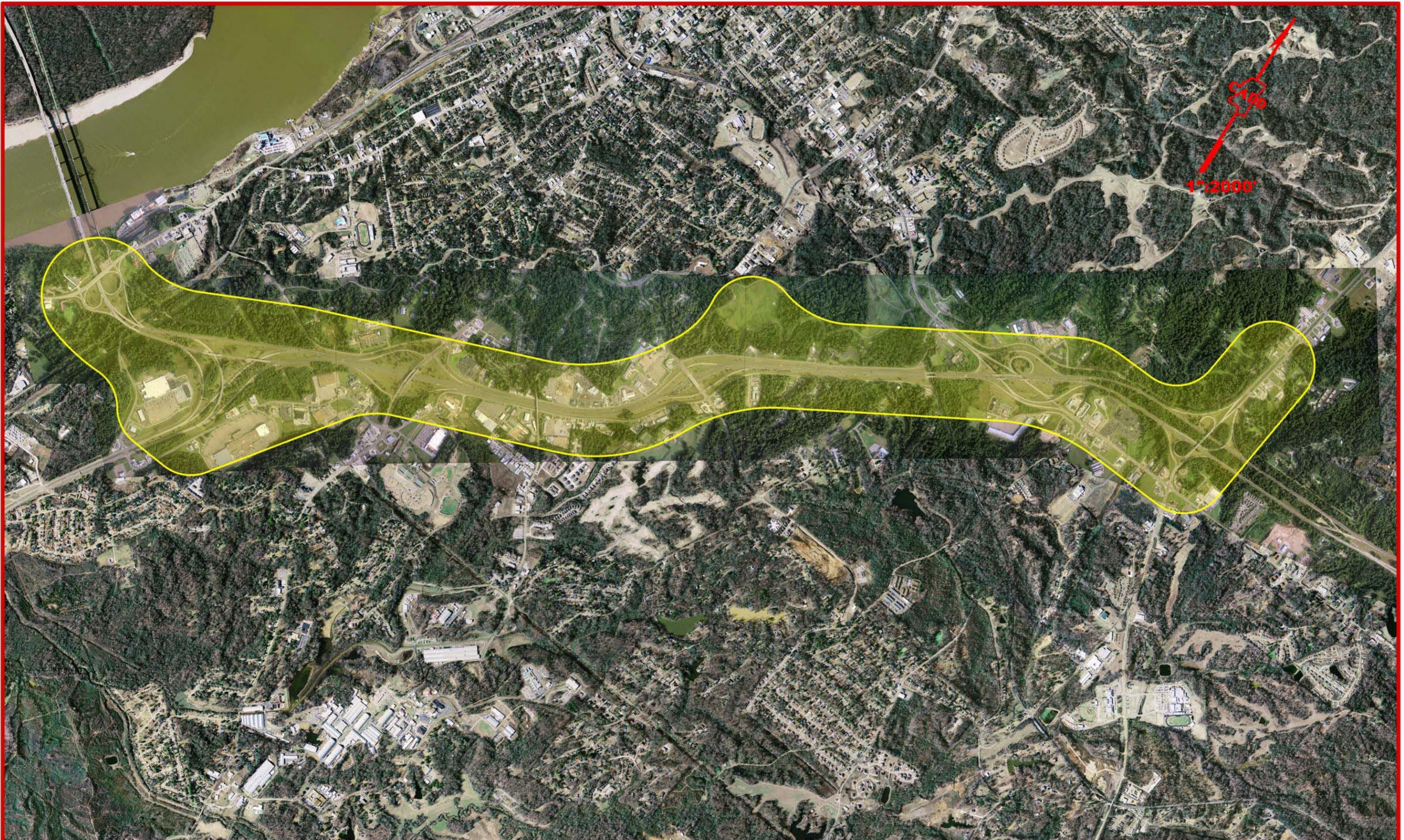
- accomplishing the reconstruction in separate projects that recognize funding limitations and the need for project linkage.

A comprehensive long-range plan is therefore needed to meet the required criteria and needs.

1.3 Location and Description of the Affected Area

The study area is depicted in **Figure 1-2**. It is located in western Warren County, Mississippi along and adjacent to approximately six miles of I-20 in and near Vicksburg between the Mississippi River Bridge and the eastern limit of the US 61 North/SR 27 Exit 5 Interchange. Downtown Vicksburg is located slightly to the north of the study area. Extending from west to east, the study area includes the following interchanges: Exit 1A Washington Street/Warrenton Road, Exit 1B US 61 South, Exit 1C Halls Ferry Road, Exit 3 Indiana Avenue, Exit 4 Clay Street/US 80 and Exit 5 US 61 North/SR 27. Between the Exit 1B and the Exit 5 interchanges, US 61 and I-20 share the same route. The study area includes the existing interstate frontage road system. Additional information on these interchanges, the traffic generators serviced by the interchanges, and the existing frontage road system is discussed in **Appendix B**.

Vicksburg's population in excess of 26,000 (twenty-six thousand), according to the 2000 Census, made it the ninth largest city in the State of Mississippi. From the time when the land which would eventually become Vicksburg was first claimed by the French in 1680 to the present, Vicksburg has an interesting and diverse history. An overview of Vicksburg's unique history is also provided in **Appendix B**.



I-20 BETWEEN THE LOUISIANA STATE LINE
AND THE US 61 NORTH/SR 27 INTERCHANGE
PROJECT NO. IMD-0020-01(181) FMS:100367/00200



STUDY AREA MAP

FIGURE 1-2

2.0 PURPOSE AND NEED

This Environmental Assessment (EA) document is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and other related federal regulations and procedures. The EA addresses social, economic and environmental impacts of the proposed action previously discussed.

The purpose of the study is to improve safety and mobility for the traveling public and to prepare for future anticipated needs by reconstructing I-20, the interchanges and frontage roads over the approximate six miles in and near Vicksburg, Mississippi between the Mississippi River Bridge and the eastern limit of the US 61 North/SR 27 Exit 5 Interchange.

It took three paving projects between 1963 and 1973 to complete I-20 through Vicksburg. The following provides a brief description of the three projects and their primary listed design controls.

- For the project completed in 1963 from slightly west of the Clay Street/US 80 Exit 4 Interchange extending east to and beyond the US 61 North/SR 27 Exit 5 Interchange to Bovina:
 - 70 MPH Design Speed;
 - 1,099 feet Minimum Sight Distance;
 - 4,492 Average Daily Traffic (ADT) in the Year 1955; and
 - 16,224 ADT in the Year 1975.
- For the project completed in 1972 from the Mississippi River Bridge extending east through the US 61 South Exit 1B Interchange to slightly west of the Halls Ferry Road Exit 1C Interchange, and for the project completed in 1973 from slightly west of the Halls Ferry Road Exit 1C Interchange extending east through the Indiana Avenue Exit 3 Interchange to slightly west of the Clay Street/US 80 Exit 4 Interchange:
 - 50 MPH Design Speed;
 - 628 feet Minimum Sight Distance;
 - 4,610 ADT in the Year 1965; and,
 - 18,080 ADT in the Year 1989.

Higher design standards have been implemented since I-20 through Vicksburg was completed. However, no major reconstruction has occurred to upgrade this section of interstate's to current design standards. Major reconstruction is needed on this section of I-20 to:

- increase traffic capacity;
- improve sight distances;
- lengthen interchange entrance and exit ramps;
- increase vertical clearances at problem bridge crossings; and,
- address unsatisfactory traffic weaving sections.

To post a speed limit in reasonable compliance with the speeds that drivers are traveling, a 60 MPH Speed Limit exists on this section of I-20 through Vicksburg. However, as previously stated, a 50 MPH Design Speed was used for the approximate four mile segment between the Mississippi River Bridge and the western limit of the Clay Street/US 80 Exit 4 Interchange. This portion of I-20 needs reconstructing to bring the design speed in compliance with the posted speed limit.

The MDOT's Average Annual Daily Traffic for the Year 2007 on I-20 through Vicksburg ranges from 26,000 at the Mississippi River Bridge to 49,000 between the US 61 South and the SR 27/US 61 North Interchange to 38,000 east of the SR 27/US 61 North Interchange. The 2007 traffic for the four through lanes on this section of I-20 far exceeds the Design Control projected ADT of 18,080 used for the Year 1989.

The need for improving the traffic capacity of the existing system is shown in greater detail by the traffic analyses contained in **Appendix C**. One analysis addresses the capacity of the system using 2007 traffic data that was required as part of this study. The second analysis assumes no major improvements are made to this section of interstate. For the second analysis, the traffic capacities are recomputed by projecting the 2007 traffic data to the 2040 Design Year used for this study. The 2007 analysis verifies capacity improvements are presently needed. The 2040 analysis indicates that capacity improvements will be even more needed in the Design Year for this study.

Appendix C also contains the 2040 Design Year traffic analysis for the build alternatives selected under this study for improving this section of I-20. Specified minimum capacity or

Level of Service requirements were established for the alternatives in the 2040 Design Year before they were advanced for detailed study. Level of Service (LOS) is a measure describing operating conditions on a roadway segment, intersection, or interchange. Six levels are defined using the letters A to F, with A representing the least congested condition and F the most congested. Generally, LOS D for urban areas and LOS C for rural areas are the minimum acceptable LOS during peak periods, with LOS E and F indicating failing or near failing conditions. This study's build alternatives meet or exceed the minimum acceptable LOS during peak periods.

On April 15, 2002, the Vision 21 bill was signed by Mississippi Governor Ronnie Musgrove. Vision 21 is a \$3.6 billion "pay-as-you-go" highway proposal to upgrade existing highways, or build new highways where they are needed – most with no new taxes from the public. The legislation reauthorized funding for the four-lane construction program at a level that gradually increases to \$200 million a year by fiscal year 2006. Vision 21 provides for completion of phases I, II and III of the 1987 Four-Lane Program, prioritization of Phase IV of the Program and the Gaming Roads Program on a "needs" basis, and special projects that are contingent upon federal or other funding sources, such as the proposed Interstate Highway 69 project, among others.

Appendix C contains a copy of the Vision 21 map. The portion of I-20 in and near Vicksburg between the Louisiana State Line and the US 61 North/SR 27 being addressed in this study has an immediate need designation in the Legend Block of the map. Of the segments identified with immediate, mid-range and long-range needs designations on the map, the immediate need segment designations have the highest priority.

The City of Vicksburg is responsible for investigating accidents on the portion of I-20 and the interchange crossroads between the Mississippi River Bridge and the SR 27/US 61 North Interchange. However, due to its policies, the City of Vicksburg was unable to provide the project development team with accident data in a format conducive to plotting collision diagrams for analyzing existing accident patterns and determining any problem accident locations on this section of interstate. I-20 through Vicksburg has high traffic volumes in rolling terrain with only two through traffic lanes for each direction of travel. The rolling terrain prevents much of this section of interstate from meeting current 50 mph design standards. The lengths of the

interchange entrance and exit ramps do not meet current minimum design standards for acceleration and deceleration. The existing two-lane, two-way frontage roads adjacent to I-20 between Halls Ferry Road and Indiana Avenue have considerable commercial/residential development, while there is minor development on the existing frontage roads adjacent to the interstate between Indiana Avenue and Old SR 27. Most of the existing frontage roads paralleling I-20 between Halls Ferry Road and Indiana Avenue meet current 45 mph design speed requirements while the more severe rolling terrain between Indiana Avenue and Old SR 27 prevents some of that frontage road segment from meeting current 45 mph design speed requirements. This section of interstate needs reconstructing to lower the potential for unnecessary traffic accidents occurring due to the section not meeting current design standards. The remaining frontage roads between Exit 1A and Exit 5 are described in **Appendix B** and are functioning satisfactorily.

Interstate 20 is a major east-west 1,535 mile interstate highway in the southeastern United States. It connects Interstate 10 near Kent, Texas to Interstate 95 at Florence, South Carolina. Between Texas and South Carolina, I-20 passes through northern Louisiana, central Mississippi, western and north-central Alabama, and north-central Georgia. Some of the cities serviced by I-20 are Abilene, Fort Worth and Dallas, Texas; Shreveport and Monroe, Louisiana; Vicksburg, Jackson, and Meridian, Mississippi; Tuscaloosa and Birmingham, Alabama; Atlanta and Augusta, Georgia; and, Columbia and Florence, South Carolina. Improving the substandard section of I-20 through Vicksburg addresses a need of the interstate highway system and the national, regional, and local transportation network it serves.

The relationships the proposed project has to the needs of the State of Mississippi's, Warren County's, and the City of Vicksburg's transportation plans are shown by reviewing the information provided in **Appendix B** on the existing interchanges, frontage road system, and the areas serviced by the interchanges. To ensure this proposed project is developed with local input and consistent with local goal attainment policies or programs, public involvement is a needed and important part of this study.

The existing social and economic traffic generators exerting travel demand needs on the proposed project include: the Vicksburg National Military Park, antebellum homes on the National Registry of Historic Places and other historical sites in Downtown Vicksburg, five

casinos, the Waterways Experiment Station of the U.S. Army Corps of Engineers, the Mississippi River Port of Vicksburg, the Vicksburg Railroad Yard, the commercial areas in Downtown Vicksburg, the Pemberton Square Mall and Vicksburg Factory Outlet shopping centers, and other commercial areas along the frontage road system. **Appendix B** provides additional information on the location on these major social and economic traffic generators relative to the proposed project.

From an intermodal perspective for ground, water, and air forms of transportation, I-20 at Vicksburg is a needed and important corridor for accessing the national, regional, and local highway, road, and street network. It crosses the Class I Meridian Speedway railroad, the Class III Vicksburg Southern Railroad and provides access to the Vicksburg Railroad Yard. I-20 provides an important crossing of the Mississippi River and access to the Mississippi River Port at Vicksburg. The Vicksburg Municipal Airport is also provided service by this section of I-20. Therefore, reconstructing I-20 and its interchanges through Vicksburg provides improved and safer access to Vicksburg's intermodal facilities where transfer of goods or freight to different modes of transportation is occurring. For additional information on the locations of the transportation modes and how they are provided access, refer to **Appendix B**.

Any build alternative selected for detail study under this project would address the existing and future anticipated needs for I-20 through Vicksburg.

3.0 ALTERNATIVES

Alternatives developed for this study include a “no build” which would retain the existing roadway network and two “build” alternatives. The build alternatives would reconstruct the I-20 East and I-20 West lanes, as well as the interchanges, in a similar manner.

The build alternatives begin on the eastern side of the Washington Street/Warrenton Road Exit 1A Interchange. From their beginning point, the build alternatives extend east and northeast for approximately five and a half miles through the eastern limit of a new Clay Street/US 80/US 61 North/SR 27 Interchange. That interchange at the eastern limit of the build alternatives combines the present Clay Street/US 80 Exit 4 Interchange servicing the Vicksburg National Military Park with the US 61 North/SR 27 Exit 5 Interchange.

Although the build alternatives are similar, their frontage road improvement concepts are different. Between Halls Ferry Road and Old SR 27, Build Alternative B has three-lane, one-way ultimate frontage roads while Build Alternative C has three-lane, two-way ultimate frontage roads with the outside lanes for opposing thru traffic and the middle lane for left turning traffic.

Local officials, project stakeholders and concerned citizens had input in developing build alternatives that minimize impacts on the human and natural environments.

3.1 Design Criteria

The build alternatives were developed using the guidelines published by the American Association of State Highway Transportation Officials, the criteria contained in the MDOT 2001 *Roadway Design Manual*, MDOT policies and MDOT standard practices.

Due to the high estimated construction costs, maintenance of traffic constraints during construction, and funding limitations, eight possible separate construction projects are proposed for implementing each of the build alternatives. Section 3.7 addresses the possible project sequencing plan for completing the build alternatives.

The Design Criteria for the build alternatives is presented by using tables in this section and typical section figures in the appendices. **Tables 3-1** and **3-2** depict the Planning Level Design

Criteria. **Appendix D** contains the typical section figures for the eight possible projects proposed for Alternative B and **Appendix E** contains the typical section figures for the eight possible projects proposed for Alternative C.

History has revealed that commercial and/or residential development occurs as close as possible to interchanges. The close proximity of the development's access to that of the interchange can result in traffic safety and operational problems.

This study encompasses six interchanges within the City of Vicksburg. The existing interchanges have access control limiting how close private property is allowed access to the interchange crossroad. At all six of these existing interchanges, a crossroad driveway or street servicing residential or commercial development has been provided on at least one side of the interchange at the closest allowable access point.

For the build alternatives at each interchange location along the interchange crossroad, the study addressed the following access control issues:

- the existing access control;
- whether or not the existing access control is adequate to safely and efficiently accommodate the projected 2040 traffic demand;
- if the existing access control was determined to be inadequate for safely and efficiently accommodating the projected 2040 traffic demand, an access control recommendation was developed; and,
- if an access control change was recommended, consideration was given to minimizing the negative impacts on residential and business properties that would have their access modified.

The existing access control for the build alternatives was determined to be adequate for accommodating the 2040 traffic demand at the following locations:

- Warrenton Road and Washington Street at Exit 1A;
- US 61 South at Exit 1B;
- Halls Ferry Road at Exit 1C;
- Clay Street and US 80 at Exit 4; and,
- SR 27 at Exit 5.

TABLE 3-2
I-20 in and near Vicksburg
Planning Level Highway Design Criteria

Design Criteria	Design Feature	Interstate 20 Mainline Lanes	Interchange Ramps	Interchange Loop	Collector-Distributor Roads	Frontage Roads
Roadway	Access Control	Full Control Type 1	Full Control Type 1	Full Control Type 1	Full Control Type 1	By Permit Type 3
Traffic	Design Year	2040	2040	2040	2040	2040
	Level of Service	B	B	B	B	B
Geometry	Design Speed	60 mph ⁽²⁾ ; 70 mph ⁽³⁾	50 mph	30 mph	50 mph	50 mph
	Horizontal Curvature - Maximum Degree	5°15' ⁽²⁾ ; 3°30' ⁽³⁾	See table 3-4A ⁽¹⁾	180 ft. radius min.	6°45'	6°45'
	Vertical Grades					
	-ascending	4.00%	5.00%	5.00%	6.5%	6.5%
	-descending	5.00%	6.00%	6.00%	7.5%	7.5%
	Minimum Vertical Roadway Clearances					
	-Bridge Over Roadway	16.5'	16.5'	16.5'	16.5	16.5
	-Roadway Over Ramp	16.5'	16.5'	16.5'		
	Minimum Horizontal Roadway Clearances	30'	30'	30'	30'	18'
	Vertical Curvatures (K-values)					
	-crest	190 ⁽²⁾ ; 290 ⁽³⁾	110	30	110	110
	-sag	136 ⁽²⁾ ; 181 ⁽³⁾	96	37	96	96
	Minimum Stopping sight Distance	570' ⁽²⁾ ; 730' ⁽³⁾	—	—	425	425
	Minimum Horizontal Sight Distance	See Section 3-5.0 ⁽¹⁾	—	—	See Section 3-5.0 ⁽¹⁾	See Section 3-5.0 ⁽¹⁾

Notes: ⁽¹⁾ Mississippi Department of Transportation 2001 Design Manual

⁽²⁾ I-20 from Exit 1B East to Clay St.

⁽³⁾ I-20 from Clay St. East to End of Project

TABLE 3-2
I-20 in and near Vicksburg
Planning Level Highway Design Criteria

Design Criteria	Design Feature	Interstate 20 Mainline Lanes	Interchange Ramps	Interchange Loop	Collector-Distributor Roads	Frontage Roads
Cross Section	Minimum Lane Widths	12'	16'	20'	12'	12'
	Minimum Shoulders					
	-Outside	12'	10'	6'	8'	6'
	-Inside	12'	6'	2.5'	8'	6'
	Pavement Cross Slope					
	-Normal Crown	2%	2%	2%	2%	2%
	-Maximum Superelevation	0.10 ft/ft	0.10 ft/ft	0.10 ft/ft	0.10 ft/ft	0.10 ft/ft
	Shoulder Cross Slope	4%	4%	4%	4%	4%
	Clear Zone Width					
	-Guardrail	Usable Shoulder	—	—	Usable Shoulder	Usable Shoulder
	-Obstruction	30'	30'	30'	24'	24'
	Side Slopes					
	-Clear Zone	6:1	6:1	6:1	4:1	
	-Fill Beyond Clear Zone	3:1	3:1	3:1	Fill<10' - 4:1 Fill≥10' - 3:1	Fill<10' - 4:1 Fill≥10' - 3:1
Ditch						
-Back Slopes	3:1	3:1	3:1	3:1	3:1	
-Depth	4'	4'	4'	3'	3'	
Drainage	Design Procedures	Chapter 7 ⁽¹⁾	Chapter 7 ⁽¹⁾	Chapter 7 ⁽¹⁾	Chapter 7 ⁽¹⁾	
Bridge	Design Specifications	⁽¹⁾	—	—	⁽¹⁾	⁽¹⁾
	Roadway Structure Width	Travelled Way + Shoulders	—	—	32' minimum	32' minimum
	Design Loads	HS-20	—	—	HS-20	HS-20

Notes: ⁽¹⁾ Mississippi Department of Transportation 2001 Design Manual

⁽²⁾ I-20 from Exit 1B East to Clay St.

⁽³⁾ I-20 from Clay St. East to End of Project

For the build alternatives, the existing access control length on the crossroad was determined to be inadequate at the following locations:

- US 61 North at Exit 5; and,
- Indiana Avenue at Exit 3.

The additional access control recommendations for the build alternatives were made based on AASHTO guidelines, MDOT policies, and the 2040 Design Year projected traffic.

To accommodate the reconstruction to the north of the US 61 North/SR 27 Exit 5 Interchange, approximately 500 feet of additional access control length was determined to be needed along US 61 North to the Keystone Circle intersection. The additional needed access control is the same for the build alternatives. Plan profile sheets in **Appendix D** for Alternative B and in **Appendix E** for Alternative C depict the proposed access control changes. To maintain property access in the northeast quadrant of the interchange for the build alternatives, it was also necessary to extend Riley Road to Keystone Circle.

Additional access control was determined to be needed on both Indiana Avenue approaches to Exit 3. The additional access control recommendations were not the same for the two build alternatives. The two-way ultimate frontage road Alternative C required more access control along Indiana Avenue than the one-way ultimate frontage road Alternative B. However, the one-way ultimate frontage road Alternative B requires more access control along the frontage roads than the two-way ultimate frontage road Alternative C. The proposed access control changes for the two build alternatives are depicted on the plan profile sheets in **Appendix D** for Build Alternative B and in **Appendix E** for Build Alternative C.

Additional access control was also determined to be needed on the North Frontage Road to the west of Old SR 27. The additional access control addresses the North Frontage Road/North Collector Distributor Road connection to Old SR 27 and the changes in access control from the most restrictive form of Type I on the North Collector Distributor Road Corridor to the least restrictive form of Type III on the Frontage Road Corridor. The length of additional access control is the same for the two-way and one-way ultimate frontage road alternatives. The proposed access control changes for the two build alternatives are depicted on plan profile sheets in **Appendix D** for Build Alternative B and in **Appendix E** for Build Alternative C. It is

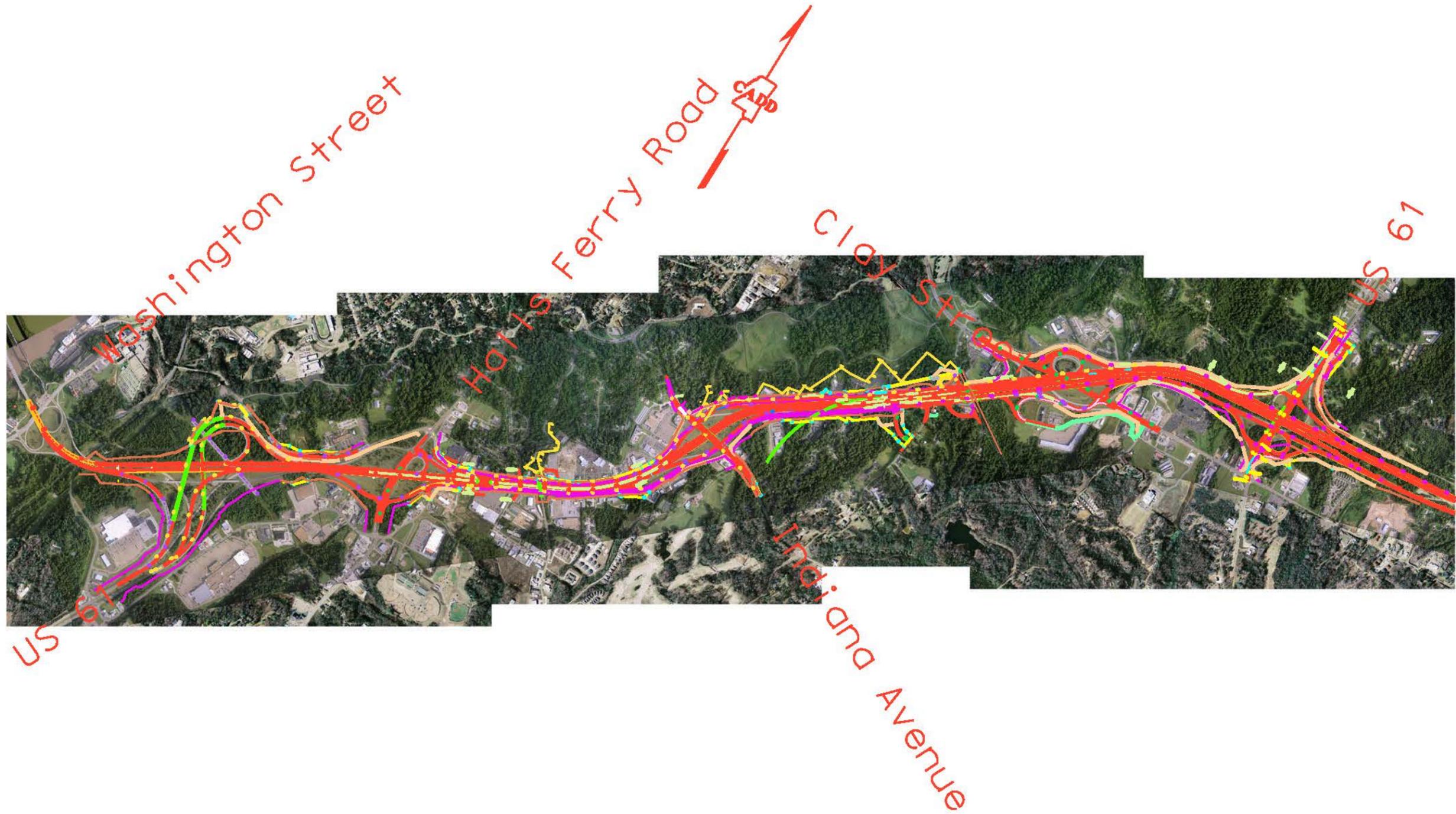
assumed that the access control determined needed on the South Frontage Road west of Old SR 27 for the connection to Old SR 27 will have already been addressed under the proposed project that extends the South Frontage Road from Old SR 27 to Vicksburg Factory Outlets and provides a bridge over the Meridian Speedway railroad.

The 2040 Design Year projected traffic analysis contained in **Appendix C** assumes the proposed access control improvements would be implemented for the build alternatives. If so, the intersections of concern at the Indiana Avenue and US 61 North interchanges are projected to operate at an acceptable Level of Service C or better. Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Levels of Services are defined for roadways ranging, like academic grades, from A to F, with an A representing the best and F the worst.

3.2 Build Alternatives

As depicted on **Figure 3-1** for Build Alternative B and **Figure 3-2** for Build Alternative C, the build alternatives begin at the eastern limit of the Washington Street/Warrenton Road Exit 1B Interchange. They then continue east and slightly northeast through Vicksburg along or adjacent to the current I-20 corridor for approximately five and a half miles to the current centerline of I-20 approximately one mile east of the SR 27/US 61 North Exit 5 Interchange.

The I-20 Mississippi River Bridge is located just west of the Washington Street/Warrenton Road Exit 1A Interchange. For this reason Exit 1A has a partial cloverleaf design with the two ramps and two loops located to the east of Washington Street/Warrenton Road. Iowa Boulevard, Stouts Bayou, and the Vicksburg Southern Railroad cross I-20 near the eastern limit of Exit 1A. Therefore, bridges are provided over these features. The Old US 80 Mississippi River Bridge is located slightly north of the I-20 Mississippi River Bridge. The Old US 80 Bridge is no longer used for vehicular traffic, but the rail portion of the bridge remains active as the Meridian Speedway crossing of the Mississippi River. Tunnels are provided where the Meridian Speedway railroad crosses underneath Washington Street, the I-20 westbound exit ramp, and the I-20 east bound entrance loop.



I-20 BETWEEN THE LOUISIANA STATE LINE
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BUILD ALTERNATE B

FIGURE 3-1



I-20 BETWEEN THE LOUISIANA STATE LINE
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BUILD ALTERNATE C

FIGURE 3-2

The US 61 South Interchange at Exit 1B is located at the eastern limit of the Washington Street/Warrenton Road Exit 1A Interchange. The 2040 Design Year projected traffic contained in **Appendix C** was used in determining that additional lanes are needed for I-20 traffic between the US 61 South Interchange at Exit 1B and the US 61 North/SR 27 Interchange at Exit 5. The 2040 Design Year projected traffic does not indicate that additional lanes are needed in the 2040 Design Year west of Exit 1B. Based on the 2040 Design Year traffic, the economic constraints of increasing the capacity of the four-lane I-20 Mississippi River Bridge and the additional costs for performing major reconstruction of the I-20 interchange at Exit 1A, the build alternatives use the existing section of I-20 between the Mississippi River Bridge and the eastern limit of Washington Street/Warrenton Road Exit 1A Interchange.

Build Alternatives B and C are identical in their concepts for reconstructing the US 61 South Interchange at Exit 1B and the US 61 North/SR 27 portion of a new Clay Street/US 80/US 61 North/SR 27 Interchange. The build alternatives differ slightly in their proposed concepts for reconstructing the eastern side of the Halls Ferry Road Interchange at Exit 1C, the Indiana Avenue Interchange at Exit 3, the Clay Street/US 80 portion of the new Clay Street/US 80/US 61 North/SR 27 Interchange, and the frontage road system between the Halls Ferry Road and the Clay Street/US 80/US 61 North/SR 27 interchanges. The differences in the two build alternatives are directly related to the frontage road concepts. Alternative B has three-lane, one-way ultimate frontage roads. Alternative C has three-lane, two-way ultimate frontage roads with the outside lanes for opposing through traffic and the middle lane for left turning traffic.

The build alternatives share the following improvements.

- For both directions of travel, the existing interstate lanes would be reconstructed and widened to accommodate the 2040 Design Year traffic demand.
- For both directions of travel, the frontage roads would be reconstructed and widened to three lanes between the Halls Ferry Road Exit 1C Interchange and the Clay Street/US 80/US 61 North/SR 27 Interchange.
- For both directions of travel, a one-way Collector-Distributor Road would be provided from the western to the eastern parts of the Clay Street/US 80/US 61 North/SR 27 Interchange. At the western part of the Clay Street/US 80/US 61 North/SR 27 Interchange near the crossing of Old SR 27, the collector-distributor road corridors would join the frontage road corridors.

- Frontage Road circulation bridges would be provided slightly east of the Halls Ferry Road Exit 1C Interchange and slightly west of Old SR 27. These interstate bridges would go over frontage road connectors to provide access between the north and south frontage roads. The bridges will prevent some of the frontage road circulation traffic from having to use Halls Ferry Road, Indiana Avenue, and Old SR 27; therefore, relieving some potential congestion on these three routes.
- To enhance Porters Chapel Road traffic access to the North Frontage Road, a Porters Chapel Road Connector will be provided to the Frontage Road circulation bridge located slightly west of Old SR 27. The Porters Chapel Road Connector will intersect the South Frontage Road opposite the frontage road connector provided underneath the bridge.
- The US 61 South Exit 1B Interchange would be reconstructed using a trumpet concept to provide right exit and entrance ramps. A portion of the two-lane, two-way frontage road between the Iowa Boulevard/Confederate Avenue intersection and the Halls Ferry Road intersection must be relocated to the north to accommodate the reconstruction of the interstate and the interchange.
- The Halls Ferry Road Exit 1C Interchange would be reconstructed with a diamond ramp in the southwest quadrant, a diamond ramp in the southeast quadrant, and a partial cloverleaf (diamond ramp and loop ramp) in the northeast quadrant.
- The Indiana Avenue Exit 3 Interchange would be reconstructed using a basic diamond concept.
- The Clay Street/US 80 Exit 4 Interchange and the SR 27/US 61 North Exit 5 Interchange would be reconstructed as one interchange with collector-distributor roads.
- Riley Road would be extended approximately 500 feet to the north and parallel to US 61 North to Keystone Circle. This is needed to maintain access to property in the northeast quadrant of the US 61 North/SR 27 Interchange.

The **Appendix C** 2040 Design Year traffic projections were used to verify that improvements are unnecessary for the remaining frontage road segments described in **Appendix B** which will not be used as an interstate detour or directly impacted by the construction.

The following traffic control plans for the build alternatives were used as a means of maintaining the interstate traffic through Vicksburg during the reconstruction. **Appendix D** for Alternative B and **Appendix E** for Alternative C contain more information on the traffic control plans.

- Between the Washington Street/Warrenton Road Exit 1A Interchange and the Halls Ferry Road Exit 1C Interchange, the reconstruction would be accomplished by: (1) using existing traffic lanes and bridges as detours that would later be abandoned; (2) constructing temporary detours; and, (3) using lane closures on existing traffic lanes that would be reconstructed during off-peak traffic times.
- Between the Halls Ferry Road Exit 1C Interchange and the western portion of the Indiana Avenue Exit 3 Interchange, the reconstruction would be accomplished by: (1) reconstructing and widening the frontage roads to three lanes; (2) providing temporary connections between the interstate and the frontage roads; (3) placing the frontage roads in one-way operation; and, (4) using the frontage roads as detours for the interstate traffic. The interstate lanes underneath Halls Ferry Road and Indiana Avenue would be reconstructed under traffic using lane closures during off-peak traffic times.
- Between the Indiana Avenue Exit 3 Interchange and the eastern limit of the study area to the east of the Clay Street/US 80/US 61 North/SR 27 Interchange, the reconstruction would be accomplished in a similar manner to the section described above between Exits 1C and Exit 3 by: (1) improving the existing frontage road system; (2) constructing a collector-distributor road system as an extension of the frontage road corridors; (3) providing temporary connections to the frontage road/collector-distributor road systems; (4) placing the frontage road/collector-distributor road systems in one-way operations; (5) using the frontage road/collector-distributor road system as interstate detours; and, (6) establishing other temporary detours or performing the construction during off-peak traffic times using lane closures.

Alternative B

Alternative B is depicted in detail on **Figures 3-3, 3-3a, 3-3b, 3-3c, and 3-3d**.

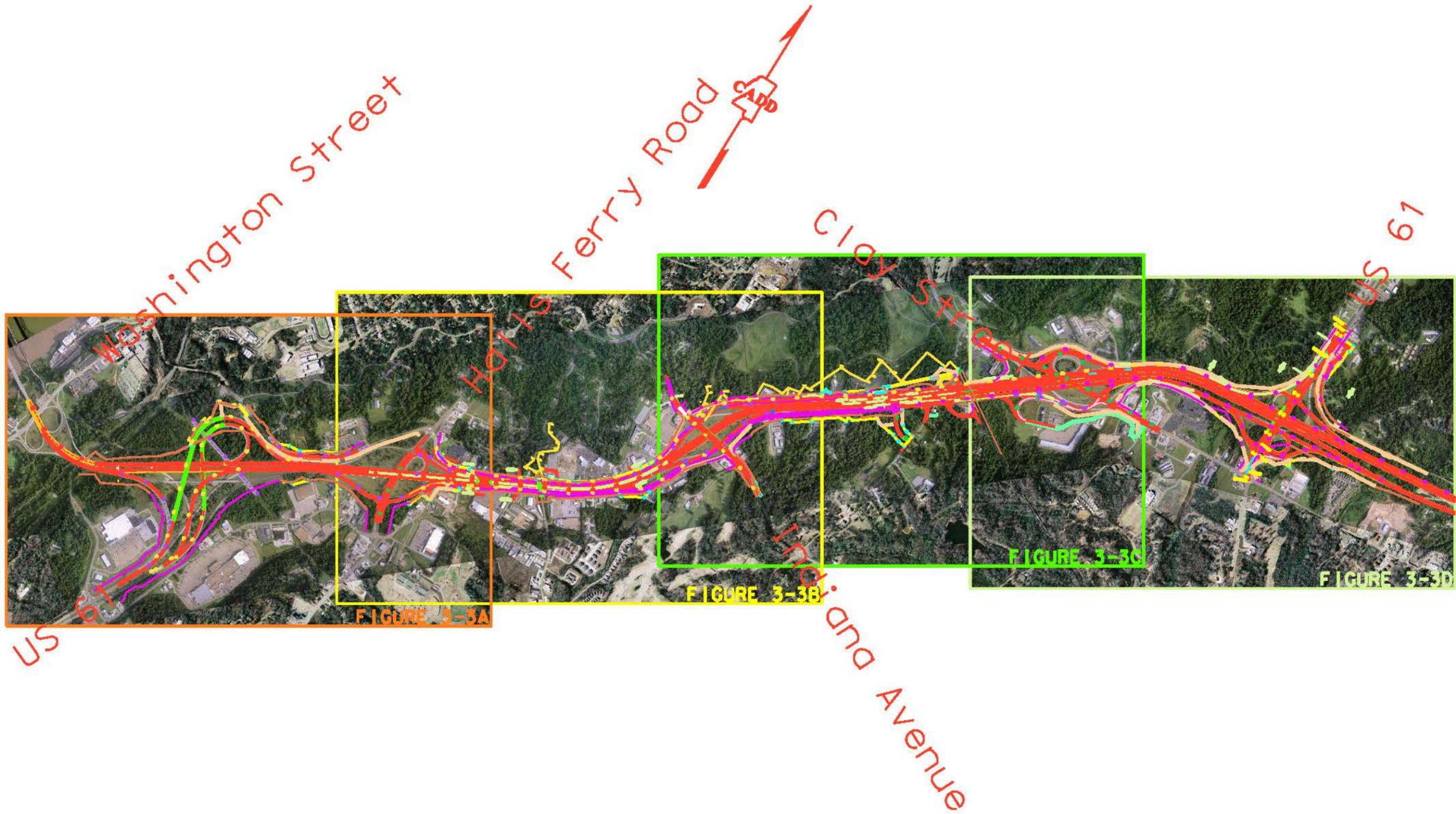
Access control differences in the two build alternatives were discussed in Section 3.1. Proposed improvements shared by the build alternatives, segments of the frontage roads that

the build alternatives would not improve and maintenance of traffic during the construction of the build alternatives were discussed earlier in this Section.

Due to the high estimated construction costs, maintenance of traffic constraints, and anticipated funding limitations, eight possible construction projects are proposed for implementing the build alternatives. Should additional unanticipated funding become available, the sequencing plan allows combining projects. The possible project sequencing plan for the build alternatives is discussed in Section 3.7.

The build alternatives' differences are related to their proposed frontage road improvements. The following describes the design features unique for Alternative B with the three-lane, one-way ultimate frontage roads paralleling I-20 between Halls Ferry Road and Old SR 27.

- At the Halls Ferry Road Exit 1C Interchange, a connector is proposed between the reconstructed I-20 East entrance ramp and the South Frontage Road. The City of Vicksburg maintained frontage road, which loops around the southeast quadrant of the interchange before intersecting Halls Ferry Road opposite Pemberton Drive, would be reconstructed to intersect the connector between the on-ramp and the west end of the reconstructed South Frontage Road.
- At the Indiana Avenue Exit 3 Interchange, the reconstructed interchange ramps would be routed over the frontage roads. Therefore, one shared frontage road/ramp intersection with Indiana Avenue would occur on both sides of I-20. A traffic signal would be needed at the I-20 East exit ramp merge point with the South Frontage Road. If warranted, a traffic signal could be provided at the I-20 West exit ramp merge point with the North Frontage Road.
- It is assumed the extension of the South Frontage Road from slightly west of Old SR27 to slightly west of the present Clay Street/US 80 Exit 4 Interchange would have already been accomplished under a separate prior project.
- At the Clay Street/US 80 portion of the proposed Clay Street/US 80/US 61 North/SR 27 Interchange, a connector would be provided from the South Frontage Road to the I-20 East exit ramp for Clay Street/US 80. If warranted, a traffic signal would be provided at the connector merge point with the exit ramp.

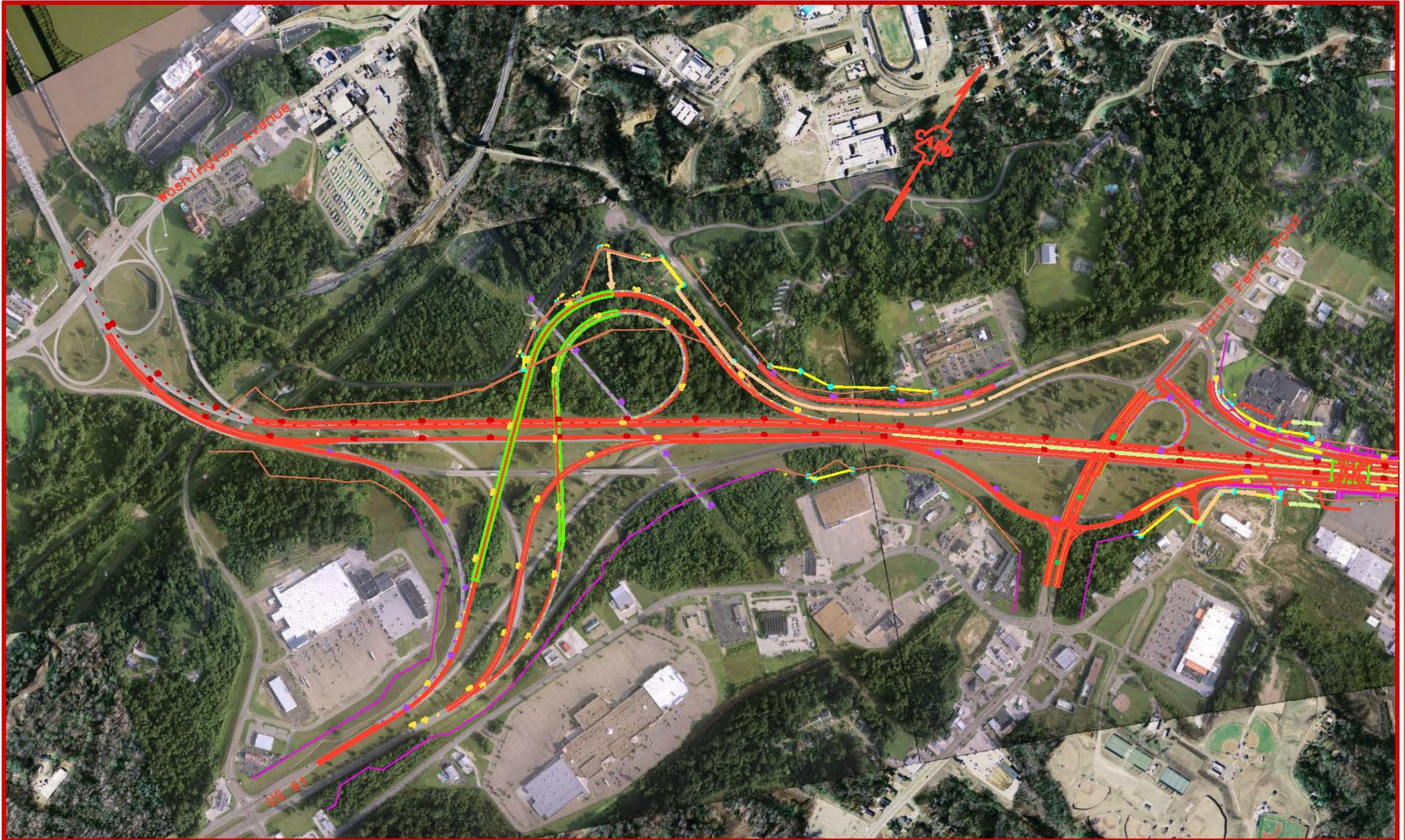


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BUILD ALTERNATE B
 INDEX MAP

FIGURE 3-3

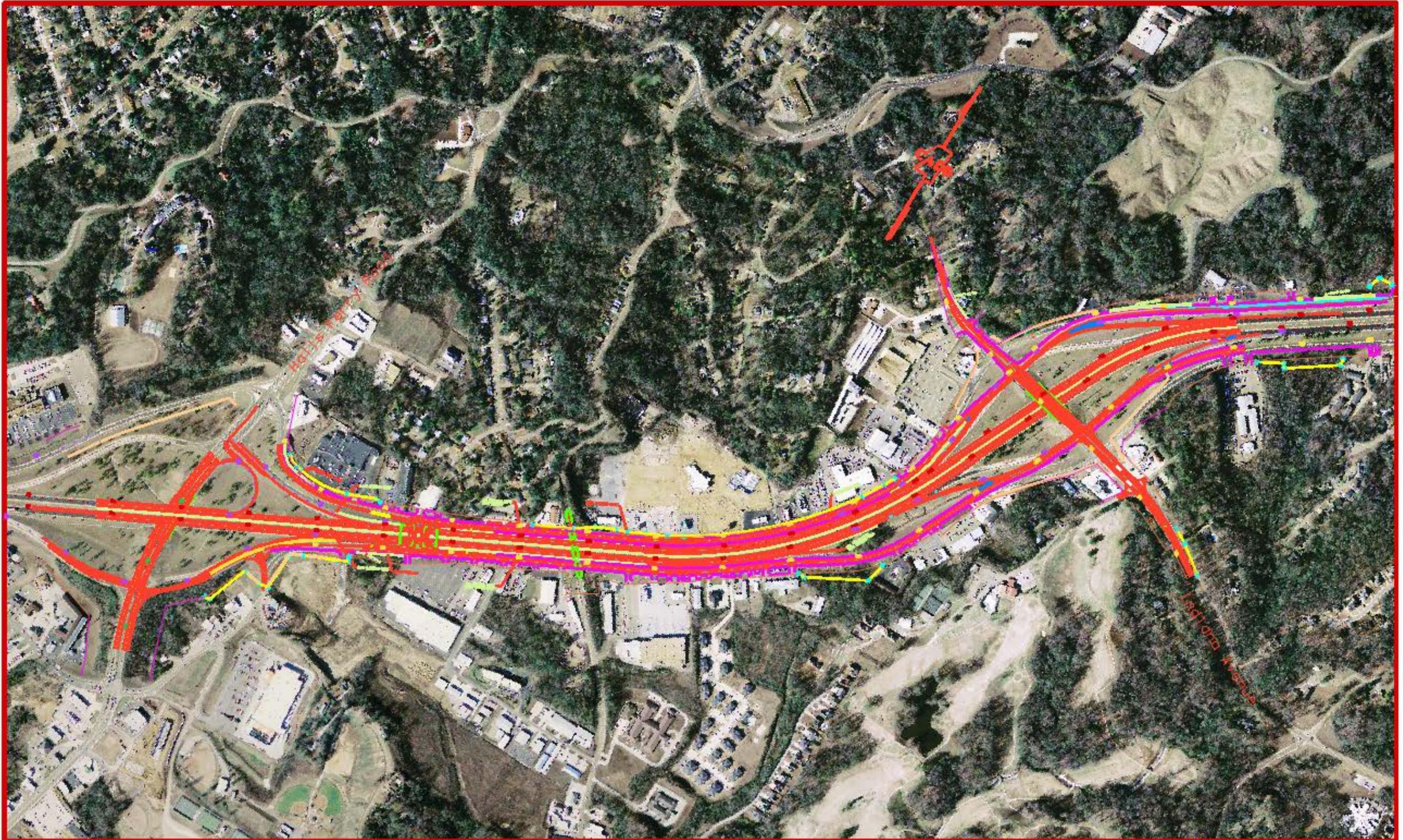


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 **NEEL-SCHAFFER**
Solutions you can build upon

ALTERNATE B
FAR WEST PORTION

FIGURE 3-3A

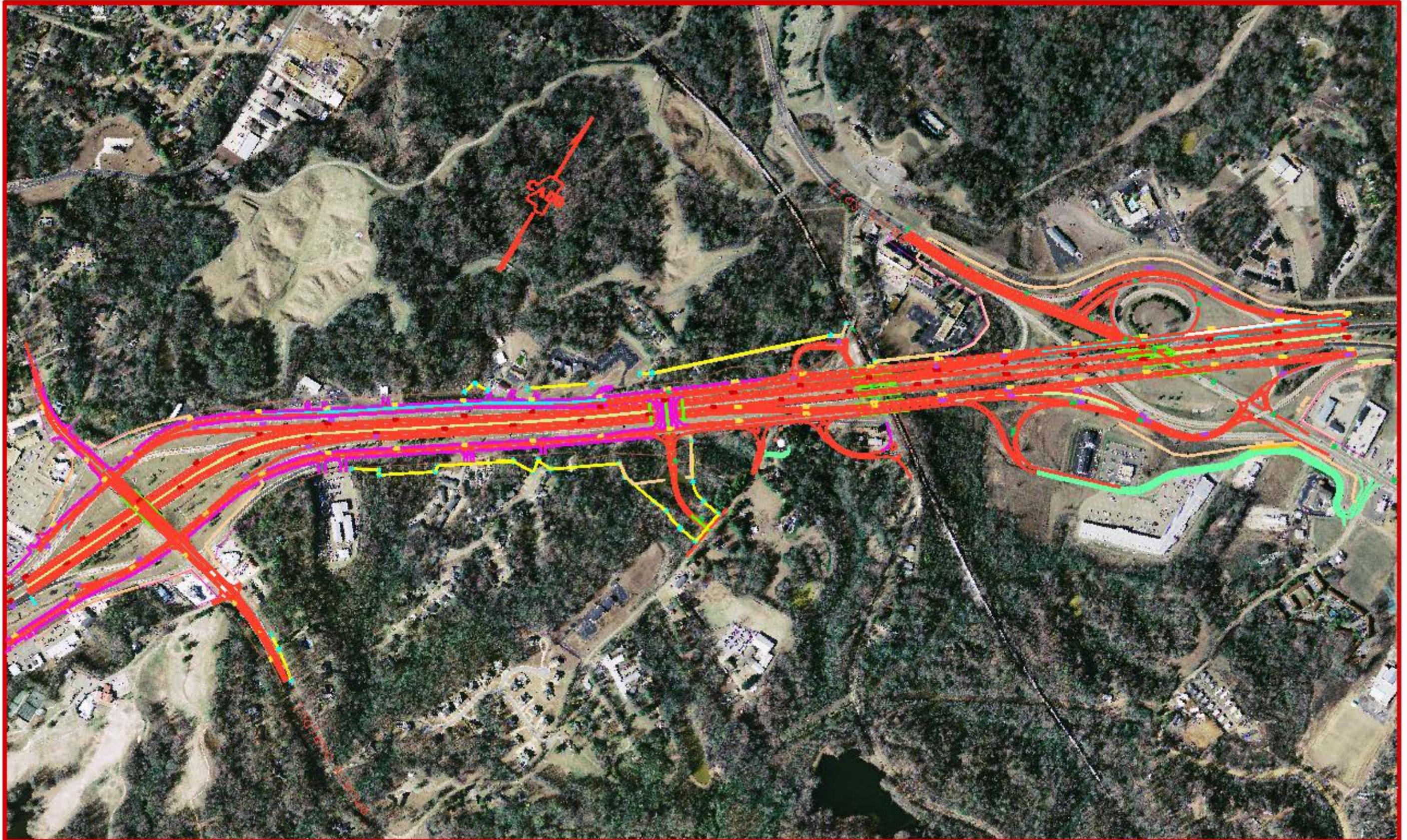


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 **NEEL-SCHAFFER**
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ALTERNATE B
MIDDLE WEST PORTION

FIGURE 3-3B

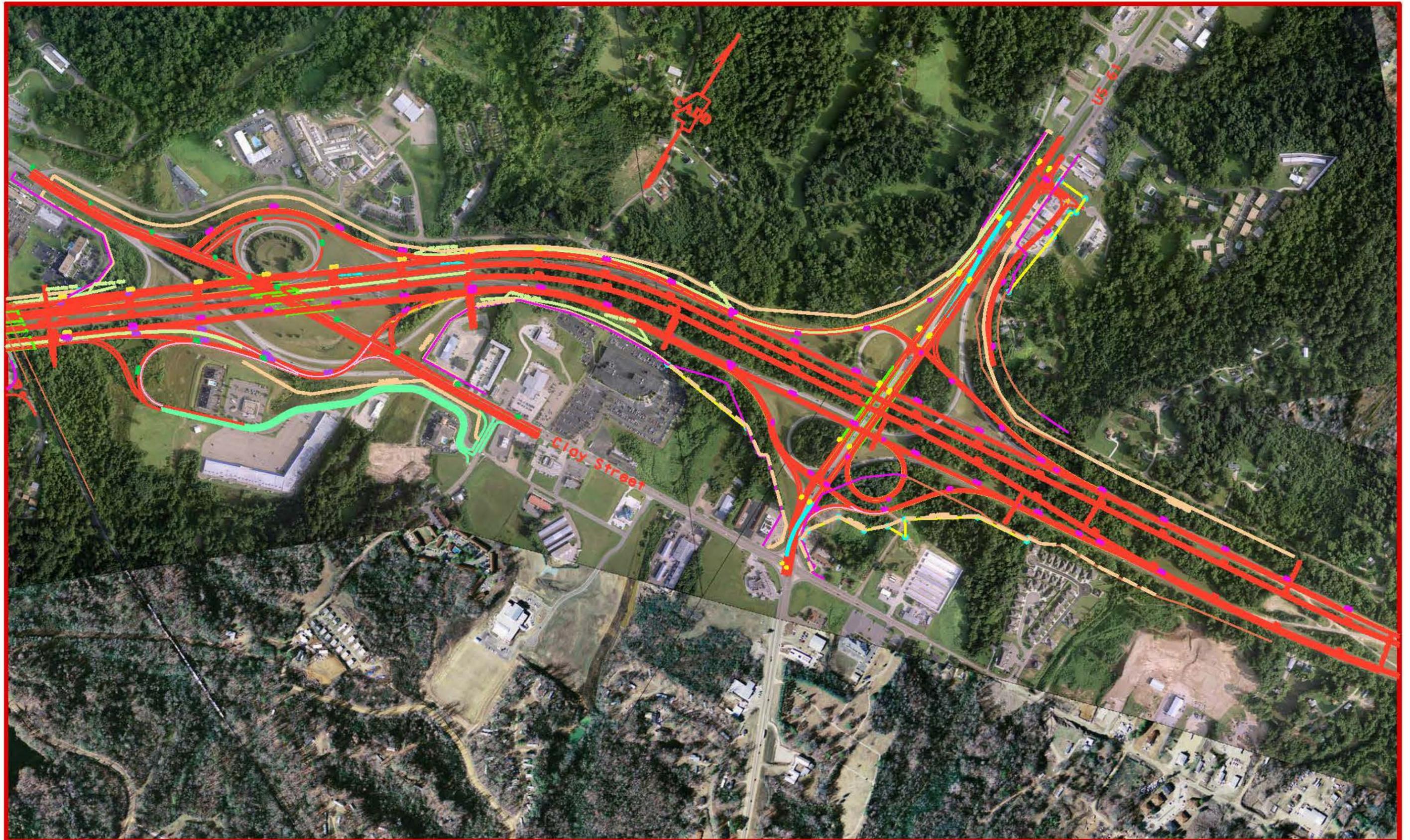


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ALTERNATE B
MIDDLE EAST PORTION

FIGURE 3-3C



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ALTERNATE B
FAR EAST PORTION

FIGURE 3-3D

Alternative C

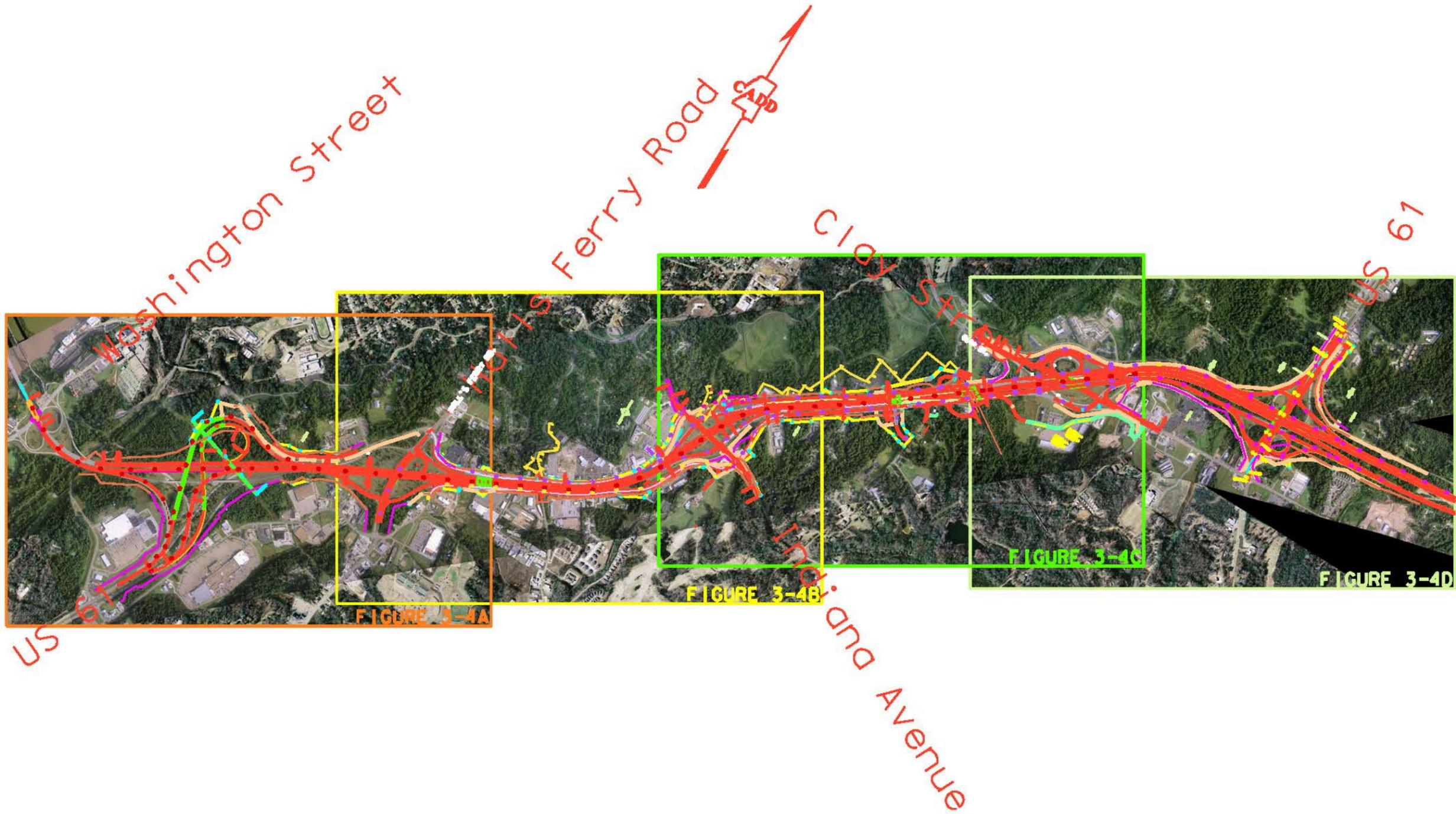
Alternative C is depicted in detail on **Figures 3-4, 3-4a, 3-4b, 3-4c and 3-4d.**

The build alternatives' access control differences were discussed in Section 3.1. Proposed improvements shared by the build alternatives, segments of frontage roads that the build alternatives would not improve and controls used in developing the build alternatives were discussed earlier in this Section.

Due to the high estimated construction costs, maintenance of traffic constraints, and anticipated funding limitations, eight possible construction projects are proposed for implementing the build alternatives. Should additional unanticipated funding become available, the sequencing plan allows combining projects. The possible project sequencing plan for the build alternatives is discussed in Section 3.7.

The build alternatives' differences are related to their proposed frontage road improvements. The following describes the design features unique for Alternative C with the three-lane, two-way ultimate frontage roads paralleling I-20 between Halls Ferry Road and Old SR 27.

- A three-lane, two-way reconstructed frontage road would be provided on both sides of I-20 between the Halls Ferry Road Interchange at Exit 1C and the Indiana Avenue Interchange at Exit 3. The western limit of the widened North Frontage Road is the intersection at Halls Ferry Road. The western limit of the widened South Frontage Road is near the eastern limit of the Halls Ferry Road Interchange where the frontage road maintenance responsibility changes from the MDOT to the City of Vicksburg and the frontage road loops around the southeast quadrant of the interchange.
- At the frontage road circulation bridge slightly east of the Hall Ferry Road Interchange, roundabouts are proposed for traffic control on both sides of I-20 at the frontage road intersections with the frontage road connector that travels underneath the bridge.
- At the Indiana Avenue Exit 3 Interchange, the interchange ramps in all four quadrants of the interchange would be reconstructed. The ramps would intersect

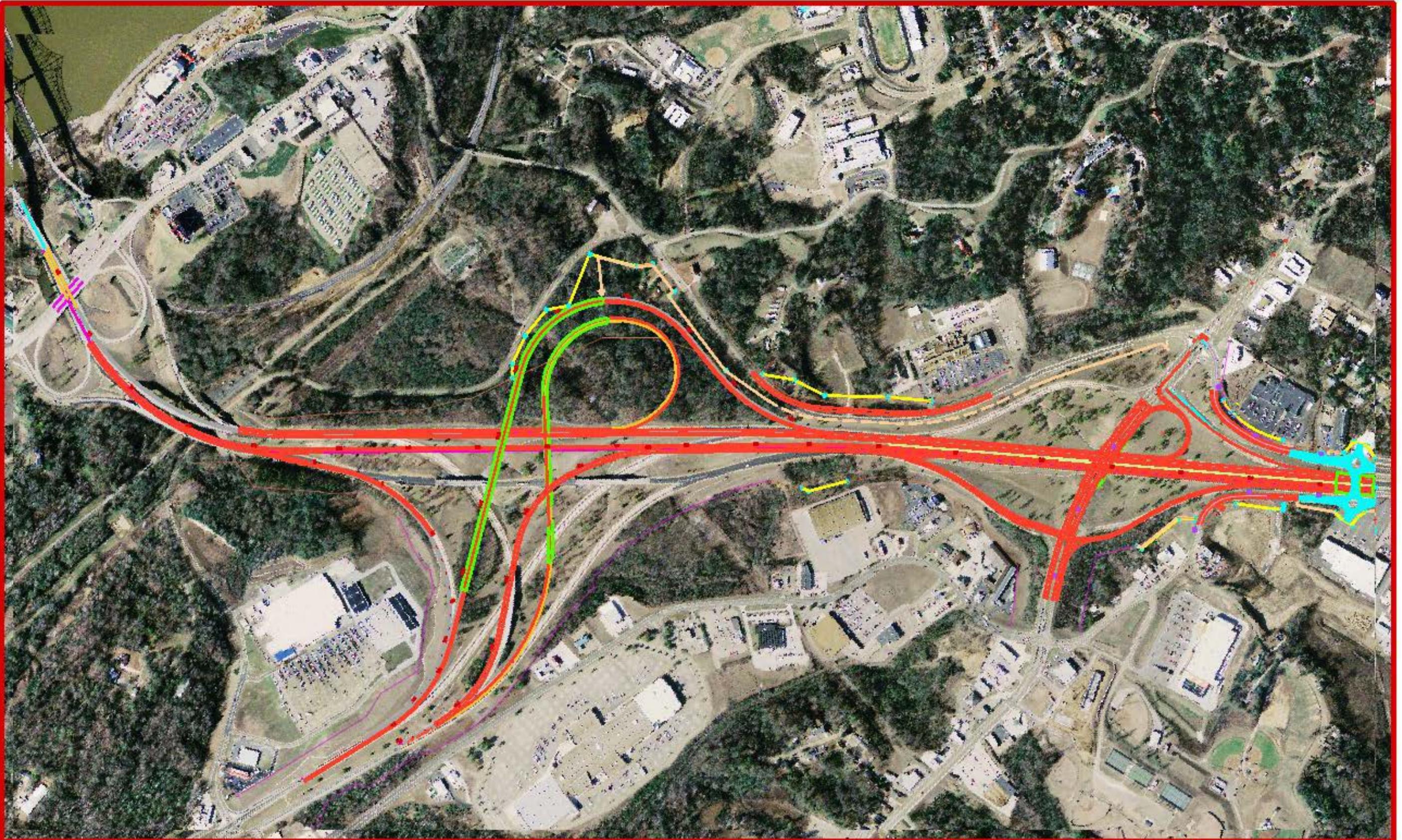


I-20 BETWEEN THE LOUISIANA STATE LINE
 AND THE US 61 NORTH/SR 27 INTERCHANGE
 PROJECT NO. IMD-0020-01(181) FMS:100367/00200



BUILD ALTERNATE C
 INDEX MAP

FIGURE 3-4

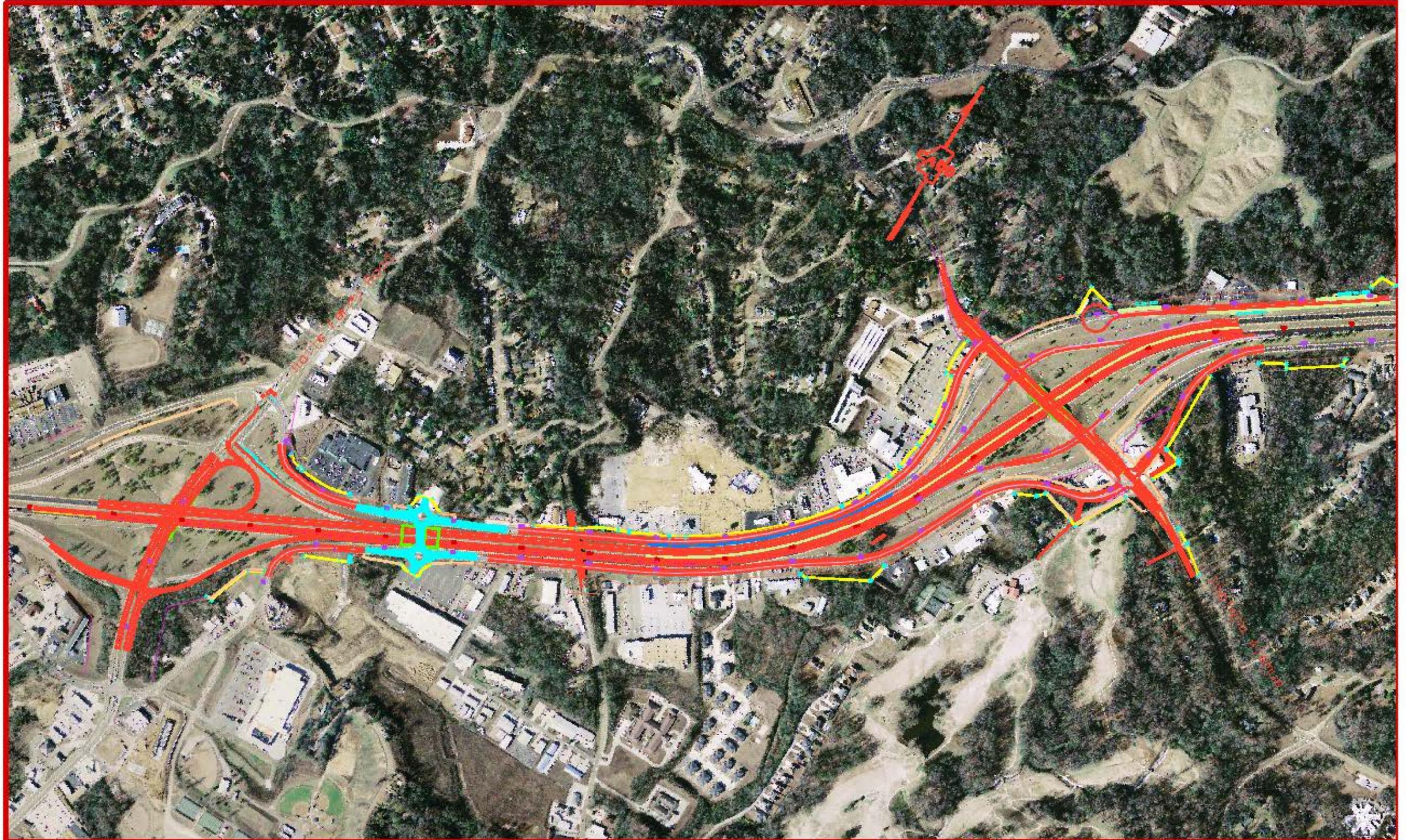


I-20 BETWEEN THE LOUISIANA STATE LINE
AND THE US 61 NORTH/SR 27 INTERCHANGE
PROJECT NO. IMD-0020-01(181) FMS:100367/00200



ALTERNATE C
FAR WEST PORTION

FIGURE 3-4A

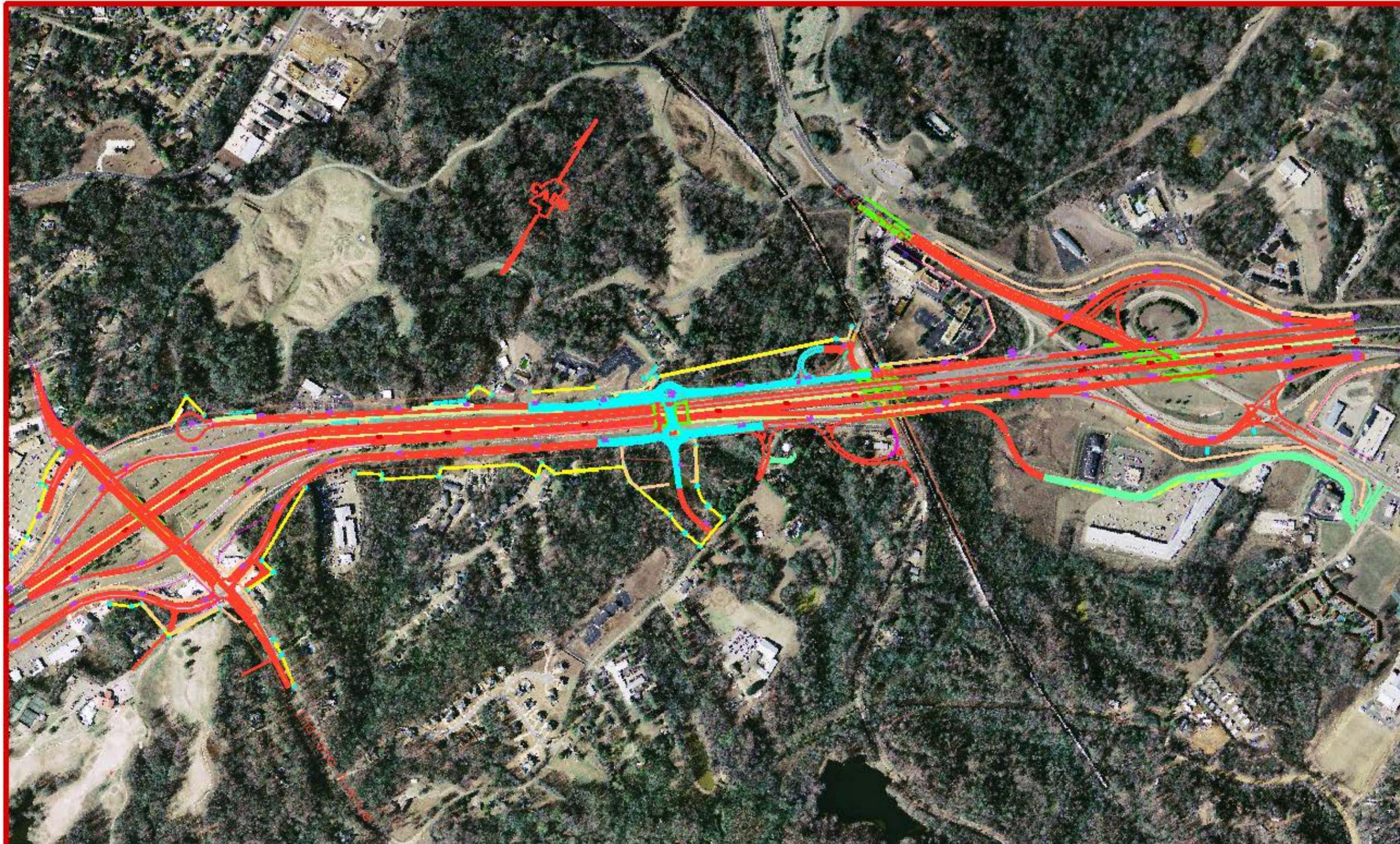


I-20 BETWEEN THE LOUISIANA STATE LINE
AND THE US 61 NORTH/SR 27 INTERCHANGE
PROJECT NO. IMD-0020-01(181) FMS:100367/00200

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ALTERNATE C
MIDDLE WEST PORTION

FIGURE 3-4B

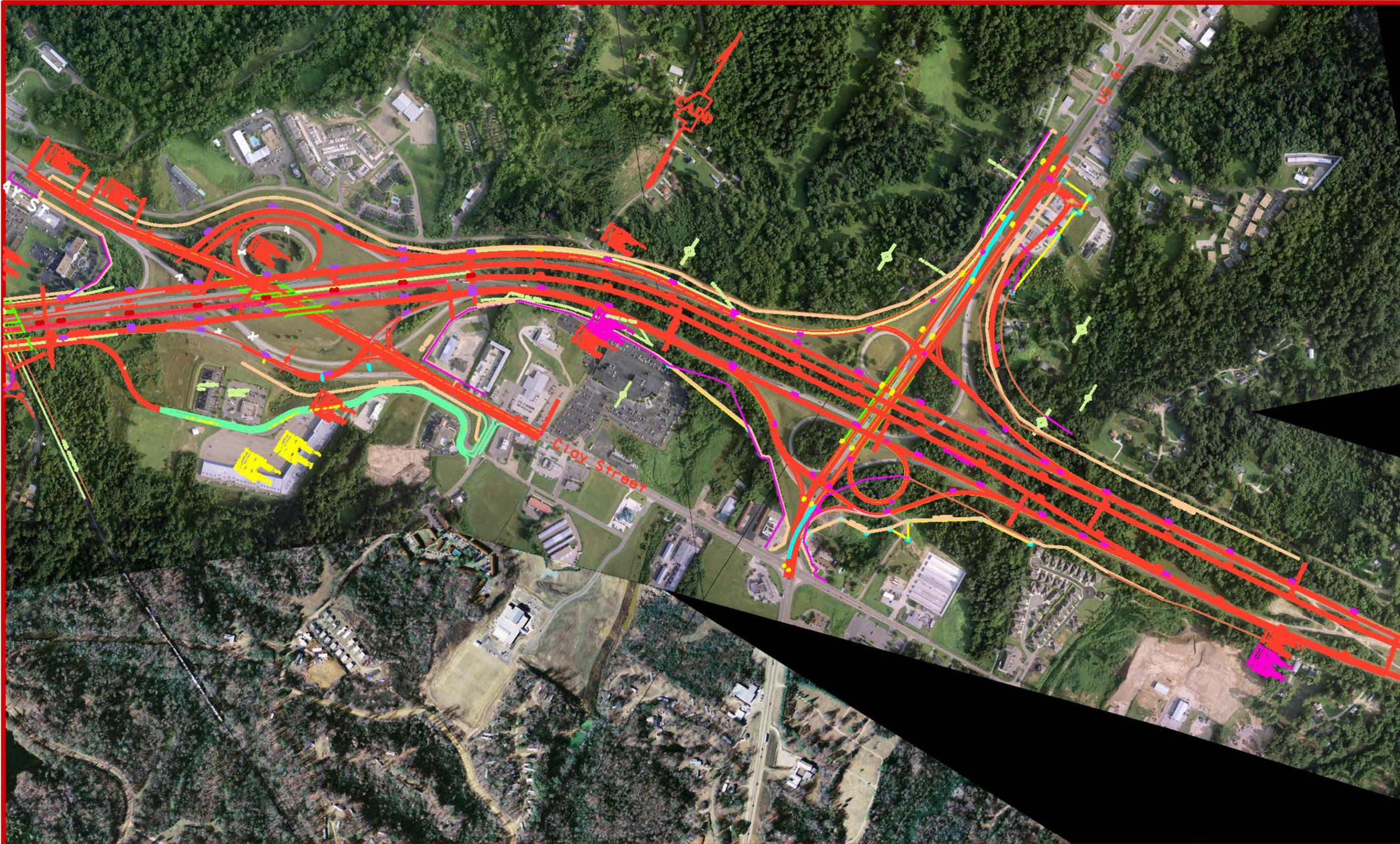


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PROJECT NO. IMD-0020-01(181) FMS:100367/00200

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ALTERNATE C
MIDDLE EAST PORTION

FIGURE 3-4C



I-20 BETWEEN THE LOUISIANA STATE LINE
AND THE US 61 NORTH/SR 27 INTERCHANGE
PROJECT NO. IMD-0020-01(181) FMS:100367/00200



ALTERNATE C
FAR EAST PORTION

FIGURE 3-4D

Indiana Avenue directly opposite each other to form one intersection to the north of I-20 and one intersection to the south.

- At the Indiana Avenue Exit 3 Interchange, the South Frontage Roads in the southwest and southeast quadrants of the interchange would be relocated to intersect Indiana Avenue at a common point farther to the south. The relocation of the South Frontage Roads is necessary to create an acceptable spacing between the South Frontage Road/Indiana Avenue intersection and the Indiana Avenue intersection with the interchange ramps on the south side of I-20.
- At the Indiana Avenue Exit 3 Interchange, the North Frontage Road in the northwest quadrant of the interchange would be relocated to intersect Indiana Avenue farther north. The relocation is necessary to create an acceptable spacing between the frontage road intersection and the Indiana Avenue intersection with the interchange ramps on the north side of I-20.
- At the Indiana Avenue Exit 3 Interchange, the North Frontage Road in the northeast quadrant of the interchange cannot be relocated to align with the opposing relocated frontage road approach from the west without impacting Vicksburg National Military Park property. Therefore, the North Frontage Road in the northeast quadrant of the interchange must be dead-ended slightly east of Indiana Avenue for Alternative C.
- The widened and reconstructed North Frontage Road between Indiana Avenue and Old SR 27 must be placed in one-way operation to function as an interstate detour and as an exit to Indiana Avenue while the adjacent interstate lanes are reconstructed. After the interstate lanes are reconstructed and the North Frontage Road is dead-ended to the east of Indiana Avenue, the circulation bridge slightly west of Old SR 27 and a roundabout provides a means to connect the two-way North Frontage Road traffic with the one-way westbound collector-distributor road traffic by routing the eastbound North Frontage Road traffic under the bridge to the South Frontage Road.
- A widened, reconstructed two-way frontage road would be provided on the south side of I-20 from the Indiana Avenue Interchange at Exit 1C to Old SR 27 slightly west of the Clay Street/US 80 Interchange at Exit 4.

- The extension of the South Frontage Road, from slightly west of Old SR27 to slightly west of the Clay Street/US 80 Interchange would have already been accomplished under a prior project and would be retained for Alternative C.
- At the frontage road circulation bridge west of Old SR 27, a roundabout is proposed for the traffic control at the South Frontage Road intersection with the Porters Chapel Connector and the connector underneath the bridge that provides access between the frontage roads.

3.3 No Build Alternative

The No-Build Alternative “A” would retain the existing roadway network. The No-Build Alternative would avoid negative impacts caused by highway construction to residences and businesses, wetlands, streams, forests, cultural resources, and other resources. However, the No-Build Alternative would not add lanes to provide additional traffic capacity or improve sight distances on the interstate; it would not improve traffic safety and operations at the substandard closely spaced interchanges by addressing the short acceleration and deceleration lanes provided at the interchanges; and, it would not make any improvements to the frontage road system. The No Build Alternative would not satisfy the purpose and need of the proposed project.

3.4 Alternatives Considered but Eliminated from Further Study

The previously mentioned April 2002 study contained in **Appendix A** for the I-20 reconstruction from Washington Street/Warrenton Road to US 61 North/SR 27 did the following:

- Evaluated the existing and future traffic volumes on I-20, the interchanges and the adjacent frontage roads; and,
- Developed and evaluated an updated geometric design for addressing the future requirements of I-20 within the urban limits of Vicksburg.

The April 2002 study was used as a reference for this study’s initial alternatives. As this study developed, alternatives were eliminated or changed to safely and efficiently accommodate the projected 2040 Design Year traffic, to comply with the MDOT’s current design policies, to better address maintenance of traffic during construction, to take advantage of the maintenance of traffic features provided during the construction, to reduce project costs and to lessen access control impacts. The history of the alternative concepts considered but eliminated is addressed

in the Comments, Coordination and Public Involvement sections of Chapter 5, **Appendix L** and **Appendix M**.

3.5 Value Engineering Study

The MDOT conducts a Value Engineering (VE) Study when a project on the National Highway System has an estimated cost approaching or exceeding \$25 Million. Since the estimated cost of this project exceeds \$25 Million, a VE Study is required. The primary goals of a Value Engineering Study are to review the cost effectiveness of the engineering procedures and processes used on the project being evaluated, and to make recommendations on alternate measures that should be considered or evaluated for making the project more cost-effective. A consulting engineering firm that is not affiliated with the project undergoing evaluation prepares the Value Engineering Study under a separate contract with the MDOT.

It was decided the VE Study would be made after a Preliminary Draft Environmental Assessment was presented to the MDOT for comments. This enabled the MDOT to adequately inform the VE Study Team of the project's background, status, opportunities and constraints. It also enabled the MDOT to review the VE Study Report and have the submitted Preliminary Draft Environmental Assessment modified to implement any recommendations contained in the VE Report that the MDOT determines appropriate. Since this project has received an independent evaluation, the MDOT also believes that conducting the VE Study before the public hearing adds credibility to the alternatives presented in the approved Preliminary Environmental Assessment at the hearing.

To conduct a quality independent VE Study on a project of this magnitude, it was imperative for the MDOT to select a VE Study Team consisting of trained professionals with interstate reconstruction, environmental and design expertise. The firm of MACTEC Engineering and Consulting, Inc. was selected to conduct the study. Between the time of submitting their draft and final reports, the name of their firm changed to AMEC Environment and Infrastructure, Inc. **Appendix F** contains: a copy of AMEC's Final Report transmittal cover letter to the MDOT dated February 17, 2012; a copy of AMEC's Final Report dated May 23-27, 2011; and a copy of the MDOT's Memo of Decision dated February 7, 2012. The VE Study Team meetings with the MDOT, the FHWA, AMEC and the Neel-Schaffer consultant team are also recorded in the Comments, Coordination and Public Involvement sections of Chapter 5.

Build Alternatives B and C were modified to incorporate Idea A-12 and Idea C-2 presented in the VE Study. The two incorporated ideas concerned the US 61 North/SR 27 portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange where Build Alternative B and C are identical.

Idea A-12 is to eliminate 1-lane from the 5-lane on-ramp/collector-distributor lane merge/weave section in the northwest quadrant of the US 61 North Interchange. Further evaluation determined the 5-lane merge/weave section for the westbound collector-distributor lanes could be reduced to a 3-lane weaving section. The southbound US 61 North and northbound SR 27 ramp to the North Collector-Distributor Road would have a lane for the US 61 traffic and an added lane for the northbound SR 27 left turning traffic entering the ramp. To the west of the US 61 North/SR 27 portion of the interchange, the North Collector-Distributor Road would have 1-lane at the gore where the North Collector-Distributor Road and the 2-lane southbound US 61/northbound SR 27 ramp to I-20 West become concurrent.

Idea C-2 is to shift the westbound I-20 roadway/collector-distributor lanes at the US 61 North portion of the interchange to the south placing the new collector-distributor lanes on the existing westbound I-20 footprint. Implementing the shift does allow the new North Collector-Distributor to utilize much of the existing westbound I-20 ramp from US 61 North and the mainline westbound I-20 footprint. The further evaluation also resulted in eliminating the exit loop from the North Collector-Distributor Road to SR 27 in the northwest quadrant of the interchange and modifying the exit ramp from the Collector-Distributor Road in the northeast quadrant of the interchange to accommodate the exiting traffic to SR 27. The elimination of the exit loop from the North Collector Distributor Road allowed the interchange footprint to be shifted as far south as possible.

Incorporating the two VE Study ideas eliminated the need for acquiring any additional right of way in the northwest quadrant of the US 61 North portion of the interchange, reduced the length and height of retaining wall required in that quadrant of the interchange, and produced considerable cost savings. Impacts on the adjacent human and natural environments in this area were also reduced by utilizing more of the existing right of way footprint.

3.6 Traffic Analyses

The need for improving the capacity of this section of interstate is shown by the April 2011 Traffic Analysis Report contained in **Appendix C**. One analysis of the report evaluates the existing system using 2007 traffic data. The other analysis evaluates the No Build and the two build alternatives using 2040 Design Year traffic. The April 2011 Traffic Analysis Report was made on the Build Alternatives B and C as submitted in the Preliminary Draft Environmental Assessment used for the Value Engineering (VE) Study. The VE Study ideas selected by the MDOT for possible implementation at the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange changed a few of the traffic movement analyses contained in the April 2011 Traffic Analysis Report. Therefore, before the MDOT could approve the ideas for implementation, the April 2011 report required updating to verify implementing the ideas would result in satisfactory traffic operations in the 2040 Design Year. **Appendix C** contains a copy of the verification Traffic Analysis Report dated December 14, 2011.

3.7 Possible Project Sequencing Plan for Build Alternatives

The anticipated total cost for Build Alternatives B and C and the limited funding that is typically available at any one time for extremely costly projects required developing a possible project sequencing plan. The sequencing plan provides the completed Build Alternative B and C by using one design project, two right of way projects and eight construction projects. The eight possible construction projects have independent utility allowing them to function as “stand alone” projects.

The sequencing plans for the two build alternatives are similar. Each plan requires reconstructing and widening the frontage roads to three lanes between the Halls Ferry Road Interchange and Old SR 27. Each plan requires providing a collector-distributor road on both sides of I-20 by connecting to and extending the frontage road corridor east from Old SR 27 through the Clay Street/US 80/US 61 North/SR 27 Interchange. Each plan requires placing the frontage road and collector-distributor road corridors in one-way traffic operations between Halls Ferry Road and US 61 North/SR 27 while the adjacent interstate is reconstructed.

The main differences in the build alternatives are related to Alternative B having one-way, three-lane ultimate frontage roads and Alternative C having two-way, three lane ultimate frontage roads with the center lane functioning as a left turn lane. **Appendix D** for Alternative B and

Appendix E for Alternative C contain detailed information on the eight possible construction projects for the ultimate completion of the build alternatives. A summary of the eight possible construction projects for Build Alternatives B and C is provided below:

- Possible Project One is an Indiana Avenue Bridge Raising Project at the Exit 3 Interchange to provide the desired vertical clearance over I-20;
- Possible Project Two is an I-20 Reconstruction Project from the eastern side of the Washington Street/Warrenton Road Exit 1A Interchange to the eastern side of the Halls Ferry Exit 1C Interchange;
- Possible Project Three is an I-20 North and South Frontage Roads Reconstruction Project between the Halls Ferry Road Exit 1C Interchange and the Indiana Avenue Exit 3 Interchange;
- Possible Project Four is an I-20 Reconstruction Project from the eastern side of the Halls Ferry Road Exit 1C Interchange to approximately the point where I-20 passes underneath Indiana Avenue at the Exit 3 Interchange;
- Possible Project Five is an I-20 North and South Frontage Roads Reconstruction Project between the Indiana Avenue Exit 3 Interchange and Old SR 27;
- Possible Project Six is an I-20 Reconstruction Project at the Clay Street/US 80 Exit 4 Interchange (this project provides a means of separating Project Six and Project Seven to reduce their combined cost);
- Possible Project Seven is an I-20 Reconstruction Project from approximately the point where I-20 passes underneath Indiana Avenue at the Exit 3 Interchange to east of the Clay Street/US 80 portion of the proposed Clay Street/US 80/US 61 North/SR 27 Interchange; and,
- Possible Project Eight is an I-20 Reconstruction Project to complete the remaining portions of the proposed Clay Street/US 80/US 61 North/SR 27 Interchange.

3.8 Cost Estimates and Possible Project Implementation Plan for Build Alternatives

The cost estimates for the one design, two right of way and eight possible construction projects for the completion of Build Alternatives B and C were computed based on the MDOT's 2009 cost data and Vicksburg – Warren County real estate and tax records. Detail information on the cost estimate computations is contained in **Appendix D** for Alternative B and in **Appendix E** for

Alternative C. The estimated 2009 total design, right of way and construction costs are: \$221,176,449 for Build Alternative B and \$230,336,724 for Build Alternative C.

Based on anticipated funding, the implementation years and implementation year costs for the build alternatives' one design, two right of way and eight construction projects were estimated by the MDOT. To determine the implementation year cost for the projects, the MDOT used a three percent (3%) compounded annually growth factor. **Table 3-3** and **Table 3-4** provide the possible implementation plan for Build Alternatives B and C respectively. The estimated total implementation year costs are: \$410,600,000 for Build Alternative B and \$425,900,000 for Build Alternative C.

**TABLE 3-3
ALTERNATIVE B POSSIBLE PROJECT IMPLEMENTATION PLAN ⁽¹⁾**

TYPE PROJECT	2009 PROJECT COST	IMPLEMENTATION YEAR	IMPLEMENTATION YEAR COST ⁽⁶⁾
P.E. PROJECT (ROW AND FINAL PLANS FOR THE ENTIRE JOB)	\$10,015,280 ⁽²⁾	2012	\$10,900,000
ROW PROJECT TO ACQUIRE NEW ROW FOR THE ENTIRE JOB	\$8,852,506 ⁽³⁾	2014	\$10,300,000
CONSTRUCTION PROJECT ONE	\$2,501,505 ⁽⁵⁾	2014	\$2,900,000
ROW PROJECT TO ADJUST UTILITIES FOR THE ENTIRE JOB	\$2,003,056 ⁽⁴⁾	2015	\$2,400,000
CONSTRUCTION PROJECT TWO	\$43,148,325 ⁽⁵⁾	2020	\$59,700,000
CONSTRUCTION PROJECT THREE	\$9,951,100 ⁽⁵⁾	2024	\$15,500,000
CONSTRUCTION PROJECT FOUR	\$23,524,231 ⁽⁵⁾	2027	\$40,000,000
CONSTRUCTION PROJECT FIVE	\$12,094,621 ⁽⁵⁾	2030	\$22,500,000
CONSTRUCTION PROJECT SIX	\$21,743,196 ⁽⁵⁾	2033	\$44,200,000
CONSTRUCTION PROJECT SEVEN	\$58,278,168 ⁽⁵⁾	2036	\$129,500,000
CONSTRUCTION PROJECT EIGHT	\$29,064,461 ⁽⁵⁾	2040	\$72,700,000
TOTAL 2009 AND IMPLEMENTATION YEAR COST ESTIMATES	\$221,176,449	---	\$410,600,000

Neel-Schaffer, Inc. 2012

Table 3-3 Superscript Notes:

- (1) Alternative B has three-lane, one-way ultimate frontage roads. Alternative C has three-lane, two-way ultimate frontage roads. Alternative B and C have similar construction concepts and costs.
- (2) The P.E. Project (ROW and Final Plans for the Entire Job) 2009 Cost represents: (a) the estimated costs for preparing the right of way plans for the entire job so that the right of way projects can be scheduled for acquiring the needed additional right of way and performing the adjustments of the impacted utilities; and, (b) the estimated costs for preparing the plans, specifications and estimates for the entire job so that the lettings of the construction projects can be scheduled. These costs were computed at five percent (5%) of the 2009 Construction Cost for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.05 \times \$200,305,607 = \$10,015,280$). **Appendix D** contains the Alternative B 2009 cost estimate computations for the eight construction projects.
- (3) The ROW Project to Acquire New Right of Way for the Entire Job 2009 Cost represents the appraisal and acquisition costs added to the right of way property and relocation costs for acquiring the new right of way for the entire job. The costs of providing the right of way appraisal and acquisition services were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.01 \times \$200,305,607 = \$2,003,056$). **Appendix D** contains the Alternative B 2009 cost estimate computations for the eight construction projects. **Appendix D** also contains the estimated right of way cost computations of \$6,909,650 for acquiring the land and impacted property improvements that are located on the land – such as residences, businesses and outdoor advertising signs. Therefore, \$2,003,056 plus \$6,849,450 or \$8,852,506 is the assumed 2009 cost for this ROW project.
- (4) The ROW Project to Adjust Utilities for the Entire Job 2009 Cost represents the cost to the MDOT of adjusting impacted utilities located on the additional right of way needed for the entire job. These costs were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.01 \times \$200,305,607 = \$2,003,056$). **Appendix D** contains the Alternative B cost estimate computations for the eight constructions projects. The \$2,003,056 does not include the costs to the local jurisdictions of adjusting their impacted utilities.
- (5) **Appendix D** contains the Alternative B cost estimate computations for the eight construction projects.
- (6) The Preliminary Engineering (P.E.), Right of Way (ROW) and Construction Project Implementation Year Cost Estimates were obtained by projecting the 2009 estimated costs at 3% to the implementation year.

TABLE 3-4
ALTERNATIVE C POSSIBLE PROJECT IMPLEMENTATION PLAN ⁽¹⁾

TYPE PROJECT	2009 PROJECT COST	IMPLEMENTATION YEAR	IMPLEMENTATION YEAR COST ⁽⁶⁾
P.E. PROJECT (ROW AND FINAL PLANS FOR THE ENTIRE JOB)	\$10,229,508 ⁽²⁾	2012	\$11,200,000
ROW PROJECT TO ACQUIRE NEW ROW FOR THE ENTIRE JOB	\$13,471,152 ⁽³⁾	2014	\$15,600,000
CONSTRUCTION PROJECT ONE	\$2,501,505 ⁽⁵⁾	2014	\$2,900,000
ROW PROJECT TO ADJUST UTILITIES FOR THE ENTIRE JOB	\$2,045,902 ⁽⁴⁾	2015	\$2,400,000
CONSTRUCTION PROJECT TWO	\$43,148,325 ⁽⁵⁾	2020	\$59,700,000
CONSTRUCTION PROJECT THREE	\$8,520,040 ⁽⁵⁾	2024	\$13,300,000
CONSTRUCTION PROJECT FOUR	\$25,628,731 ⁽⁵⁾	2027	\$43,600,000
CONSTRUCTION PROJECT FIVE	\$10,991,656 ⁽⁵⁾	2030	\$20,400,000
CONSTRUCTION PROJECT SIX	\$21,743,196 ⁽⁵⁾	2033	\$44,200,000
CONSTRUCTION PROJECT SEVEN	\$62,992,248 ⁽⁵⁾	2036	\$139,900,000
CONSTRUCTION PROJECT EIGHT	\$29,064,461 ⁽⁵⁾	2040	\$72,700,000
TOTAL 2009 AND IMPLEMENTATION YEAR COST ESTIMATE	\$230,336,724	—	\$425,900,000

Neel-Schaffer, Inc. 2012

Table 3-4 Superscript Notes:

- (1) Alternative B has three-lane, one-way ultimate frontage roads. Alternative C has three-lane, two-way ultimate frontage roads. Alternative B and C have similar construction concepts and costs.
- (2) The P.E. Project (ROW and Final Plans for the Entire Job) 2009 Cost represents: (a) the estimated costs for preparing the right of way plans for the entire job so that the right of way projects can be scheduled for acquiring the needed additional right of way and performing the adjustments of the impacted utilities; and, (b) the estimated costs for preparing the plans, specifications and estimates for the entire job so that the lettings of the construction projects can be scheduled. These costs were computed at five percent (5%) of the 2009 Construction Cost for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.05 \times \$204,590,162 = \$10,229,508$). **Appendix E** contains the Alternative C 2009 cost estimate computations for the eight construction projects.
- (3) The ROW Project to Acquire New Right of Way for the Entire Job 2009 Cost represents the appraisal and acquisition costs and the right of way and relocation costs for acquiring the new right of way for the entire job. The costs of providing the right of way appraisal and acquisition services were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.01 \times \$204,590,162 = \$2,045,902$). **Appendix E** contains the Alternative C 2009 cost estimate computations for the eight construction projects. **Appendix E** also contains the estimated right of way computations of \$11,425,250 for acquiring the land and impacted property improvements that are located on the land – such as residences, businesses and outdoor advertising signs. Therefore, \$2,045,902 plus \$11,425,250 or \$13,471,152 is the assumed 2009 cost for this ROW project.
- (4) The ROW Project to Adjust Utilities for the Entire Job 2009 Cost represents the cost to the MDOT of adjusting impacted utilities located on the additional right of way needed for the entire job. These costs were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.01 \times \$204,590,162 = \$2,045,902$). **Appendix E** contains the Alternative C cost estimate computations for the eight constructions projects. The \$2,045,902 does not include the costs to the local jurisdictions of adjusting their impacted utilities.
- (5) **Appendix E** contains the Alternative C cost estimate computations for the eight construction projects.
- (6) The Preliminary Engineering (P.E.), Right of Way (ROW) and Construction Project Implementation Year Cost Estimates were obtained by projecting the 2009 estimated costs at 3% to the implementation year.

4.0 ENVIRONMENTAL IMPACTS

4.1 Land Use and Terrain

Warren County lies within the Mississippi Alluvial Plain portion of the Coastal Plain Physiographic Province and is generally hilly. Elevation within the project area ranges from about 110 feet to 250 feet above sea level. The Mississippi River Basin provides the major drainage for the project area.

Land use was determined through a combination of aerial photography and field verification. Land use was separated into 4 categories: commercial, residential, forested, and maintained. This includes areas with trees that receive regular mowing. The commercial land use designation includes areas that contain commercial facilities, parking lots, and other commercially related structures. The residential land use designation includes homes, apartments, and other dwellings and their surrounding maintained areas (*i.e.*, lawns and driveways). The forested land use designation includes forested areas that support forested, scrub-shrub, or other vegetated areas that are not regularly maintained (mowed). The maintained land use designation includes all areas within the existing MDOT right-of-way (ROW) that receive regular maintenance. The maintained land use designation is the most common followed by forested, commercial and residential, respectively. The acres of existing ROW within the project area are the same for both build alternatives. For impact analysis in this EA, a worst-case scenario was assumed in that all areas would be cleared and/or graded; therefore, changing land uses within the entire project area.

The estimated land use impacts study was completed prior to the Value Engineering (VE) Study. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange. The implementation of the ideas resulted in no estimated right of way being needed from the three impacted parcels in the northwest portion of the interchange. None of these parcels involved relocations. One of the parcels no longer needed contained 1.010 acres of forested land, one contained 1.350 acres of forested land, and the other 0.471 acre parcel contained a mixture of forested and residential land. Since the reduction in land impacts of 2.831 acres for both build alternatives is approximately 0.5% (one-half of a percent) of the estimated total land use impacts, an

addendum to the land use impacts study is not required to reflect the VE Study Report ideas chosen for implementation.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon land use in the project area.

Build Alternative B

Alternative B encompasses a total of 584.53 acres. Within Alternative B, 517.16 acres is in existing ROW and 67.37 acres is proposed for new construction/ROW. Using a worst case scenario, 164.25 acres of forested land, 9.73 acres of commercial land, and 7.82 acres of residential land would be converted to allow for construction of the proposed road improvements (see **Table 4-1**). The remainder of the project area (402.73 acres) is already maintained ROW.

Table 4-1

Land Use Impacts within the Project Area

Land Use	Alternative B (acres)	Percent	Alternative C (acres)	Percent
Commercial	9.73	1.7%	20.05	3.4%
Residential	7.82	1.3%	7.86	1.3%
Forested	164.25	28.1%	166.98	28.0%
Maintained	402.73	68.9%	402.73	67.3%
TOTAL	584.53	100%	597.62	100%

Source: Environmental Research Group 2011

Build Alternative C

Alternative C encompasses a total of 597.62 acres. Within Alternative C, 517.16 acres is in existing ROW and 80.46 acres is proposed for new construction/ROW. Using a worst case scenario, 166.98 acres of forested land, 20.05 acres of commercial land, and 7.86 acres of

residential land would be converted to allow for construction of the proposed road improvements (See **Table 4-1**). The remainder of the project area (402.73 acres) is already maintained ROW.

4.2 Soils

The project area is composed of the Memphis-Natchez-Adler Soil Association as identified in the United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) Soil Survey for Warren County, Mississippi (USDA 1964). The Memphis-Natchez-Adler Soil Association consists of well drained and moderately well drained soils occurring along narrow loess ridges and corresponding deep drainageways.

The portion of the Memphis-Natchez-Adler Soil Association found in the project area contains soils from the Adler and Memphis Series. These include Adler silt loam, Memphis and Natchez silt loams, Memphis and Loring silt loams, and Adler and Morganfield silt loam, local alluvium. **Table 4-2** provides details of the soils occurring within the project area. There are also areas within the project area that are classified as gullied land or silty land, rolling. These are miscellaneous soil categories and do not have specific soil properties and therefore, are not included in the table.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon soils in the project area.

Build Alternative B

Alternative B would involve standard construction activities including leveling and grading for the frontage road improvements and new ROW. Assuming a worst case scenario, implementation of Alternative B would impact 584.53 acres of soil. Some or all of the soil within the proposed ROW would be leveled and/or graded during construction to allow for the proposed road improvements.

Best Management Practices (BMPs) would be implemented to minimize the potential for erosion and sedimentation during construction. Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must

Table 4-2
Soil Map Units within the Project Area and Their Properties

Soil Map Unit	Drainage Classification		Percent Slopes					Erosion		
	Moderately Well Drained	Well Drained	0-2	2-5	5-8	8-12	12-17	17-40	Eroded	Severely Eroded
Adler silt loam	X		X							
Adler and Morganfield silt loams, local alluvium	X		X							
Memphis silt loam		X			X					X
Memphis and loring silt loams		X			X					X
Memphis and Natchez silt loams, 8-12% slopes		X				X				X
Memphis and Natchez silt loams, 12-17% slopes		X					X			X
Memphis and Natchez silt loams, 17-40% slopes		X						X	X	

Source: USDA 1964

be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Direct impacts to soils by the implementation of Alternative B are expected to be long term and minimal since the areas outside of the new construction will be planted and maintained as ROW.

Build Alternative C

Alternative C would involve standard construction activities including leveling and grading for the frontage road improvements and ROW. Implementation of Alternative C would impact 597.62 acres of soil. Using a worst case scenario, all of the soil within Alternative C would be leveled and/or graded during construction to allow for the proposed road improvements.

BMPs would be implemented to minimize the potential for erosion and sedimentation during construction. Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Direct impacts to soils by the implementation of Alternative C are expected to be long term and minimal since the areas outside of the new construction will be planted and maintained as ROW.

4.2.1 Prime Farmlands

Prime farmlands include land that has the best combinations of physical and chemical properties to be able to produce fiber, feed, or food, and are available for these uses. Prime farmlands are protected under the Farmland Protection Policy Act of 1980 and 1995. The Farmland Protection Policy Act's purpose is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. As required by Section 1541(b) of the Act, 7 U.S.C. 4202(b), federal agencies are (a) to use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative actions, as appropriate, that would lessen adverse effects, and (c) to ensure that their programs, to the extent practicable, are compatible

with state and units of local government and private programs and policies to protect farmland (USDA 2000).

A farmland conversion impact rating form was submitted to the U.S. Department of Agriculture – Natural Resources Conservation Service (NRCS) office in Vicksburg on June 8, 2010. A phone call response received on June 18, 2010, from the District Conservationist in the Vicksburg NRCS Office advised the NRCS does not consider claiming prime or unique farmlands in the area of this project due to the steepness of the terrain and the close proximity of the project area to major roads. Copies of the submittal correspondence to the NRCS and documentation of their response are contained in **Appendix H**.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, on prime and unique farmlands in the project area.

Build Alternatives B and C

Since no prime farmland exists within the project area, no impacts to prime farmland soils are expected for Alternative B or C.

4.3 Socioeconomic and Environmental Justice Issues

The socioeconomic and environmental justice issues are addressed in detail in a report titled, *A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C* contained in **Appendix G**. That report concludes that Build Alternative B and Build Alternative C have minor socioeconomic impacts. From an environmental justice perspective, the report concludes no adverse impacts on minority or low-income populations are anticipated as a result of constructing either build alternative.

The **Appendix G** report was completed prior to the Value Engineering (VE) Study. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange and results in no estimated right of way being needed from the three impacted parcels in the northwest portion of the interchange. No

relocations were involved on the three parcels no longer impacted. Implementing the VE Report ideas does not require an addendum to the **Appendix G** report.

The Mississippi River Bridge crossing, nearby casinos, nearby US Army Corps of Engineers offices, the Vicksburg National Military Park, and the historic attractions of Vicksburg add uniqueness to this section of interstate. Otherwise, I-20 through Vicksburg is typical of most interstates passing through a small urban area in that there is commercial activity along the crossroads at interchange locations and a mixture of residential and commercial development along the frontage roads between interchange locations.

Build Alternative B, with the one-way ultimate frontage roads, and Build Alternative C, with the two-way ultimate frontage roads, use the existing corridor to reconstruct I-20 and the interchanges in a manner that avoids or minimizes the environmental impacts on both sides of the interstate. The build alternatives have no direct impacts on community agencies.

Differences in the displacement impacts for the two build alternatives occur at the Indiana Avenue Exit 3 Interchange and one of the two locations where frontage road circulation bridges are proposed. Otherwise, the build alternatives have the same displacement impacts that are scattered over the approximate six miles between the proposed US 61 South Exit 1B Interchange and the proposed Clay Street/US 80/US 61 North/SR 27 Interchange.

The different displacement impacts for the build alternatives contribute to the build alternatives having different social and economic impacts. The following describes the different displacement impacts associated with the build alternatives:

- Residences, commercial property owners and businesses displaced due to the acquisition of additional right of way or loss of all access;
- Number of employees displaced due to the acquisition of commercial property for additional right of way;
- Commercial properties where additional right of way is not needed, but where removal of apparent right of way encroachments upon existing right of way will impair continuation of current business operations; and,
- The businesses and number of employees displaced where the removal of apparent encroachments upon existing right of way impairs continuation of

current business operations.

For most of the census tracts along I-20 through the study area, the interstate serves as a boundary line. The five census tracts along I-20 within the City of Vicksburg are tracts 9502, 9505, 9506, 9507 and 9508. I-20 forms the southern boundary for census tracts 9502 and 9507, and the northern boundary for census tracts 9506 and 9508. Census Tract 9505 is the only tract divided by this section of I-20.

Due to the large amount of funding that is estimated to be needed for completing the construction of the build alternatives, this study is based upon the build alternatives being constructed in eight separate construction projects. The proposed construction project sequencing plan provides the flexibility to combine projects if adequate funding is available.

4.3.1 Social and Economic Climate

The population of Vicksburg, Mississippi was 26,407 according to the 2000 census. From 2000 to 2008, the Vicksburg area has seen a decrease in population of 5.4% as compared to the state's increase in population of 3.3%. Census Data from 1990 and 2000 indicate that Warren County's population has lagged the State's growth patterns. While the State's population from 1990 to 2000 increased by 10.5%, Warren County's 2000 population of 49,644 is a 3.7% increase from its 1990 population of 47,880.

The total population of Warren County was estimated at 48,175 in 2009 (U.S. Census Bureau). This is a 3.0% decrease over the 2000 census population of 49,644. The racial mix is comprised of Caucasians (50.7 percent), followed by African Americans (47.4 percent) with the remaining 2.90 percent split between Hispanics and Latinos, American Indians and Alaska natives, or Asians (U.S. Census Bureau). The median age of the Warren County population is 35.7 years. Other Warren County and Mississippi demographic statistics are shown in **Table 4-3**.

Census data indicates that minority and low-income populations are concentrated in Census Tracts 9502, 9503, 9504 and 9508. Although portions of these census tracts are nearby or border I-20, the tracts are associated with areas in downtown Vicksburg outside the I-20 corridor. The following describes the portions of these tracts that are near or border I-20: I-20

between Washington St. and Halls Ferry Rd.; Confederate Ave./Mission 66 between Halls Ferry Rd. and Clay St.; Clay St. between Mission 66 and I-20; I-20 between Clay St. and US 61 North; and, US 61 North between I-20 and Sherman Avenue.

Table 4-3
Socioeconomic Data for Warren County and Mississippi

Parameter	Warren County	Mississippi
Population, 2009 estimate	48,175	2,951,996
Percent change, April 1, 2000 to July 1, 2009	-3.0%	3.8%
Persons under 18 years old, percent, 2009	27.7%	26.0%
Persons 65 years old and older, percent, 2009	12.3%	12.8%
White persons, percent, 2009 (a)	50.7%	60.5%
Black persons, percent, 2009 (a)	47.4 %	37.2%
American Indian & Alaska Native persons, percent, 2009 (a)	0.3%	0.5%
Mean travel time to work, minutes, 2000	21.0	24.6
Median household income, 2008	\$39,825	\$37,818
Retail sales, 2002 (\$1000)	478,729	25,017,531
Persons below poverty level, percent, 2008	21.0%	20.8%
Manufacturers shipments, 2002 (\$1000)	1,299,675	38,276,054
Land area, 2000 (square miles)	586.61	46,906.96
Persons per square mile, 2000	84.6	60.6

Source: U.S. Census Bureau, State & County Quick Facts

(a) Includes persons reporting only one race

Warren is one of the 82 counties in Mississippi. The total number of jobs in Warren County in 2008 was 23,666 (Bureau of Labor Statistics 2007). The 2006-2008 unemployment rate for Warren County was 9.2 percent, which is slightly higher than the 8.6 percent for the state (U.S.

Census Bureau). Approximately 21.0 percent of the total population in Warren County lives below poverty according to the U.S. Census Bureau (2008). This is slightly higher than the estimated 20.8 percent of the state population that lives below poverty.

In 2008, Warren County had a \$36,542 per capita personal income (PCPI), which ranked 3rd in the state. It was 120 percent of the \$30,383 state average, and 91 percent of the \$40,166 national average. The 2008 PCPI reflected an increase of 15.6 percent from 2005. The 2005-2008 state change was 13.3 percent and the national change was 13.4 percent (Bureau of Economic Analysis).

In 2008, Warren County had a \$1,759,337 total personal income (TPI). This TPI ranked 12th in the state and accounted for 2.0 percent of the state total (Bureau of Economic Analysis). The 2008 TPI reflected an increase of 14.6 percent from 2005. The 2005-2008 state change was 14.9 percent and the national change was 16.7 percent (Bureau of Economic Analysis).

Total personal income includes net earnings by place of residence; dividends, interest, and rent; and, personal current transfer receipts received by residents of Warren County. In 2008, net earnings accounted for 64.2 percent of the TPI; dividends, interest and rent were 15.8 percent; and, personal current transfer receipts were 20.0 percent. From 2005 to 2008 net earnings increased 10.5 percent; dividends, interest, and rent increased 20.5 percent; and personal current transfer receipts increased 24.5 percent (Bureau of Economic Analysis).

Earnings of persons employed in Warren County increased from \$851,791 in 2005 to \$903,849 in 2009, an increase of 6.1 percent. The 2005-2009 state change was 11.8 percent and the national change was 10.0 percent.

Economic indicators show fiscal growth in the area. Gross retail sales for Warren County grew from \$478,729,000 in 2002 to \$606,527,000 in 2007, which was an increase of 26.7 percent. The casinos, Vicksburg National Military Park, and the historic attractions make tourism a major industry for Vicksburg. The major products manufactured in the Vicksburg/Warren County are hardwood lumber and flooring, lighting, paper, off shore drilling rigs, and venting systems.

No Build Alternative

The No Build Alternative would result in no impact to socioeconomic resources within the project area.

Build Alternative B

Between the Halls Ferry Road Exit 1C Interchange and Old SR 27, Build Alternative B would ultimately reconstruct and widen the frontage roads from two to three lanes and change the frontage roads from two-way to one-way traffic operation. The proposed change in frontage road traffic operations would provide additional traffic capacity and reduce the number of traffic conflicts at intersecting driveways and city streets. Therefore, safer traffic operations on the frontage roads would be expected. A disadvantage of converting the frontage roads to one-way traffic operation is that out-of direction travel will be required when traveling to or between some frontage road destinations. To address this change in travel patterns and lessen the out-of-direction travel that the convenience of having two-way frontage roads provides, frontage road circulation bridges are proposed slightly east of Halls Ferry Road and slightly west of Old SR 27 to provide direct access between the north and south frontage roads.

The labor for the construction of the proposed roadway would be provided by local and/or regional contractors, resulting in short-term, insignificant increases in the population of the project area. Materials and other project expenditures would predominantly be obtained through merchants in the local community giving a temporary direct economic benefit. In addition, there is the possibility of long-term economic benefit as the improved traffic flow would make land along the proposed roadway more desirable for development. As a result, beneficial impacts to local employment rates and local incomes could occur as a result of this project, and through development, additional tax bases could be added to the area with implementation of Build Alternative B.

Alternative B would result in the displacement of seven residences, 24 businesses and 106 employees. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. 14 of the 24 businesses are estimated to be displaced due to removal of apparent encroachments from the existing right-of-way. 63 of the 106 displaced employees work at the 14 businesses displaced due to apparent encroachments on the existing right-of-way.

Although replacement opportunities are readily available for the residential displacements and most of the displaced businesses, a few of the estimated displaced businesses are location dependent. These location dependent displaced businesses could require the construction of new buildings or they might decide not to relocate.

The proposed roadway would not be expected to increase burdens on local social resources. No adverse changes to local employment rates, poverty levels, or local incomes would occur as a result of the new roadway. Therefore, no adverse impacts to socioeconomics are expected with implementation of Build Alternative B.

Build Alternative C

Between the Halls Ferry Road Exit 1C Interchange and Old SR 27, Build Alternative C would reconstruct and widen the frontage roads from two to three lanes, require the reconstructed frontage roads to be placed in one-way traffic operation while functioning as an interstate detour when the adjacent interstate lanes are reconstructed, but convert the improved frontage roads back to two-way traffic operation after the frontage roads are no longer functioning as an interstate detour. The widening of the frontage roads to three lanes would provide a center lane for left turning traffic and retain one lane in each direction for thru frontage road traffic. The added lane for left turning traffic would provide increased safety for left turning traffic; however, the added lane for left turning traffic will not appreciably reduce the number of traffic conflicts on the frontage roads at intersecting drives and streets.

A major disadvantage of retaining the two-way frontage roads is that the North Frontage Road must be dead-ended east of Indiana Avenue to avoid directly impacting Vicksburg National Military Park property. The west approach to the Indiana Avenue intersection is being relocated to the north. The relocation is necessary to create an acceptable spacing between that frontage road/Indiana Avenue intersection and the Indiana Avenue intersection to the south with the interchange ramps. The North Frontage Road east approach cannot be relocated to the north to align with the relocated west frontage road approach without directly impacting the Vicksburg National Military Park property. Therefore, dead-ending the North Frontage Road east of Indiana Avenue is required.

Build Alternative C has the frontage road circulation bridges at the same locations east of Halls

Ferry Road and west of Old SR 27 as Build Alternative B. These circulation bridges would provide direct access between the frontage roads and adequate access to the dead-ended portion of the North Frontage Road east of Indiana Avenue.

The labor for the construction of the proposed roadway would be provided by local and/or regional contractors, resulting in short-term, insignificant increases in the population of the project area. Materials and other project expenditures would predominantly be obtained through merchants in the local community giving a temporary direct economic benefit. In addition, there is the possibility of long-term economic benefit as the improved traffic flow would make land along the proposed roadway more desirable for development. As a result, beneficial impacts to local employment rates and local incomes could occur as a result of this project, and through development, additional tax bases could be added to the area with implementation of Build Alternative C.

Build Alternative C requires the displacement of the Big Wheelie roller skating rink and the Travel Inn motel on the North Frontage. A “roundabout” was determined to be the appropriate traffic control device on the north side of the circulation bridge at the intersection with the North Frontage Road. The roller skating rink is displaced because it is part of the right of way required for the “roundabout”. The motel is located slightly west of the proposed frontage road circulation bridge. The motel has only one frontage road access point, which cannot be moved to the west without impacting the adjacent property. The distance between the roundabout and the motel’s drive is too short for safe and efficient traffic operations. Therefore, the motel’s access to the frontage road must be eliminated and the motel is considered a displacement.

Build Alternative C requires the displacement of all the commercial businesses on Indiana Avenue between the access to the Vicksburg Country Club on the south side of I-20 and the access to the shopping center on the north side of I-20. Due to the residential property along Indiana Avenue that borders the interchange on both sides of I-20, there is not readily available commercial property on Indiana Avenue for the two convenience stores, the Kentucky Fried Chicken, and the bank to relocate. It is possible the businesses could relocate to the frontage roads in the southwest, southeast and northwest quadrants of the Indiana Avenue Interchange. However, from the perspective of these businesses and their customers, the frontage roads might not be as an attractive location as Indiana Avenue because the Indiana Avenue access

would be more convenient and direct.

Build Alternative C would result in the displacement of seven residences, 32 businesses and 190 employees. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. 17 of the 32 estimated businesses are displaced due to removal of apparent encroachments from the existing right-of-way. 79 of the 190 displaced employees work at the 17 estimated businesses displaced due to apparent encroachments on the existing right-of-way.

Although replacement opportunities are readily available for the residential displacements and most of the displaced businesses, some of the displaced businesses are location dependent. These location dependent displaced businesses could require the construction of new buildings or they might decide not to relocate.

The proposed roadway would not be expected to increase burdens on local social resources. No adverse changes to local employment rates, poverty levels, or local incomes would occur as a result of the new roadway. Therefore, no adverse impacts to socioeconomics are expected with implementation of Build Alternative C.

4.3.2 Environmental Justice Issues

On February 11, 1994, President Clinton issued E.O. 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations". The E.O. is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts of proposed actions on these communities and to identify alternatives that might mitigate these impacts. It also directs agencies to ensure that representatives of an affected community have every opportunity to provide input regarding the effects of the proposed project.

Minority, as identified in E.O. 12898, include American Indian or Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition); Asian or Pacific Islander (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands);

Black (having origins in any of the black racial groups of Africa); or Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race). Minority Population means any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons who will be similarly affected by this EA. Poverty status, used in this EA to define low-income status, is reported as the number of persons with income below the poverty level.

Census data indicates that minority and low-income populations are concentrated in Census Tracts 9502, 9503, 9504 and 9508. Although portions of these census tracts are near I-20 or border I-20, the tracts are associated with areas in downtown Vicksburg outside the I-20 corridor. The following describes the portions of these tracts that are near or border I-20.

- I-20 between Washington Street and Halls Ferry Road;
- Confederate Avenue/Mission 66 between Halls Ferry Road and Clay Street;
- Clay Street between Mission 66 and I-20;
- I-20 between Clay Street and US 61 North; and,
- US 61 North between I-20 and Sherman Avenue.

For most of the census tracts along I-20 through the study area, the interstate serves as a boundary line. The five census tracts along I-20 within the City of Vicksburg are tracts 9502, 9505, 9506, 9507 and 9508. I-20 forms the southern boundary for census tracts 9502 and 9507, and the northern boundary for census tracts 9506 and 9508. Census Tract 9505 is the only tract divided by this section of I-20. Therefore, it is the most representative of the impacted tracts within the City of Vicksburg.

From the Halls Ferry Road Exit 1C Interchange to the Indiana Avenue Exit 3 Interchange, I-20 forms the southern boundary of Census Tract 9505. I-20 divides Census Tract 9505 between the Indiana Avenue Exit 3 Interchange and the Clay Street/US 80 Exit 4 Interchange. Between the Clay Street/US 80 Exit 4 Interchange and the US 61 North/SR 27 Exit 5 Interchange, I-20 forms the northern boundary of Census Tract 9505.

Table 4-4 depicts 2000 census socioeconomic data for the State of Mississippi, Warren County, the City of Vicksburg and Census Tract 9505. The following summarizes the data presented in table.

- Relative to the Percentages of Minorities, Warren County's percentage of 45.0 and the City of Vicksburg's percentage of 62.2 are higher than the state average of 38.6 and the 38.7 average of Census Tract 9505.
- Relative to the Median Household Income, the \$35,056 for Warren County and the \$32,770 for Census Tract 9505 are higher than the state average of \$31,330 and the \$28,466 for the City of Vicksburg.
- Relative to Per Capita Income, the \$17,527 for Warren County, the \$16,174 for the City of Vicksburg and the \$17,088 for Census Tract 9505 are higher than the \$15,853 state average.
- Relative to the Percentage Population Living Below Poverty Level, the 23.0% for the City of Vicksburg and the 24.6% for Census Tract 9505 are higher than the 19.9% state average and the 18.7% for Warren County

**Table 4-4
2000 Census Socioeconomic Data**

Data	State of Mississippi	Warren County	City of Vicksburg	Census Tract 9505
1999 Total Population	2,844,658	49,644	26,407	2,512
Caucasian Population	1,746,099	27,288	9,982	1,539
African American Population	1,033,809	21,439	15,957	894
Population of Minorities Other Than African American	64,750	917	468	79
% Minorities	38.6	45.0	62.2	38.7
Total Households	1,161,953	20,789	11,654	1,140
Median Household Income	\$31,330	\$35,056	\$28,466	\$32,770
Per Capita Income	\$15,853	\$17,527	\$16,174	\$17,088
Caucasian Population Living Below Poverty Level	187,778	2,282	687	223
Total Population Living Below Poverty Level	548,079	9,146	5,893	612
% Population Living Below Poverty Level	19.9	18.7	23.0	24.6

Source: Neel-Schaffer, Inc. 2010

The build alternatives have no major impacts on community agencies or non-profit properties. For reconstructing this section of I-20, the existing corridor was used to minimize impacts. All the displacements for the build alternatives are related to reconstructing this section of interstate, the interchanges and the frontage roads to the required design standards in ways that will meet the existing and anticipated future traffic demands. The displacements are adjacent to the existing corridor, occur at random locations throughout the entire length of the corridor and do not have disproportionately high and adverse impacts on minority and/or low income populations.

If additional information is needed, refer to the **Appendix G** report titled, *A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C.*

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon environmental justice issues in the project area.

Build Alternative B

Alternative B would result in the displacement of seven residences, 24 estimated businesses and 106 estimated employees. 14 of the 24 estimated businesses are displaced due to removal of apparent encroachments from the existing right-of-way. 63 of the 106 estimated displaced employees work at the 14 businesses displaced due to apparent encroachments on the existing right-of-way.

Three of the seven displaced residences are owned and occupied by minorities. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. Two of the 25 displaced businesses are minority owned. No non-profit or public organizations are displaced by Build Alternative B, and it does not traverse any predominately minority neighborhoods or businesses. No adverse impacts to minority or low-income populations are anticipated as a result of constructing Build Alternative B. Therefore, Build Alternative B is in compliance with E.O. 12898. For more specifics on the displacements, refer to Section 3.4 of this study or the **Appendix G** report titled, *A Survey of Social and*

Economic Impacts Including a Relocation Assistance Study for Alternates B and C.

Build Alternative C

Build Alternative C would result in the displacement of seven residences, 32 estimated businesses and 190 estimated employees. 17 of the 32 estimated businesses are displaced due to removal of apparent encroachments from the existing right-of-way. 79 of the 190 estimated displaced employees work at the 17 businesses displaced due to apparent encroachments on the existing right-of-way.

Four of the seven displaced residences are occupied by minorities. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. Four of the 33 estimated displaced businesses are minority owned. No non-profit or public organizations are displaced by Build Alternative C, and it does not traverse any predominately minority neighborhoods or businesses. No adverse impacts to minority or low-income populations are anticipated as a result of constructing Build Alternative C. Therefore, Build Alternative C is in compliance with E.O. 12898. For more specifics on the displacements, refer to Section 3.4 of this study or the **Appendix G** report titled, A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C.

4.4 Relocations

In compliance with 23 CFR 771, a Conceptual Stage Relocation Plan has been prepared for the proposed roadway. The plan is part of a report contained in **Appendix G** titled, A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C. Each of the build alternatives will result in residential and business displacements. No non-profit or public organizations are displaced by the build alternatives. Specific relocation information associated with each alternative is provided in the **Appendix G** report.

The **Appendix G** report was completed prior to the Value Engineering (VE) Study. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange and results in no estimated right of way being needed from the three impacted parcels in the northwest portion of the interchange. No

relocations were involved on the three no longer impacted parcels. Implementing the VE Study ideas does not require an addendum to the report contained in **Appendix G**.

In general, relocation is considered to be necessary when a business or residence would be directly in the path of the proposed roadway, access would be eliminated, or when the roadway would cause a reduction in use of the property.

Due to the removal of apparent encroachments from the existing right-of-way along the frontage roads, the build alternatives are estimated to displace as many as 17 businesses. At these locations, parking for the buildings containing these businesses is the right-of-way encroachment and removing the parking encroachments could result in the businesses having inadequate parking to remain in operation. Although the frontage road reconstruction at these locations does not require additional right-of-way, the anticipated construction limits does require removing the parking that is occurring within the existing right-of-way.

Build Alternatives B and C have similar concepts. The main differences in their displacement impacts are related to Alternative B having one-way, three-lane ultimate frontage roads and Alternative C having two-way, three-lane ultimate frontage roads. The difference in the traffic flow on the ultimate frontage roads and performing the reconstruction to the required design standards resulted in Alternative C having additional commercial displacement impacts at the Indiana Avenue Exit 3 Interchange and on the North Frontage Road at the proposed frontage road circulation bridge east of Halls Ferry Road. Otherwise, the displacements for Alternative B and Alternative C are identical.

The commercial displacements Alternative C has at the Indiana Avenue Exit 3 Interchange that Alternative B does not have are:

- the convenience store on Indiana Avenue in the northwest quadrant of the interchange;
- the convenience store on Indiana Avenue in the southeast quadrant of the interchange;
- the Kentucky Fried Chicken restaurant on Indiana Avenue in the southeast quadrant of the interchange;
- the bank on Indiana Avenue in the southwest quadrant of the interchange;

- the Waffle House restaurant on the relocated North Frontage Road in the northwest quadrant of the interchange; and,
- the motel on the North Frontage Road in the northeast quadrant of the interchange where the frontage road would be dead-ended.

The commercial displacements Alternative C has on the North Frontage Road at the frontage road circulation bridge east of Halls Ferry Road that Alternative B does not have are:

- the skating rink that is east of the small shopping center containing the Vicksburg Post; and,
- the motel that is between a used car lot and the skating rink.

The proposed alignments have been located to avoid residences and businesses as much as possible. The relocation program will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Public Law 91-646).

A search was made through the Vicksburg Board of REALTORS®, internet websites, local newspapers and the Mississippi Development Authority (MDA) to determine the availability of residential and commercial properties for sale or rent. A large number of residential properties were located throughout the Vicksburg area within a few miles of the I-20 corridor. However, only 4 rental dwellings were found with 2 to 3 bedrooms and they had monthly rental rates between \$700 and \$750. Based on Year 2000 Census data, an estimated 277 housing units should be available in the study area during any year at a Fair Market Rent (FMR) of \$672 per month for a 2 bedroom dwelling and \$803 per month for a 3 bedroom dwelling. There are currently numerous apartment complexes in the Vicksburg area. According to Census data the study area experiences an approximately 9% vacancy rate for available housing.

Based on the number of housing units in the area the vacancy rate will adequately provide acceptable replacement accommodations for the relatively small number of displacements resulting from this proposed action. Research also identified as many as 48 residential lots available ranging in size from less than 0.5 acre to 4.0 acres and varying in price from \$6,000 to \$275,000.

Numerous commercial sites and buildings were identified through researching the sources mentioned above. 27 buildings suitable for offices, ranging in size from 900 square feet to 16,000 square feet with prices from \$82,000 to \$385,000 were identified near the study area. Also, 16 buildings suitable for retail sales were found. These ranged in size from 1,000 square feet to 15,000 square feet with prices between \$59,000 and \$350,750. 17 lots suitable for commercial development from less than 0.5 acre to more than 9.0 acres in size and with prices between \$40,000 and \$485,000 were also located. In addition to these commercial sites, the Ceres Research and Industrial Interplex, located approximately 9.5 miles east of the study area along I-20 offers 860 acres of commercial property at an average price of \$15,000 per acre.

The location of commercial businesses is very specific to the type of business and its clientele. There are also other businesses in the Vicksburg area that provide similar services to those provided by some of the businesses that would be displaced. Therefore, some of the displaced businesses may decide not to relocate.

No Build Alternative

The No Build Alternative would result in no displacements of residences or businesses and therefore, would have no adverse impacts through relocation of residences or businesses.

Build Alternative B

Relocation of residences and businesses is unavoidable with Build Alternative B. It would result in the displacement of seven residences, 24 estimated businesses and 106 estimated employees. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. 14 of the 24 estimated businesses are displaced due to removal of apparent encroachments from the existing right-of-way. 63 of the 106 estimated displaced employees work at the 14 businesses displaced due to apparent encroachments on the existing right-of-way. No non-profit or public organizations are displaced by Alternative B.

Most of the businesses that would be displaced by Build Alternative B are not location dependent and provide continuing services to the Vicksburg area. These businesses would relocate with minimum, if any, economic impact. These type businesses include the insurance

agencies, the medical services, the real estate agency, and even businesses such as hair salons. Employees of these type businesses should retain their employment.

The location of commercial businesses is very specific to the type of business and its clientele. There are also other businesses in the Vicksburg area that provide similar services to those provided by some of the businesses that would be displaced. Therefore, some of the displaced businesses may decide not to relocate. The convenience/gasoline retail business is an example of a displaced business that may not relocate, but this type business is numerous throughout the area; and, similar to the fast food businesses, have a high rate of employee turnover. The lawn and garden business is another example of a displaced business that might choose not to relocate.

For more specifics on the relocations, refer to the **Appendix G** report titled, *A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C.*

Build Alternative C

Relocation of residences and businesses is unavoidable with Build Alternative C. It would result in the displacement of seven residences, 32 estimated businesses and 190 estimated employees. One of the seven residences is unoccupied and owned by the estate of the minority family that previously occupied the residence. 17 of the 32 estimated businesses are displaced due to removal of apparent encroachments from the existing right-of-way. 79 of the 190 estimated displaced employees work at the 17 businesses displaced due to apparent encroachments on the existing right-of-way. No non-profit or public organizations are displaced by Alternative C.

Most of the businesses that would be displaced by Build Alternative C are not location dependent and provide continuing services to the Vicksburg area. These businesses would relocate with minimum, if any, economic impact. These type businesses include the insurance agencies, the medical services, the real estate agency, and even businesses such as hair salons. Employees of these type businesses should retain their employment.

The location of commercial businesses is very specific to the type of business and its clientele. There are also other businesses in the Vicksburg area that provide similar services to those

provided by some of the businesses that would be displaced. Therefore, some of the displaced businesses may decide not to relocate.

The 2 fast food establishments that would be displaced only by Alternate C employ 46 or 25% of the estimated total number of employees displaced by that alternate. Should these businesses not relocate, there are numerous fast food establishments in the Vicksburg area. These type businesses typically have a high turnover rate of employment.

Although replacement opportunities are readily available for most retail businesses, the 2 motels, the 4 convenience/gasoline retail businesses, the nursery/lawn and garden business, and the bank probably would require construction of new buildings to allow their relocations. These businesses may not relocate. There are numerous convenience/gasoline retail businesses throughout the area and, similar to the fast food businesses, these type retail businesses have a high rate of employee turnover. The 2 motels displaced only reported a total of 5 employees. As is the case with the fast food establishments that would be displaced by this alternative, there are numerous motels and hotels in the Vicksburg area. Should these two motel businesses not relocate, the economic impact should be minimal and similar employment should be available for these displaces.

For more specifics on the relocations, refer to the **Appendix G** report titled, *A Survey of Social and Economic Impacts Including a Relocation Assistance Study for Alternates B and C.*

4.5 Considerations Relating to Bicyclists and Pedestrians

In accordance with 23 USC 109(n), MDOT gives full consideration to bicycle facilities by providing reasonable alternatives to the bicycling public in the development of transportation projects.

Appendix H contains bicyclist and pedestrian background information that includes: an overview of the proposed reconstruction for the build alternatives; relevant laws in Mississippi pertaining to pedestrians and bicyclists; information on the Mississippi River Trail bicycling route that crosses I-20 when passing through Vicksburg; and, overview of the existing pedestrian and bicycle environment on nearby and impacted routes.

In the State of Mississippi, pedestrians and bicyclists are not authorized on the interstate or the collector-distributor roads. Accommodations for pedestrians and bicyclists do not currently exist within the limits of this study. The local routes intersecting or crossing the build alternatives also do not currently have any sidewalks or marked bicycle lanes. Due to the severe terrain and right of way limitations, it is very unlikely that provisions for sidewalks or bicycles will be made in the foreseeable future on the build alternatives' intersecting or crossing routes. The severe terrain and right of way impacts make it impractical to consider adding a recreational trail along or near the interstate right of way for pedestrians and bicyclists. Therefore, the design of this project does not specifically address providing sidewalks to accommodate pedestrians or paved surfaces to accommodate bicycles.

Although there are no locations where the project design for the build alternatives provides sidewalks, the frontage roads between Halls Ferry Road and Old SR 27 are locations of substantial length where the paved shoulders could be marked to accommodate bicyclists. For safety reasons related to having an isolated bicycle accommodating frontage road system connected to a non-accommodating local road network, the bicycle accommodations must be made on the intersecting and crossing local roads before they are made on the frontage roads.

Between Halls Ferry Road and Old SR 27, the concepts for the build alternatives recognize the severe terrain adjacent to the frontage road system, and the need to perform as much of the reconstruction as possible within existing right of way. The added lane on the frontage road is placed on the inside adjacent to the mainline interstate; retaining walls, as needed, will be located between the mainline interstate and the frontage road; paved shoulders will be provided for the new frontage road lane adjacent to the interstate and for the outside frontage road lane; a curb and gutter/storm sewer type section is proposed for the inside and outside lanes of the frontage road; and, a grassed or paved area will be provided behind the curb for the outside frontage road lane. If additional information is needed, see the roadway sections for Build Alternative B in **Appendix D** and Build Alternative C in **Appendix E**.

The frontage roads between Halls Ferry Road and Old SR 27 have considerable adjacent and nearby commercial and residential development. Frontage road right turning traffic to intersecting streets and driveways will use the paved shoulder for decelerating and turning. Considerable more motor vehicle/bicycle conflicts per mile would be expected on the frontage

roads between Halls Ferry Road and Old SR 27 than on the local network routes that intersect and cross the build alternatives. Until the bicycle accommodations are provided on the intersecting and crossing local road network, there is no need from a traffic safety perspective to provide the accommodations on the isolated frontage roads. These are the reasons for requiring the bicycle accommodation implementation on the intersecting and crossing local road network between Halls Ferry Road and Old SR 27 before implementing the accommodation on the frontage roads.

No Build Alternative

The No Build Alternative would have no effect, beneficial or adverse, upon pedestrians or bicyclists.

Build Alternatives B and C

In the State of Mississippi, pedestrians and bicyclists are not authorized on the interstate or the collector-distributor roads. Sidewalks for accommodating pedestrians and pavement surfaces marked for accommodating bicyclists do not currently exist within or near the limits of this study. Due to the severe terrain and right of way limitations, it is very unlikely that provisions for sidewalks or marked bicycle lanes will be made in the foreseeable future on the build alternatives' intersecting or crossing routes. The severe terrain and right of way impacts make it impractical to consider adding a recreational trail along or near the interstate right of way for pedestrians and bicyclists. For these reasons, the design of this project does not specifically address providing sidewalks to accommodate pedestrians or marking paved roadway surfaces to accommodate bicyclists. However, if the City of Vicksburg provided adequate pavement widths for the placement of bicycle accommodation markings on their surface transportation network intersecting the frontage roads between Halls Ferry Road and Old SR 27, the paved shoulders proposed on the frontage roads for the build alternatives could be marked to accommodate bicyclists.

4.6 Air Quality

The Clean Air Act (CAA), last amended in 1990, requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. Warren County is located in USEPA

Region 4. The USEPA has classified Warren County as being an attainment area for all NAAQS criteria pollutants.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon air quality in the project area.

Build Alternatives B and C

Air emissions would result from construction activities within the corridors for the three build alternatives. Potential emissions from construction equipment include nitrogen oxide (NO), sulfur dioxide (SO₂), carbon monoxide (CO), hydrocarbons (HC), and particulate matter (PM). However, these emissions would be of a relatively small amount and would have a short-term impact.

Proper and routine maintenance of all construction equipment would be implemented to ensure that air emissions are within the design standards of the piece of equipment. Project-related emissions would be minimized by the implementation of Best Management Practices (BMPs) in the form of a truck-watering program for dirt surfaces, construction curtailed in times of high winds and efficient utilization of equipment to minimize the amount of time engines are left idling.

Once the proposed project has been completed, the traffic along this alternative would have negligible air quality impacts.

4.7 Noise

A separate technical report titled Noise Study Report, Interstate 20 Improvements, Vicksburg, Mississippi was prepared and is included as a supplement to this document as **Appendix I**.

The noise study technical report contained in **Appendix I** was completed prior to the Value Engineering (VE) Study. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange and results in no estimated right of way being needed from the three impacted parcels in the northwest portion of

the interchange. Eliminating the need for additional right of way from the three impacted parcel, slightly shifted the westbound traffic on I-20 and the North Collector Distributor Road towards the median. Between US 61 North and Clay Street on the Vicksburg National Military Park side of the combined Clay Street/US 80/US 61 North/SR 27 Interchange, the slight shift created an insignificant minor decrease in the noise impacts on the north side of I-20 and an insignificant minor increase in the noise impacts on the south side of I-20. The insignificant minor decreases and increases of noise impacts in this area do not require an addendum to the noise study report contained in **Appendix I**.

The noise study methods and results are covered in detail in the noise study report contained in **Appendix I**; however, the noise study is summarized in the following paragraphs.

Fundamentals of Sound and Noise

The intensity or loudness of sound is measured in units called decibels (dB). However, since the human ear does not hear sound waves of different frequencies at the same subjective loudness, an adjustment or weighting of the high-pitched and low-pitched sounds is made to approximate how an average person hears sounds. When such adjustments to the sound levels are made, they are called “A-weighted levels” and are usually labeled “dBA.”

Noise is defined as unwanted sound. Since highway traffic sound is normally unwanted, highway traffic sound is usually called highway traffic noise. The level of highway traffic noise is never constant; therefore, it is necessary to use a statistical descriptor to describe the varying traffic noise levels. The equivalent continuous sound level (Leq) is the statistical descriptor used in this report. The Leq sound level is the steady A-weighted sound level which would produce the same A-weighted sound energy over a stated period of time as specified time-varying sound.

Noise Impact Criteria

Title 23 of the Code of Federal Regulations, Part 772 (23 CFR 772) defines traffic noise impacts as “impacts which occur when the predicted traffic noise levels approach or exceed the Noise Abatement Criteria (NAC) or when the predicted traffic noise levels substantially exceed the existing noise levels.” **Table 4-5** indicates the criteria for residential and commercial facilities.

Table 4-5
Noise Abatement Criteria
Hourly A-Weighted Sound Levels – Decibels (dBA)

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

Source: Title 23 of the Code of Federal Regulations, Part 772 (CFR 772)

A memorandum dated December 1, 1993 from the Director, Office of Environment and Planning, Federal Highway Administration, states that, “effective from the date of this memorandum, all State Highway Agencies must establish a definition of 'approach' that is at least 1 dBA less than the NAC for use in identifying traffic noise impacts in traffic noise analysis.” Therefore, MDOT has defined “approach” to be 1 dBA less than the NAC. MDOT has also defined a substantial increase in traffic noise levels to be 15 dBA or more.

Noise Level Measurements

Noise level measurements were recorded at 20 sites in the vicinity of the proposed alignments on March 25 through April 1, 2010 using a Quest-Model 2500 sound level meter during hours of maximum traffic volume. These sites are illustrated in **Figures 4** through **7** of the noise study report contained in **Appendix I** as Noise Receivers 3, 5, 6, 9, 13, 14, 17, 23, 36, 49, 53, 66, 68, 77, 79, 87, 93, 107, 108, and 114. The sound level meter was checked with an acoustical calibrator before and after each noise level measurement was taken. The results of the measurements are listed in **Table 3** of the noise study report contained in **Appendix I**.

Noise Level Estimates

Estimates were made for existing (2007) conditions, design year (2040) conditions if Alternative B is constructed, design year (2040) conditions if Alternative C is constructed, and design year (2040) conditions if neither of the proposed alternatives is constructed (Alternative A). In making these estimates the traffic volume, operating speed, and terrain were considered. The results are given in **Table 3** of the noise study report contained in **Appendix I**.

Traffic

Paragraph b, Section 772.17 of 23 CFR 772 says that, “in predicting noise levels and assessing noise impacts, traffic characteristics which will yield the worst hourly traffic noise impact on a regular basis for the design year shall be used.” Since the level of highway traffic noise is normally related directly to the traffic volume, the traffic characteristics which will yield the worst hourly traffic noise impact on a regular basis for the design year will be the average hourly volume for the highest hour of each day of the design year. For this study, the heaviest peak hour traffic volume predicted by a traffic analysis of the concepts was used.

The traffic study found that the interstate and frontage roads in Vicksburg have one dominate peak hour occurring during the late afternoon. No clear AM or mid-day peak hour was observed in the traffic analysis. Instead, it was noted that there is consistent and steady increase in traffic throughout the day that culminates in a PM peak hour. **Figures 8** through **23** of the noise study report contained in **Appendix I** provide: the existing (2007) PM peak hour traffic volumes; the projected 2040 PM peak hour no build traffic volumes; the projected 2040 PM peak hour traffic

volumes for Alternate B (one-way ultimate frontage roads); and, the projected PM peak hour traffic volumes for Alternate C (two-way ultimate frontage roads).

Existing Noise Environment

Sixty-eight commercial properties, thirty residences, fourteen hotels, two churches, a Mississippi Welcome Center, and two receivers located within the Vicksburg National Military Park are included in the noise analysis. Based on the estimated Leq dBA, fifteen of the 117 sites are currently impacted by traffic noise. The two military park receivers were not in the group of the fifteen receptors currently having noise impacts.

No Build Alternative

The No Build Alternative would have no beneficial effects upon noise levels in the project area.

In the year 2040 for the No Build Alternative, the Leq noise levels from highway traffic at the occupied facilities located along the route of the proposed project are expected to be an overall average of 2.7 dBA higher than the existing noise levels.

Of the 117 sites examined, 35 sites consisting of 16 residences, two churches, 13 commercial facilities, three hotels, and the welcome center are expected to receive traffic noise impacts for the No Build Alternative in the 2040 design year if the proposed project is not constructed due to increased traffic volumes.

Build Alternative B

If Alternative B is constructed, the Leq noise levels in 2040 are expected to be higher in most cases than the existing noise levels. An overall average increase of 2.9 dBA over existing levels is predicted.

Of the 117 sites examined, 35 sites consisting of 20 residences, two churches, 10 commercial facilities, two hotels, and the welcome center are expected to receive traffic noise impacts in the 2040 design year. However, four of the residences receiving noise impacts are displacements. Excluding the displacements, 31 of the 117 sites examined for Build Alternative B will have noise impacts in the 2040 design year.

Noise from construction would occur during daylight hours (Monday through Friday) and should; therefore, not be a nuisance to nearby residences or sensitive receptors during evening, nighttime, or weekend hours. The contractor shall comply with all state and local sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine used for any purpose on work related to the project shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without such muffler. The increases in ambient noise levels would be temporary in nature.

Temporary construction noise impacts vary noticeably because the noise intensity of construction equipment ranges widely as a function of the equipment and its level of activity. Short-term construction noise impacts tend to occur in distinct phases generated initially by large earthmoving or bridge building equipment and later by hand-operated tools for finish construction. The noise produced by an assemblage of heavy equipment involved in construction typically ranges up to about 89 dBA at 50 feet from the source. Construction personnel would be exposed to noise levels up to 90 dBA during their work day and would be required to wear ear plugs in order to prevent hearing loss.

Noise barriers are the primary form of traffic noise abatement considered for the proposed build alternatives. Noise levels are reduced by noise barriers consisting of concrete, wood, metal, earth, or vegetative barriers blocking the sound path between roadways and noise-sensitive areas. They are generally used on high-speed, limited-access facilities where noise levels are high and adequate room for barriers is available.

MDOT summarizes its noise reduction criteria in their June 18, 1996 Highway Traffic Noise Policy. Their guidelines were considered for evaluating the feasibility and reasonableness of noise barriers. However, a review of the MDOT guidelines and the predominantly commercial nature of the study area determined a barrier analysis is unnecessary because: all impacted commercial properties have access requirements that eliminate noise barriers as an effective mitigation; the impacted residences in both alternatives are widely dispersed or have access requirement; and, proper barriers in terms of height and length providing significant noise reduction are cost-prohibitive.

The FHWA requires that various noise abatement measures be considered when the noise levels of a proposed roadway approach or exceed NAC. The following measures in addition to noise barriers were considered for the proposed project:

- *Transportation system management (TSM)* is not appropriate for noise abatement due to the negative effects on the capacity and level-of-service on the proposed roadway for a minimal level of noise reduction.
- *Vegetation* used for noise barriers is not reasonable or feasible for reducing noise levels for this project due to the substantial amount of right-of-way necessary to make vegetative barriers effective.
- *Earthen berms* are not considered a feasible abatement for this project because they are limited by right-of-way and other engineering considerations (e.g., drainage, access, and future development).
- *Land use controls* to minimize future impacts are one of the most effective noise abatement measures. Local jurisdictions with zoning control could use the information contained in the final noise evaluation to develop policies limiting the growth of noise-sensitive land uses adjacent to the interstate such as setback requirements, building codes, and zoning.

With one possible exception, barriers and the other measures were determined to be impractical or cost prohibitive. Land use controls appear to be the most viable option for reducing future noise impacts. Vicksburg/Warren County should consider reviewing their zoning control against the information contained in the final noise evaluation to develop or revise their policies to limit the growth of noise-sensitive land uses adjacent to the interstate.

If additional information is needed, refer to the noise study report contained in **Appendix I**.

Build Alternative C

If the proposed Alternative C is constructed, the Leq noise levels in 2040 are expected to be higher in most cases than the existing noise levels. An overall average increase of 3.3 dBA over existing levels is predicted.

Under Build Alternative C for the 117 sites examined, 38 sites consisting of 21 residences, two

churches, 12 commercial facilities, two hotels, and the welcome center are expected to receive noise impacts in the 2040 Design Year. However, four of the residences, one commercial facility and one hotel receiving noise impacts are displacements. Excluding the displacements, 32 of the 117 sites examined for Build Alternative C will have noise impacts in the 2040 design year.

The construction noise impacts and measures that would be taken to minimize those impacts for Alternative C would be the same as that described for Alternative B. The land use control measure that could be taken by Vicksburg/Warren County to minimize the noise impacts of the completed Alternative C is the same as that previously described for Alternative B.

If additional information is needed, refer to the noise study report contained in **Appendix I**.

4.8 Water Quality

The project area is located within the Lower Mississippi-Natchez watershed, hydrologic unit code 08060100. Two water quality analysis reports are prepared by the Office of Pollution Control of the Mississippi Department of Environmental Quality MDEQ in order to meet the requirements contained in the Clean Water Act (CWA) of 1977. These reports include the 305(b) Water Quality Assessment Report and the 303(d) List of Impaired Waterbodies. The primary purpose of these reports is to assess the water quality of the state's streams, lakes, and estuaries.

Section 305(b)

The 305(b) Report is prepared to describe for the USEPA, the U.S. Congress, and the public the status of the quality of Mississippi's waters. The report details the causes and sources of pollution, pollution control programs for point and non-point sources, any environmental improvements over the past two years, the water quality monitoring program and/or special studies, groundwater quality issues, and recommendations for needed studies, programs and/or funding. No water segments within the project area are included in the 305(b) Report (MDEQ 2010a).

Section 303(d)

The Section 303(d) List of Impaired Waterbodies is prepared by MDEQ to identify all waterbodies within the state where water quality standards are not met and the designated use is impaired. This list also establishes a priority ranking system of the impaired waters and develops total maximum daily loads (TMDLs) for those pollutants impairing any use of the waterbody. Sources of data for this list include monitored and evaluated assessments from various water quality programs. No waterbodies in the project area are included on the Section 303(d) List of Waterbodies (MDEQ 2010b).

None of the surface waters traversed under the build alternatives are identified by MDEQ in the 305(b) Water Quality Assessment Report or the 303(d) List of Impaired Waterbodies. Special consideration should be used during construction phases in order to minimize the potential of impairing the streams and ponds in the project area. Runoff control measures would be installed at the time of construction to reduce runoff pollution both during and after construction. Such measures would effectively limit the entry of pollutants into surface waters and protect their quality, fish habitats, and public health (MDEQ, 2004a) (MDEQ, 2004b).

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon water quality within the project area.

Build Alternatives B and C

Impacts to water quality are possible during construction phases of the build alternatives. Erosion during and after the construction of the proposed interstate and associated bridges can contribute large amounts of sediment and silt to runoff waters, resulting in deteriorated water quality. Surface water runoff could increase turbidity, lower dissolved oxygen, and increase biological oxygen demand in receiving waterbodies. Heavy metals, oils, other toxic substances, and debris from construction traffic and spillage can be absorbed by soil at construction sites and carried with runoff water. **Table 4-6** lists the pollutants commonly found in runoff from roads, highways, and bridges and their sources.

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Through MDOT contact with the MDEQ,

Table 4-6
Typical Pollutants Found in Runoff from Roads and Highways

Pollutant	Primary Source
Particulates	Pavement wear, vehicles, maintenance
Nitrogen & Phosphorus	Roadside fertilizer application
Lead	Leaded gasoline (auto exhaust), tire wear (lead oxide filler material), lubricating oil and grease, bearing wear
Zinc	Tire wear (filler material), motor oil (stabilizing additive), grease
Iron	Auto body rust, steel highway structures (guard rails, bridges, etc.), moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicides and insecticides
Cadmium	Tire wear (filler material), insecticide application
Chromium	Metal plating, moving engine parts, break lining wear
Nickel	Diesel fuel and gasoline (exhaust), lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt surface leachate

Source: USEPA 1993.

construction measures will be determined for minimizing water quality impacts at locations with impaired or monitored water bodies. The TMDL development status for any waterways in the study area will be identified and evaluated to determine the proposed project's affect on implementation of restoration efforts in these watersheds. BMPs would be implemented to minimize the potential for erosion and sedimentation during construction. Trained construction inspectors will implement and maintain Best Management Practices (BMPs) in an effort to prevent further degradation of the watershed and to address TMDL concerns.

Because the project area encompasses more than one acre, a Mississippi Stormwater

Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

With the proper use of BMPs, impacts to water quality from Alternatives B and C would be short and long term and minimal.

4.9 Water Resources

4.9.1 Surface Water

The project area is located within the Lower Mississippi-Natchez watershed, hydrologic unit code 08060100, of the Lower Mississippi River Basin. The major surface water feature within the watershed is the Mississippi River. The Lower Mississippi River Basin drains an area of 548 square miles in Mississippi (USGS 2006).

The project area contains 31 unnamed streams of perennial, intermittent, and ephemeral classification and two man-made ponds. All of the streams in the proposed project area flow into either Durden Creek or Hatcher Bayou. Both of these flow into Hennessey's Bayou which flows into the Mississippi River.

The potential Waters of the U.S. impacts for the perennial, intermittent, and ephemeral streams along with the one man-made pond traversed by the build alternatives are summarized in **Table 4-7** contained in Section 4.10 (Wetlands and Waters of the U.S.). Impacts to surface waters are also addressed in Sections 4.8 (Water Quality) and 4.10 (Wetlands and Waters of the U.S.).

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon surface water within the project area.

Build Alternative B

Approximately 3,826 linear feet of perennial streams, 2,680 feet of intermittent streams, and 4,411 linear feet of ephemeral streams along with one man-made 0.67 acre pond would be

potentially impacted by Alternative B. These potential impacts are depicted on **Figure 4-1** contained in Section 4.10 (Wetlands and Waters of the U.S.).

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs to reduce erosion and sedimentation impacts.

Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

With the proper use of BMPs, impacts to surface waters within the project area from the implementation of Alternative B would be long term and minimal.

Build Alternative C

Approximately 3,826 linear feet of perennial streams, 2,767 feet of intermittent streams, and 4,964 linear feet of ephemeral streams along with one man-made 0.67 acre pond would be potentially impacted by Alternative C. These potential impacts are depicted on **Figure 4-2** contained in Section 4.10 (Wetlands and Waters of the U.S.).

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs to reduce erosion and sedimentation impacts.

Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

With the proper use of BMPs, impacts to surface waters within the project area from the implementation of Alternative C would be long term and minimal.

4.9.2 Groundwater

The project area is located within the limits of the Southern Hills Regional Aquifer System (USGS 1983). The Southern Hills aquifer extends through southwest Mississippi and southeast Louisiana. Recharge to this system generally occurs from precipitation in the recharge areas to the north. Ground-water flow is generally towards the south and east. Because of its regional importance, the Southern Hills aquifer system is designated as a sole-source aquifer by the USEPA (USEPA 2005).

The Middle Claiborne aquifer, found within the project area, is an aquifer within the Southern Hills Regional Aquifer System. This aquifer is confined by overlying and underlying prodelta and marine shelf deposits of clay, mud, marl, and shale. In Mississippi the Middle Claiborne aquifer is greater than 1,000 feet thick, although it generally ranges from 200 to 800 feet thick over most of its distribution (USGS 1998). The aquifer is recharged primarily by ground water movement caused by precipitation. The Middle Claiborne aquifer is not designated by the USEPA as a sole source aquifer (USEPA 2005).

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon ground water within the project area.

Build Alternatives B and C

Accidental spills of fluids used in construction equipment would potentially affect groundwater quality. Safe handling of hazardous construction materials, in accordance with all local, state, and federal regulations, and maintaining construction equipment in good working order would minimize the potential for leaks and spills of hazardous materials and consequent water contamination. No impacts to groundwater are anticipated as a result of either build alternative.

4.10 Wetlands and Waters of the U. S.

Background

The objective of the CWA is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the U.S., including deepwater habitats, special aquatic sites, and wetlands. The U.S. Army Corps of Engineers (USACE) has the authority to make decisions regarding the jurisdictional status of a wetland. Therefore, the USACE should be contacted prior to disturbance of any area identified in this report. Areas of the subject property which are determined to be waters of the U.S. and which meet the wetland criteria outlined in the 1987 USACE Wetlands Delineation Manual (USACE 1987) are hereafter referred to as potential jurisdictional wetlands.

The USACE manual defines wetlands as:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

In order for an area to be considered a jurisdictional wetland by the USACE, it must have evidence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances (site not altered in the last 5 years), the absence of any one of these three parameters results in a non-jurisdictional determination. If disturbed conditions are present, then consideration must be given to what conditions would have been present had the disturbance not occurred.

Methods

Survey area boundaries were determined utilizing the most current preliminary design plans for the proposed alternatives. ERG biologists used aerial photography, the Soil Survey of Warren County, Mississippi (USDA 1964), and a local list of hydric soils, along with a field survey to produce an accurate determination of the potential jurisdictional wetlands and waters of the U.S. within the project area.

An on-site inspection was conducted May 17-19 and December 14, 2010 by ERG biologists. The area surveyed was an approximately 5.5 mile long corridor along Interstate 20. Potential

jurisdictional waters of the U.S. were identified within the project area. A total of 14 ephemeral streams, 9 intermittent streams, 8 perennial streams, and 1 man-made pond were identified during the field effort. No jurisdictional wetlands were observed. **Figure 4-1** for Alternative B and **Figure 4-2** for Alternative C depict the potential waters of the U.S. impacts for the identified streams and ponds. The potential impacts on these features are summarized in **Table 4-7**.

The Value Engineering (VE) Study was conducted after the on-site inspection and after **Figures 4-1, 4-2** and **Table 4-7** were prepared. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange. The implementation of the selected ideas resulted in no estimated right of way being needed from the three impacted parcels in the northwest portion of the interchange. By the MDOT not having to acquire the three parcels of additional right of way totaling 2.831 acres, minor potential stream impacts were eliminated in this area. The minor decrease in estimated potential waters of the U.S. impacts does not require an addendum report.

A jurisdictional determination to verify these findings has not been requested from the USACE. A formal wetland delineation should be prepared and the delineation report submitted to the USACE, Vicksburg District requesting a jurisdictional determination indicating their concurrence with our findings. Consultation with the Vicksburg District would then continue until the necessary Department of Army permits are obtained. The USACE has the authority to make the final decision regarding the jurisdictional status of waters of the U.S. or wetlands within the project area.

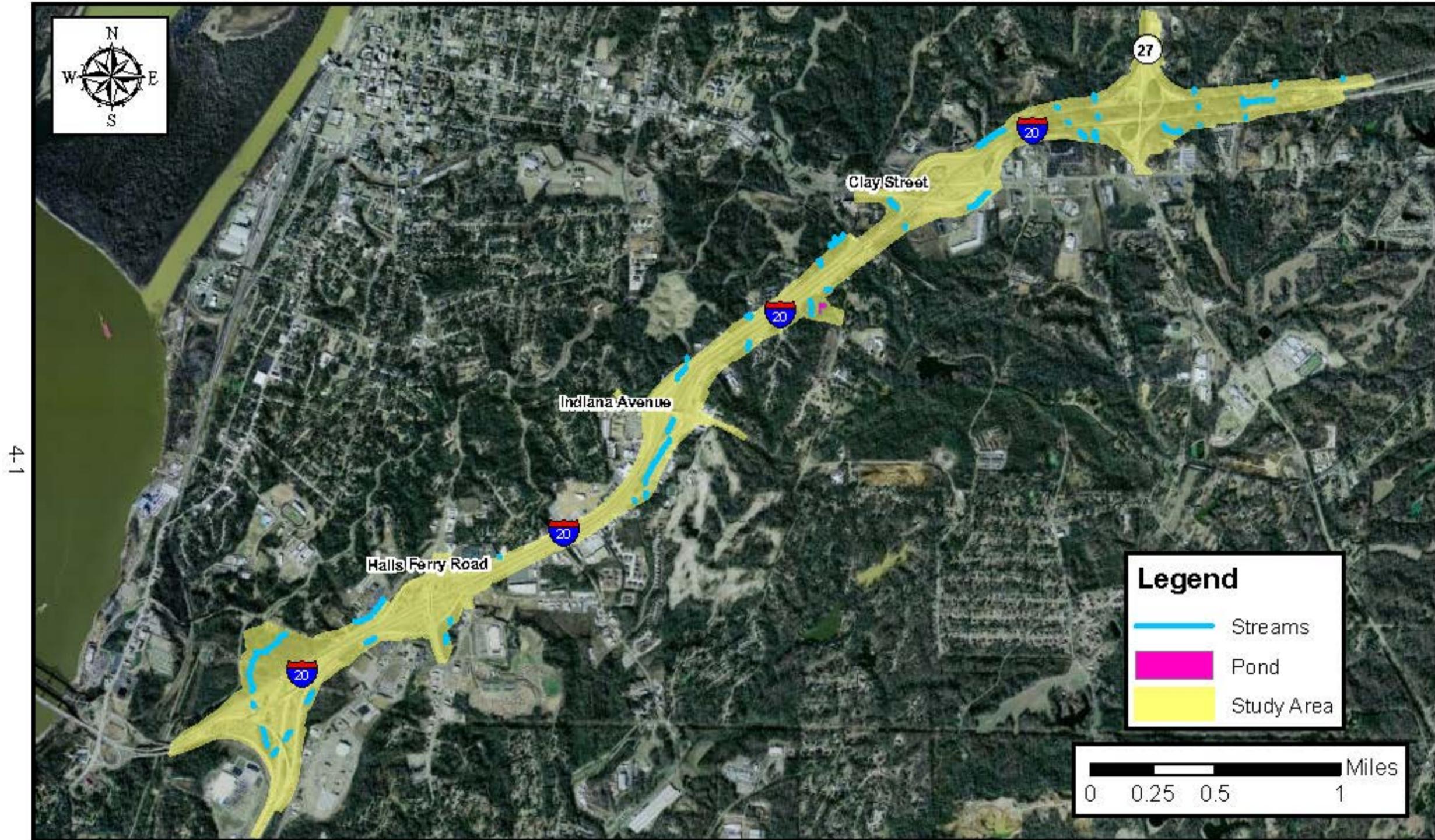
No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon jurisdictional waters of the U.S. or wetlands within the project area.

Build Alternative B

Alternative B would involve standard construction activities including ditching and adding culverts and bridges for the interstate system improvements and ROW. Implementation of Alternative B would impact 10,917 feet of streams (see **Figure 4-1** and **Table 4-7**). These impacts represent the worst-case scenario.

Figure 4-1. Alternative B Water Features

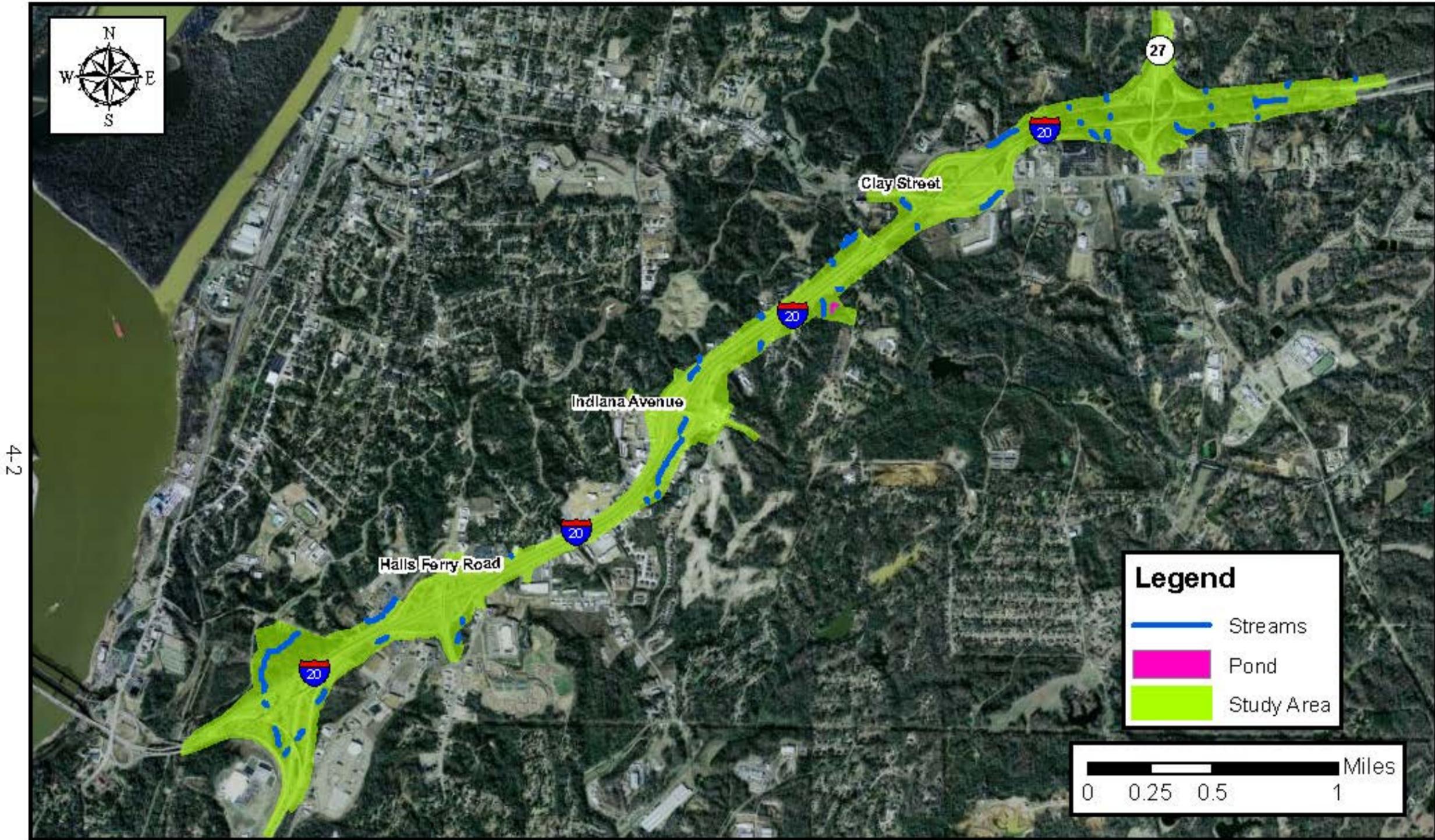


4-1

Environmental Research Group, LLC.

Date: April 5, 2011

Figure 4-2. Alternative C Water Features



Environmental Research Group, LLC.

Date: April 5, 2011

Table 4-7
Waters of the U.S. Impacts by Alternative

Alternate B	Waters of the U.S.	Number of Segments	Linear Feet	Acres
Streams	Ephemeral	11	4,411	
	Intermittent	9	2,680	
	Perennial	8	3,826	
Ponds				0.67
	TOTAL	28	10,917	0.67
Alternate C	Waters of the U.S.	Number of Segments	Linear Feet	Acres
Streams	Ephemeral	14	4,964	
	Intermittent	9	2,767	
	Perennial	8	3,826	
Pond				0.67
	TOTAL	31	11,557	0.67

Environmental Resource Group, 2010.

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs. The placement of fill associated with this action will require a permit from the USACE under Section 404 of the Clean Water Act of 1977. To offset the loss of wetlands and streams, mitigation credits would be purchased from U.S. Army Corps of Engineers approved mitigation banks.

Impacts to waters of the U.S. from Alternative B are expected to be long term and minimal.

Build Alternative C

Alternative C would involve standard construction activities including ditching, adding culverts and bridges, and diversion of streams for the interstate improvements and ROW. Implementation of Alternative C would impact 11,557 feet of streams (see **Table 4-7 and Figure 4-2**). These impacts represent the worst-case scenario.

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs. The placement of fill associated with this action will require a permit from the USACE under Section 404 of the Clean Water Act of 1977. To offset the loss of wetlands and streams, mitigation credits would be purchased from U.S. Army Corps of Engineers approved mitigation banks.

Impacts to waters of the U.S. from Alternative C are expected to be long term and minimal.

4.11 Floodplains

Flood Insurance Rate Maps (FIRMs) for Warren County were analyzed to establish the locations of potential flood-prone areas within the project. Several areas within the vicinity of US 61 North/SR 27 found on Community Panel Number 28149C0302D are classified as “Zone A”, which are areas subject to inundation by the one percent annual chance flood event or 100-year flood.

The remainder of the project area is found on or near Community Panel Numbers 28149C0284D, 28149C0292D, 28149C0303D, and 28149C0304D. There are some areas classified as “Zone A” on these remaining four Community Panel Numbers. However, none of the “Zone A” classified areas on the four remaining panel numbers are within the existing or proposed project right of way.

The “Zone A” classified areas within the vicinity of the US 61 North/SR 27 Interchange that designate a flood zone (FEMA, 2010) are shown in **Appendix H** on the FIRMette prepared using Community Panel Number 28149C0302D.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon floodplains within the project area.

Build Alternatives B and C

A small portion of the common alignment for Alternative B and C at the eastern end of the project area is located in “Zone A” (Floodplain). **Figure 4-3** depicts the estimated 12.06 total acres in the Floodplain. 10.74 acres are within the existing right of way and 1.32 acres are in the estimated additional needed right of way. Flood studies will be utilized for the design of bridges, pipes and box culverts in accordance with the Federal Highway Administration (FHWA) floodplain impact requirements.

The City of Vicksburg’s Floodplain Management Ordinance requires a development permit for any excavation, or filling of an area greater than one acre within a floodplain (Vicksburg, 2006). Prior to construction, the MDOT will contact the City of Vicksburg Office of Buildings and Inspections and work with the City to either obtain the development permit or receive a variance from the permit requirement based on the procedures used in preparing the construction plans.

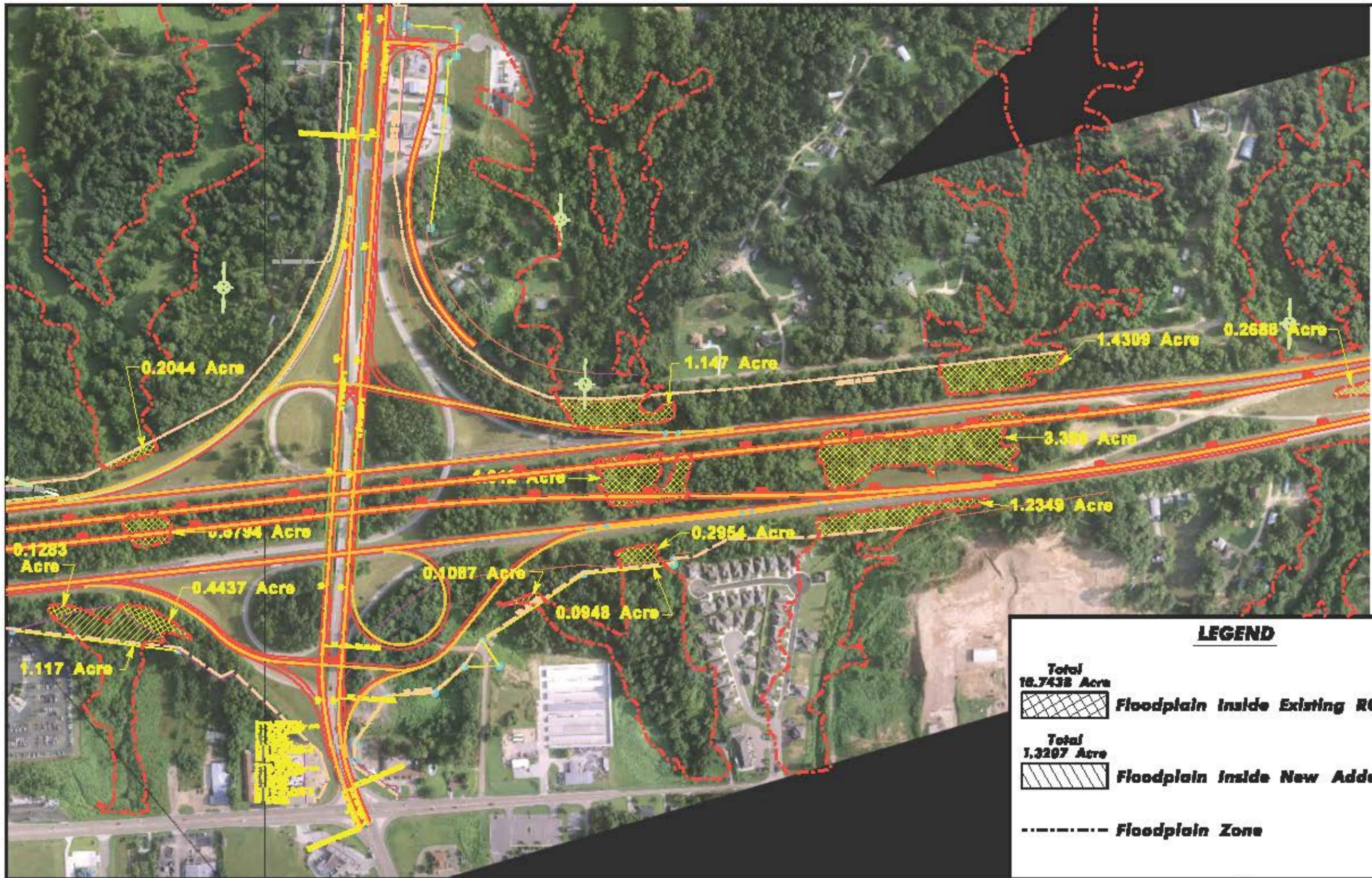
Direct impacts to floodplains for either Alternative B or C are expected to be permanent but minimal.

4.12 Wild and Scenic Streams

The Mississippi Scenic Streams Stewardship Act (Mississippi State Legislature Laws 1999, Chapter 381, §1, effective July 1, 1999) states that there exist in Mississippi many unique and diverse free-flowing rivers and streams which should be preserved, protected, and enhanced for the present and future benefit of Mississippi citizens. To qualify as eligible, the stream must possess unique or outstanding scenic, recreational, geological, botanical, fish, wildlife, historic or cultural values (MDWFP 2003). At the present time, there are no formally designated scenic streams in Warren County (MDWFP, 2003).

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon wild and scenic streams.



CADD
1"=400'

LEGEND

<p>Total 18.7438 Acres</p>	Floodplain Inside Existing ROW
<p>Total 1.3207 Acres</p>	Floodplain Inside New Added ROW
<p>----- Floodplain Zone</p>	

**I-20 and US 61 NORTH/SR 27 INTERCHANGE
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**Floodplain Impacts
Map**

Figure 4-3

Build Alternatives B and C

Because there are no formally designated scenic streams within or immediately adjacent to the project area, no impacts are anticipated as a result of the build alternatives.

4.13 Natural Environmental Resources

4.13.1 Vegetation

Warren County is located in the Lower Mississippi Riverine Forest Ecological Province as described by Rudis (1999). Typical vegetation community characteristics of the project area were recorded by ERG biologists during a site visit conducted on May 17-19, and December 14, 2010. The information recorded during the field visit and current aerial photography were used to classify each vegetation community. No unique or sensitive vegetation communities were located within the project area. A description of the vegetation communities is included in the following paragraphs.

4.13.1.1 Forested/Scrub-shrub

This community consists mainly of upland hardwood forest and scrub-shrub vegetation. Some forested areas are located within the existing ROW. The majority of forested land within the existing ROW occurs at the eastern end of the project area where Interstate 20 has a wide, forested median between the east and west bound lanes.

Climax vegetation in these upland hardwood forests is broadleaf deciduous trees with few interspersed conifers. Common trees of this community include American sycamore (*Platanus occidentalis*), slippery elm (*Ulmus rubra*), black locust (*Robinia pseudoacacia*), red mulberry (*Morus rubra*), southern red oak (*Quercus falcata*), white oak (*Quercus alba*), hickory (*Carya* sp.), blackgum (*Nyssa sylvatica*), red maple (*Acer rubrum*), winged elm (*Ulmus alata*), and loblolly pine (*Pinus taeda*). Black willow (*Salix nigra*) and sugarberry (*Celtis laevigata*) are also found along streams. Common grasses include bluestem (*Andropogon* sp.) and panicums (*Panicum* sp.). Common shrubs include flowering dogwood (*Cornus florida*), Chinese privet (*Ligustrum sinese*), Eastern redbud (*Cercis canadensis*), and American beautyberry (*Callicarpa americana*). Vines such as Japanese honeysuckle (*Lonicera japonica*) and poison ivy (*Toxicodendron radicans*) are common.

The shrub-scrub type areas found within the project area consists of altered habitat resulting in early successional type vegetation. These areas are in various states of transition into the upland hardwood forest as described above. Common vegetation found within scrub-shrub areas consist of elderberry (*Sambucus canadensis*), black cherry (*Prunus serotina*), sweetgum (*Liquidambar styraciflua*), sumac (*sumac sp.*), blackberries and dewberries (*Rubus sp.*), bluestems (*Andropogon sp.*), goldenrod (*Solidago sp.*) and other early successional species.

4.13.1.2 Maintained

Maintained ROW within the project area refers to areas that are within the existing ROW that receive regular maintenance such as mowing, hand and mechanical clearing, and/or herbicide applications. The vegetation within maintained ROW consists of early successional type communities that are dominated by grasses and annual vegetation.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon vegetation within the project area.

Build Alternative B

Road construction may result in removal and permanent loss of all existing vegetation. Alternative B could impact up to 164.25 acres of forest land and 402.73 acres of maintained land (See **Table 4-1**). A total of 17.55 acres within Alternative B is classified as commercial or residential and has limited to no native vegetation; therefore, was not considered an impact.

BMPs would be implemented to minimize the potential for erosion and sedimentation during construction. Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Overall impacts to vegetation are not considered significant based on the presence of similar vegetation communities adjacent to the proposed project corridor. Therefore, implementation of Alternative B would have a minor affect on vegetation communities on a regional basis. Direct

impacts to vegetation by implementation of Alternative B are expected to be long term and minimal.

Build Alternative C

Road construction may result in removal and permanent loss of all existing vegetation. Alternative C could impact up to 166.98 acres of forest land and 402.73 acres of maintained land (See **Table 4-1**). A total of 27.91 acres within Alternative C is classified as commercial or residential, and has limited to no vegetation; therefore, was not considered an impact.

BMPs would be implemented to minimize the potential for erosion and sedimentation during construction. Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Overall impacts to vegetation are not considered significant based on the presence of similar vegetation communities adjacent to the proposed project corridor. Therefore, implementation of Alternative C would have a minor affect on vegetation communities on a regional basis. Direct impacts to vegetation by implementation of Alternative C are expected to be long term and minimal.

4.13.2 Wildlife

For this EA, existing conditions of wildlife communities were assessed and documented through a combination of direct field surveys, aerial photo interpretation, and a review of existing literature. Wildlife within the project area is highly influenced by the existing roadways and urbanization of the area. Wildlife use adjacent areas for permanent inhabitation, seasonal inhabitation, migratory routes, temporary shelter, and/or foraging. The study area also contains numerous creeks that are used by a wide variety of wildlife.

4.13.2.1 Terrestrial Species

The project area is located within the Lower Mississippi Riverine Forest Ecological Province. Common fauna of the Lower Mississippi Riverine Forest Province varies with the age of the forest, percent of deciduous trees, proximity to openings, and presence of bottomland forest types. Whitetail deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), striped skunk (*Mephitis mephitis*) and rabbits (*Sylvilagus floridanus* and *Sylvilagus aquaticus*) are common. The fox squirrel (*Sciurus niger*) is common when deciduous trees are present on uplands and gray squirrels (*Sciurus carolinensis*) live along drainages.

The eastern wild turkey (*Meleagris gallopavo*), bobwhite (*Colinus virginianus*), and mourning dove (*Zenaidura macroura*) are common throughout the province. Common songbird species include Northern cardinal (*Cardinalis cardinalis*), Carolina wren (*Thryothorus ludovicianus*), red-eyed vireo (*Vireo olivaceus*), wood thrush (*Hylocichla mustelina*), summer tanager (*Piranga rubra*), and hooded warbler (*Wilsonia citrina*).

Common forest snakes include the cottonmouth (*Agkistrodon piscivorus*), copperhead (*Agkistrodon contortrix*), common garter snake (*Thamnophis sirtalis*), timber rattlesnake (*Crotalus horridus*), and the speckled kingsnake (*Lampropeltis getula*). Fence (*Sceloporus* sp.) and glass lizards (*Ophisaurus* sp.) are also common.

Wildlife that was seen, heard, or sign was observed of while conducting the field survey include but are not limited to: cottonmouth (*Agkistrodon piscivorus*), rough green snake (*Ophedrys aestivus*), eastern box turtle (*Terrapene carolina*), Carolina wren (*Thryothorus ludovicianus*), hooded warbler (*Wilsonia citrina*), Kentucky warbler (*Oporornis formosus*), orchard oriole (*Icterus spurius*), white-eyed vireo (*Vireo griseus*), red-eyed vireo (*Vireo olivaceus*), wood thrush (*Hylocichla mustelina*), Northern cardinal (*Cardinalis cardinalis*), indigo bunting (*Passerina cyanea*), common grackle (*Quiscalus quiscula*), American crow (*Corvus brachyrhynchos*), Cooper's hawk (*Accipiter cooperii*), Mississippi kite (*Ictinia mississippiensis*), white-tailed deer (*Odocoileus virginiana*), and raccoon (*Procyon lotor*). Southeastern myotis (*Myotis austroriparius*) were observed roosting in two colonies in two separate culverts that convey streams under I-20.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon wildlife within the project area.

Build Alternative B

The reconstruction of the interstate and interchanges would widen the existing corridor and fragment habitat in the project area. Certain wildlife species prefer dense forest interiors and are adversely affected by activities that fragment habitat while other species prefer open forests and are benefited by activities that create habitat edges. Because the project area lies in close proximity to the City of Vicksburg and many surrounding areas have already been developed or altered, the additional impact on species requiring large, contiguous blocks of habitat by any of the alternatives is not expected to significantly affect regional wildlife populations.

The construction of new frontage roads, new collector-distributor roads and reconstruction of existing frontage roads would also result in increased animal mortality (roadkill). The direct loss of undeveloped land and associated vegetation communities would result in the displacement of wildlife and potential decline in species diversity and quantity in the general vicinity of the interstate. Impacts to wildlife associated with the alternatives generally would include a displacement of wildlife from the immediate area due to habitat alterations and fragmentation, as well as an increase in human/wildlife conflicts.

Implementation of the proposed Alternative B would include the direct loss of approximately 164.25 acres of undeveloped habitat that consists mainly of upland hardwood forest. Habitat loss and disturbance would be minor because of the linear nature of the project corridor and proximity of similar habitat adjacent to the project corridor. Direct and indirect impacts to wildlife by the implementation of Alternative B are anticipated to be long term and minimal.

Build Alternative C

The same types of impacts expected for Alternative B would also be expected for Alternative C. Implementation of the proposed Alternative C would include the direct loss of approximately 166.98 acres of undeveloped habitat within Alternative C that consists mainly of upland hardwood forest. Habitat loss and disturbance would be minor because of the linear nature of the project corridor and proximity of similar habitat adjacent to the project corridor. Direct and

indirect impacts to wildlife by the implementation of Alternative C are anticipated to be long term and minimal.

4.13.2.2 Aquatic Species

Aquatic communities within the project area consist of streams, creeks, ponds, and other waterways. While the aquatic communities lend diversity to the area, their overall contribution to wildlife habitat is diminished due to the fact that many of the waterways have been channelized during previous construction and now primarily exist to convey and discharge stormwater. Most of the streams flow into large culverts that cross beneath I-20. These streams are subject to extreme fluctuations in water level. Human trash and other debris occur within the water that flows within these systems. A summary of the aquatic communities present in the project area were summarized earlier in **Table 4-7** of Section 4.10 Wetlands and waters of the U.S.

Observation of aquatic wildlife within the streams located in the project area was difficult due to the high water turbidity of some of the streams. No sampling for aquatic vertebrates or invertebrates was performed as part of the field surveys. The streams and ponds have some small fish species, but no collection was made to determine species. Some surface invertebrates (beetles, crayfish, spiders, etc.) were seen in the streams and ponds. It is likely there could be benthic macroinvertebrate species in the sediments, but no sampling was performed.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon aquatic species within the project area.

Build Alternative B

Construction of Alternative B would include the direct loss of approximately 11,557 linear feet of streams and 0.67 acres of ponds. Portions of the stream banks and channels would be physically altered by Alternative B. This would involve trimming or removing trees growing on stream banks and riparian lands and the installation of bridges or culverts to allow for roadway

construction. Reducing the tree canopy near streams can increase the exposure of the channel to sunlight. The increased water temperatures can reduce the quality of the stream as habitat for some aquatic organisms. The reconstruction of this section of interstate would also have a potential to result in increased sediment runoff during construction.

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs to reduce erosion and sedimentation impact.

Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Direct impacts to aquatic communities by the implementation of Alternative B are expected to be long term and minimal.

Build Alternative C

Construction of Alternative C would include the direct loss of approximately 10,917 linear feet of streams and 0.67 acres of ponds. Impacts due to construction of Alternative C would be similar to those mentioned for Alternative B.

Construction materials will be stored and disposed of such that they are not discharged into or alongside of streams and other water bodies. Trained construction inspectors will implement and maintain BMPs to reduce erosion and sedimentation impact.

Because the project area encompasses more than one acre, a Mississippi Stormwater Construction General Permit will be required. Erosion control measures would be in accordance with this permit that must be obtained from the Office of Pollution Control of the MDEQ. The MDEQ would be contacted prior to the commencement of construction to acquire any other necessary permits.

Direct impacts to aquatic communities by the implementation of Alternative C are expected to be long term and minimal.

4.13.3 Section 4(f)/6(f) Lands

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC Section 303) requires that when federal funds are used on a project, the agency must consider the affect on Section 4(f) resources. Section 4(f) resources include publicly owned land of a public park, recreation area, wildlife and waterfowl refuges, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site).

Section 6(f) of the 1965 Land and Water Conservation Fund Act provides funding for acquiring property and developing public recreational facilities and also protects the loss of that property to other uses. Section 6(f) of the act states “no property acquired or developed with assistance under this section shall, without the approval of the Secretary be converted to other than public outdoor recreation uses.”

The Vicksburg National Military Park is the only Section 4(f) Land within the study area and there are no Section 6(f) Lands within the study area.

The Vicksburg National Military Park was established in 1899 by Congress as the fifth national military park. In 1933, the park was transferred from the U.S. Department of War to the U.S. Department of the Interior where it became the eighth oldest national park (NPS 2001). Over 1,340 monuments, a restored Union gunboat, and National Cemetery mark the 16-mile tour road. The current mission of the military park is, “To commemorate the campaign, siege and defense of Vicksburg and restore, protect, preserve, and interpret the unique cultural resources of Vicksburg National Military Park and Vicksburg National Cemetery.” (NPS 2001)

The Visitor Center for the military park is located on Clay Street slightly outside the northwestern limit of the I-20 Exit 4 Interchange for Clay Street and US 80. The Visitor Center is well outside the construction limits for the proposed Clay Street/US 80/US 61 North Interchange common to

the build alternatives. This proposed interchange would combine the I-20 Exit 4 Clay Street/US 80 Interchange with the I-20 Exit 5 US 61 North/SR 27 Interchange.

Although the initial construction of I-20 through Vicksburg between 1963 and 1973 divided or isolated some smaller areas of the Vicksburg National Military Park, the general location of the original I-20 construction was nearby the outer portion of the military park. The administration of many of the isolated or divided pieces of former military park property was later transferred to the City of Vicksburg.

City Ordinance Number 96-5 was adopted on September 25, 1996. One section of City Ordinance 96-5 was titled *Buffer Zone for Vicksburg National Military Park*. It was added to the Code of Ordinances for the City of Vicksburg as Section 404.11 under Article IV Regulations and placed in Appendix “A” Zoning.

Section 404.11 *Buffer Zone for Vicksburg National Military Park* states: “Around the perimeter of the Vicksburg National Military Park there shall be established a twenty-five-foot minimum buffer zone in which building or construction or parking is prohibited. Any proposed development occurring on property bordering the Vicksburg National Military Park properties or former Vicksburg National Military Park property currently held in title by the mayor and the alderman of the City of Vicksburg shall be presented to the building official for site plan review and approval in order to mitigate potential for any adverse effects. Subject to impact of proposed development, the city may require a developer to landscape the buffer zone between the proposed development and the park property or former military park property. The minimum allowable buffer zone shall be twenty-five (25) feet.”

The Code of Ordinances for the City of Vicksburg under Article V Administration of Appendix “A” Zoning addresses the procedures for obtaining variances and exceptions to the city ordinances.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon the Vicksburg National Military Park Section 4(f) properties.

No Section 6(f) properties are located in the project area. Therefore, the No Build Alternative would have no effect, either beneficial or adverse, upon Section 6(f) properties.

Build Alternatives B and C

The build alternatives would have no 4(f) impacts on the Vicksburg National Military Park. The following describes the coordination that occurred between the project development team, the City of Vicksburg officials and the Vicksburg National Military Park officials enabling the project development team to make this determination.

The design of the build alternatives enables the MDOT to make a commitment that the construction of the build alternatives will not require the MDOT acquisition of any current or former military park property. However, there are several locations along two segments of the build alternatives where variances or exceptions from the 25-foot minimum allowable buffer zone city ordinance might be needed due to the irregular nature of the military park right of way lines. The number of locations requiring variances or exceptions will not be known until after this study is completed when right of way plans are prepared for the alternative eventually selected for the reconstruction of this section of I-20. It is anticipated that either Build Alternative B or Build Alternative C will become the Selected Alternative.

The following describes the two segments containing possible locations where variance or exceptions to the 25-foot buffer ordinance might be needed.

- The first segment is the former military park property east right of way line for Iowa Boulevard to the south of Old US 80 where the reconstructed US 61 South Exit 1B Interchange requires additional right of way on the north side of I-20. The MDOT additional needed right of way in this area is currently private property.
- The second segment is the current military park property east of Indiana Avenue on the north side of the North Frontage Road between Indiana Avenue and the property currently occupied by the Excel Honda dealership. The construction “footprint” for the two build alternatives is slightly different in this segment. Build Alternative B does not require the acquisition of any additional right of way in this area while Build Alternative C requires the acquisition of the motel bordering current military park property.

The history of the project development team determining that two segments containing one or more locations would probably require variances or exceptions from the 25-foot buffer ordinance is addressed in detail in the coordination meetings documented in Sections 5.11, 5.15, 5.18, 5.19, 5.20, 5.21, 5.22 and 5.23 of this study. Some of these referenced coordination meetings only involved the project development team. The remaining referenced meetings had representatives from the City of Vicksburg and/or the Vicksburg National Military Park in attendance.

At the project development team meeting with City of Vicksburg officials on January 24, 2011, documented in Section 5.23 of this study, the City of Vicksburg officials advised this environmental/location study is not the proper time for them to address any requests for variances or exceptions to the 25-foot buffer ordinance. However, the City of Vicksburg officials agreed at that meeting to work with the MDOT and the Vicksburg National Military Park officials in addressing any needed exceptions to the 25-foot buffer ordinance during the later design phase. The City of Vicksburg and project team representatives concurred in the decisions because it is during the right of way acquisition phase when the MDOT could provide the City of Vicksburg field survey descriptions for all the locations where the construction limits for the selected alternative will encroach onto the 25-foot buffer; and, it is during the right of way phase when the MDOT would become the adjacent landowner for all locations where variances or exceptions would be needed.

The City of Vicksburg and the Vicksburg National Military Park officials have a long standing policy of discussing each request for variances or exceptions to the ordinance and agreeing on any conditions that must be met prior to the city's approval of such requests. Through reasonable and practical construction measures, the project development team commits to minimizing the number of locations requiring variances or exceptions from the 25-foot buffer ordinance. Therefore, a plan exists for addressing any needed requests for variances or exceptions to the ordinance later during the design phase for the Selected Alternative.

During the discussion of the build alternatives with the military park officials, they advised the project development team that some of the former military park land acquired for the original construction of the Indiana Avenue Exit 3 Interchange might no longer be needed for the build

alternatives. The military park officials also advised the project development team that the instrument under which that original right of way was acquired contains a clause which, in effect, states if military park property formerly acquired for the original construction of I-20 is determined to be no longer needed for transportation purposes, the ownership of the property no longer needed shall revert to the military park. The project development team obtained a copy of the instrument and verified the park officials were correct in what the instrument stated. After an alternative is selected under this study for the proposed reconstruction of I-20 and at the appropriate time during the design phase, the MDOT commits to return to the Vicksburg National Military Park the ownership of property originally acquired from the military park that is no longer needed for transportation purposes. If additional information is needed, refer to maps of the build alternatives contained in **Appendix L** documentation of the coordination meeting with City of Vicksburg officials held on January 24, 2011.

At the request of the Vicksburg National Military Park officials and based on their input, two noise receiver locations inside the park were included in the noise study for this project. The receivers inside the park were referenced as Noise Receiver 54 and Noise Receiver 55. These two receivers were located to the north of the North Frontage Road between Indiana Avenue and Old SR 27. **Figure 4-4** depicts the two receivers' location and **Table 4-8** summarizes the results of the noise study.

Noise Receiver 54: Union Avenue Southern Parking Lot

Noise Receiver 54 is located on the south side of Union Avenue, across the street from a visitor parking lot. Situated approximately 770 feet north of the centerline of I-20, Receiver 54 currently has an estimated noise level of 53.8 dBA (Leq). The noise level increases to 56.8 dBA for the no build alternative (Alternative A) in the 2040 Design Year. The increased noise level in the no build alternative is due exclusively to the predicted traffic growth on I-20, the frontage roads, Indiana Avenue and Confederate Avenue (Mission 66). The predicted traffic growth will occur regardless of any improvements along the I-20 corridor.

The Traffic Noise Model for the proposed I-20 improvements with one-way ultimate frontage roads (Build Alternative B) predicts a noise level of 56.3 dBA in the 2040 Design Year. Alternative B reflects an increase of 2.5 dBA over existing conditions, and a decrease of 0.5 compared to the no build alternative condition in the 2040 Design Year.



VICKSBURG NATIONAL MILITARY PARK
NOISE RECEIVER LOCATIONS

FIGURE 4-4

I-20 BETWEEN THE LOUISIANA STATE LINE
AND THE US 61 NORTH/SR 27 INTERCHANGE
PROJECT NO. IMD-0020-01(181) FM5:100367/00200

 **NEEL-SCHAFFER**
Solutions you can build upon

Table 4-8
Military Park Noise Receivers
Existing and 2040 Design Year Results for Alternatives

Noise Receiver	Primary Traffic Noise Source	Existing Estimated Leq (dBA)	2040 No Build Alt. Estimated Leq (dBA)	2040 Alt. B Estimated Leq (dBA)	2040 Alt. C Estimated Leq (dBA)
# 54 South of Union Ave.	I-20	53.8	56.8	56.3	57.6
# 55 Fort Garrett	I-20	48.7	51.6	52.1	53.2

Source: Neel-Schaffer 2011

The Traffic Noise Model for the proposed I-20 improvements with two-way ultimate frontage roads (Build Alternative C) predicts a noise level of 57.6 dBA in the 2040 Design Year. Alternative C reflects an increase of 3.8 dBA over existing conditions, and a 0.8 dBA increase compared to the no build alternative condition in the 2040 Design Year.

Noise Receiver 55: Fort Garrett

Noise Receiver 55 is located near the south side of the historic Fort Garrett. Situated approximately 1,500 feet north of the centerline for I-20, Receiver 55 currently has an estimated noise level of 48.7 dBA (Leq). The noise level increases to 51.6 dBA for the no build alternative (Alternative A) in the 2040 Design Year. The increased noise level is due solely to predicted traffic growth on adjacent roadways without any improvements.

The Traffic Noise Model for the proposed I-20 improvements with one-way ultimate frontage roads (Build Alternative B) predicts a noise level of 52.1 dBA in the 2040 Design Year. Alternative B reflects an increase of 3.4 dBA over existing conditions, and an increase of 0.5 dBA compared to the no build condition in the 2040 Design Year.

The Traffic Noise Model for the proposed I-20 improvements with two-way ultimate frontage roads (Build Alternative C) predicts a noise level of 53.2 dBA in the 2040 Design Year. Alternative C reflects an increase of 4.5 dBA over existing conditions, and an increase of 1.6 dBA compared to the no build condition in the 2040 Design Year.

Noise Receiver 54 provides a good representation of the noise impacts on current military park property nearest the two build alternatives for this study. The results of the entire noise study are summarized in Section 4.7 of this study. A copy of the entire noise study is contained in **Appendix I**.

Title 23 of the Code of Federal Regulations, Part 772 (23 CFR 772) defines traffic noise impacts as “impacts which occur when the predicted traffic noise levels approach or exceed the Noise Abatement Criteria (NAC) or when the predicted traffic noise levels exceed the existing noise levels.” A memorandum dated December 1, 1993 from the Director, Office of Environment and Planning, Federal Highway Administration, states that, “effective from the date of this memorandum, all State Highway Agencies must establish a definition of ‘approach’ that is at least 1 dBA less than the NAC for use in identifying traffic noise impacts in noise analysis.” Therefore, MDOT has defined ‘approach’ to be 1 dBA less than the NAC. MDOT has also defined a substantial increase in traffic noise levels to be 15 dBA or more.

Activity Category “B” was chosen to determine whether or not Noise Receivers 54 and 55 had noise impacts which approach or exceed the NAC. Motels, hotels, schools, churches, libraries, and hospitals are included in this category. 66 is the MDOT’s ‘approach’ Exterior Leq (dBA) value that must be exceeded for the military park receivers to be considered to have a noise impact. The existing and 2040 Design Year Leq (dBA) values for the two military park receivers are shown in **Table 4-8**. The two military park receiver locations for the No Build Alternative, Build Alternative B and Build Alternative C do not have existing or 2040 Design Year noise impacts.

At a coordination meeting with representatives of the Vicksburg National Military Park, the City of Vicksburg and the project development team in attendance, Mr. Michael Madell, the Park Superintendent, asked that consideration be given to the vibration impacts that construction of

the build alternatives could possibly have on monuments located inside the military park. For the build alternatives, vibrations are generated by the equipment used for reconstructing or constructing the roadway and bridges. However, the MDOT does not normally consider vibrations that occur outside their needed right of way as an impact. The MDOT commits to working with the military park officials to identify the monument(s) located within close proximity of the proposed right of way where special reasonable and practical construction procedures need implementing to minimize the military park officials concerns about seismic impacts. At any monument location where it is determined that such special measures need implementing, the MDOT commits to working with the military park officials in determining what special measures will be used and the distance from the monument(s) where the special construction procedures are no longer needed.

Based on project development team coordination with officials representing the City of Vicksburg and the Vicksburg National Military Park, an action plan exists for the build alternatives to have no 4(f) impacts on the military park.

Since no Section 6(f) properties were identified within the project area, the build alternatives would have no impacts on Section 6(f) properties.

4.14 Threatened and Endangered Species

4.14.1 Protected Species and Critical Habitats

The Endangered Species Act (ESA) [16 U.S.C. 1531 et. seq.] of 1973, as amended, was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All federal agencies or projects utilizing federal funding are required to implement protection programs for designated species and to use their authorities to further the purposes of the act. Responsibility for the identification of a threatened or endangered species and development of any potential recovery plan lies with the Secretary of the Interior and the Secretary of Commerce.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) are the primary agencies responsible for implementing the ESA. The USFWS is responsible for

birds and terrestrial and freshwater species, while the NMFS is responsible for non-bird marine species. The USFWS responsibilities under the ESA include: (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for, these species; and (4) consultation with other federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those which have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered endangered or threatened when any of the five following criteria occurs: (1) The current/imminent destruction, modification, or curtailment of their habitat or range; (2) Overuse of the species for commercial, recreational, scientific, or educational purposes; (3) Disease or predation; (4) The inadequacy of existing regulatory mechanisms; and (5) Other natural or human-induced factors affect continued existence.

In addition, the USFWS has identified "Species of Concern" that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information on hand to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

Critical habitat may be defined by the USFWS for each threatened or endangered species. Critical habitat is defined as a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection (USFWS 2002).

4.14.2 Federally-listed Species

A total of five federally protected species potentially exist within Warren County, Mississippi (USFWS 2010). Information pertaining to the distribution, status, and habitat requirements for the five protected species is included in **Table 4-9**. Field surveys for these species were conducted on May 17-19 and December 14, 2010.

Fat Pocketbook

The fat pocketbook mussel was historically found throughout the Mississippi River’s drainage. It is a broad, rounded, and slightly angular mussel with a smooth, yellowish, and frequently clouded with brown, exterior color. Fat pocketbooks occur primarily in sand and mud substrates, although the species has been found in fine gravel and hard_clay occasionally. Water depth ranges from a few inches to several feet. The fish host for this species is primarily freshwater drum (USFWS 2010). They are currently restricted to those portions of the Lower Mississippi River and its side channels that contain stable substrate despite dredging and channelization (USFWS 2000, 2006). No habitat exists for the fat pocketbook within the project area.

Table 4-9
Federally Listed Species and Species of Concern
Potentially Occurring in Warren County

Common Name Scientific Name	Federal Status	Year Listed	Habitat Description
Fat pocketbook (<i>Potamilus capax</i>)	E	1976	Large rivers with flowing water and stable substrate
Interior least tern (<i>Sterna antillarum</i>)	E	1985	Wide, clear river channels with sparsely vegetated sand and gravel bars
Pallid sturgeon (<i>Scaphirhynchus albus</i>)	E	1990	Large, muddy, free-flowing waters near banks of rock or sand
Louisiana black bear (<i>Ursus americanus luteolus</i>)	T	1992	Bottomland hardwood areas on large, relatively remote blocks of land
Southeastern myotis (<i>Myotis austroriparius</i>)	SC	NA	Roost sites include buildings, bridges, culverts, storm sewers, and hollow trees

Source: USFWS 2000 and 2010

Note: The Bald Eagle is now delisted; however, nesting bald eagles and their nest trees are protected by law under the Bald and Golden Eagle Act.

Legend: E - Endangered, T - Threatened, SC - Species of Concern, NA - Not Applicable

Interior Least Tern

The interior least tern migrates up the Mississippi River and lays its eggs directly on sandbars associated with the river. Hundreds of these birds may nest together to form a colony. The nesting/breeding season for terns is approximately May through July. Terns may change nesting sites from year to year depending on river levels (USFWS 2010). Nesting locations are usually high and away from the edge of the water because nesting starts when the river's water level is high and only small amounts of sand are exposed (USFWS 2006b). Least terns along the Lower Mississippi River have adapted to the always shifting volume of water and sand as sandbars are formed and washed away annually. Nest sites have been known to exist several hundred meters from the water and among sand and gravel pits and disposal areas. Due to the lack of large sand bars and sand or gravel pits, no least tern nesting habitat exists within the project area (USFWS 2006b).

Pallid Sturgeon

The pallid sturgeon is found in the lower Mississippi River, although it is rare throughout its range. These fish require large, turbid, free-flowing riverine habitats, and feed mainly on other fish. Sturgeons are usually found near the bottom of streams or lakes in sand flats or gravel bars. Little information is known on their spawning or migration habits (USFWS 2010). No suitable habitat exists for the pallid sturgeon within the project area.

Louisiana Black Bear

The Louisiana black bear occurs primarily in bottomland hardwood and floodplain forests along the Mississippi River and southern Mississippi. Although the bear is capable of surviving under a range of habitat types, some necessary habitat requirements include hard mast, soft mast, escape cover, denning sites, forested corridors, and limited human access (USFWS 2010). The historic range of the Louisiana black bear included southern Mississippi, all of Louisiana, and eastern Texas (Hall 1981). Due to the lack of bottomland hardwood forest and the lack of large travel corridors leading to the project area, no Louisiana black bear habitat exists within the project area.

Southeastern Myotis

Six species of bats are listed as endangered and 20 are considered species of special concern by the U.S. Fish and Wildlife Service (USFWS-MMNS 2010). Out of the 15 bat species found in Mississippi, two are endangered and seven more are species of special concern. The Southeastern myotis is one of the U.S. Fish and Wildlife Service seven listed species of special concern.

This bat occurs throughout the southeastern United States and locally in the Mississippi River drainage area. The Southeastern myotis is a small bat with short, thick, woolly fur, which is bi-colored, russet, dark gray or black at the base, and whitish at the tips. This species molts in late summer, shedding a lighter, rusty coat to acquire one of dark gray. Its forearm is 35-42 mm long, and it weighs 5-9 grams.

The Southeastern myotis is a colonial species which spends its winters in the vicinity of its summer territories. It hibernates in winter in northern areas, though southern populations emerge to forage during warm spells. Beginning in mid-March, females congregate in nursery colonies in relatively warm areas or tree hollows not far from water. This bat uses a variety of roost sites across its range, typically roosting in clusters of several individuals up to a few hundred or more. Their shelters used for roosting sites include caves, mines, bridges, buildings, culverts and tree hollows. It prefers oak-hickory to mixed conifer-hardwood habitats and is often associated with human habitations near streams or lakes. Nursery roosts must be warm, or capable of trapping the bats' body heat, and out of reach of climbing predators. They give birth in late April or early May, usually to twins. Pups are able to fly in five to six weeks.

This bat is a rapid, steady flyer, and hunts close to the water, where it catches insects such as midges, mosquitoes, small moths, small beetles, and craneflies. Predators include corn snakes, rat snakes, owls and opossums. No records of longevity are available.

When conducting the field surveys, two active colonies of bats were observed in two separate box culverts within the project area. Through MDOT consultation with personnel in the U.S. Fish and Wildlife Service and the Bureau of Land Management offices in Jackson, it was learned the bats were Southeastern myotis. No other federally protected endangered and threatened species and no other federally listed species of concern were observed within or

near the project area. No federally designated critical habitat was observed within the proposed project area when conducting the field surveys.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon protected federally protected species and critical habitat.

Build Alternatives B and C

The U.S. Fish and Wildlife Service (USFWS) had a representative in attendance at the Agency Scoping Meeting conducted in Vicksburg on November 17, 2009. At that meeting, the USFWS representative did not express any specific concerns about possible impacts the build alternatives could have on federally protected species that potentially exist within Warren County.

It was discovered when conducting the field surveys that a common portion of Build Alternatives B and C could impact two active colonies of bats observed in two separate box culverts. Through subsequent MDOT consultations with personnel in the U.S. Fish and Wildlife Service and the Bureau of Land Management offices in Jackson, it was learned the bats were Southeastern myotis. Since the Southeastern myotis is also a State Listed Species of Concern, the Mississippi Department of Wildlife, Fisheries and Parks was made aware of the findings and involved in the consultations. In response to an e-mail from Mr. Chad Wallace of the MDOT concerning the consultations, Mr. Stephen Ricks, the Field Supervisor for the Mississippi Field Office of the U.S. Fish and Wildlife Service provided Mr. Wallace a letter dated April 15, 2011.

The U.S. Fish and Wildlife letter contained recommendations to reduce direct and indirect impacts to Southeastern myotis during the construction of the project. The recommendations included limiting the times of the year when construction could occur to replace or extend the culverts where the bats were discovered; using construction procedures for extending or replacing the culverts that would make the culverts more ideal for roosting by the bats; providing artificial bat structures (concrete "cavity trees") as alternate roosting sites for the bats while culvert construction work is active; and erosion control measures. A copy of the letter is contained in **Appendix K**.

During the field surveys conducted on May 17-19 and December 14, 2010, no other federally protected endangered and threatened species and no other federally listed species of concern were observed within or near the project area. There is no federally designated critical habitat within the proposed project area.

The build alternatives have the same potential construction impacts on the Southeastern myotis. It is anticipated that the build alternatives will take a number of years to construct. The possible Project Sequencing Plan has an estimated implementation year of 2040 for the beginning of the construction that could impact this species. Since it is possible the Southeastern myotis could be added to the federally protected threatened or endangered list of species for Warren County prior to the construction of the build alternatives, the following steps will be taken to address the possible impacts of the construction on the Southeastern myotis:

- The MDOT will schedule a resurvey of the project area prior to the development of the construction plans for the projects where the species could be impacted.
- If the resurvey does not determine any of the species to be present, the MDOT will prepare the construction plans in accordance with their established procedures.
- If the resurvey determines the Southeastern myotis to still be using the box culverts year-round or for a portion of the year, the MDOT will contact the U.S. Fish and Wildlife Service, the Department of Interior – Bureau of Land Management, and the Mississippi Department of Wildlife, Fisheries and Park and determine the measures that will be implemented under the construction project to minimize the impacts on the Southeastern myotis.

Compliance with Section 7(1)(a) of the Endangered Species Act would be implemented to enhance conservation of threatened and endangered species.

Minimal or no impact to any federally protected species or species of concern are expected due to the highly fragmented forest habitat and the lack of an adequate riverine system within this largely urban project area.

4.14.3 State-listed Species

The Mississippi Museum of Natural Science (MMNS), part of the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP), maintains lists of Species of Concern. This list includes species whose occurrence in Mississippi is or may be in jeopardy, or with known or perceived threats or population declines. These species are not necessarily the same as those protected under the ESA. Currently, there are 38 species listed by the state for Warren County including 27 animals and 11 plants (MMNS 2010). Field surveys for these species were conducted on May 17-19 and December 14, 2010.

Habitat conducive for the Southern Redbelly Dace, one of the 38 listed species of concern, was observed within the project area during field surveys conducted on May 17-19 and December 14, 2010. During the field surveys, no other state-listed species of concern for Warren County were observed within or near the project area. Other than the habitat for the Southern Redbelly Dace, no other habitat for Warren County species of concern was observed within the proposed project area.

The Southern Redbelly Dace is a small minnow averaging approximately 2.5 inches of total length with a maximum size of approximately 3.5 inches total length. Southern Redbelly Dace is the Common Name for this species, while *Phoxinus erythrogaster* is the species scientific name.

The Southern Redbelly Dace occurs from Minnesota and western Pennsylvania south to Arkansas, Mississippi and Alabama. In Mississippi, the Southern Redbelly Dace occurs in the Tennessee River drainage of Tishomingo County and in small tributaries of the Mississippi and Yazoo Rivers in Wilkinson, Warren, Tallahatchie and Yazoo counties.

The Southern Redbelly Dace occurs in small, upland creeks which have permanent cool water, clean gravel bottoms and a well developed overhead riparian canopy. These areas typically consist of narrow stream reaches meandering primarily over gravel, pebble and sand substrate with plunge pools and chutes located at the base of shallow riffles and runs.

The Southern Redbelly Dace is usually found near the bottom of small streams where it forages over rocks and other objects. It appears to feed primarily on algae and plant materials.

Spawning occurs in the spring, when females lay their eggs in the nests of other minnow species on clean gravel sections of riffles. Maximum life span is three to four years for individuals in the southern United States.

The populations of the Southern Redbelly Dace occurring in western Mississippi are considered to be endangered while those in Tishomingo County are not. The later are part of a much larger population occurring throughout the Tennessee River drainage in Alabama, Tennessee and Kentucky. Those in western Mississippi are disjunct from the main population and thus are of great scientific interest.

The Southeastern myotis was not known to exist in Warren County. Therefore, it was not shown on the list for the Warren County Species of Concern. When the field surveys were conducted and it was determined that a common portion of Build Alternatives B and C could impact two active colonies of Southeastern myotis in two separate box culverts, the Mississippi Department of Wildlife, Fisheries and Parks were made aware of the discovery.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon state-listed species.

Build Alternatives B and C

The Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) was represented at the Agency Scoping Meeting conducted in Vicksburg on November 17, 2009. At that meeting, the MDWFP representative expressed concern about impacts the build alternatives could have on Southern Redbelly Dace that potentially exist within Warren County. This was the only state-listed species identified as being potentially impacted by the build alternatives at the meeting.

After the field surveys were conducted, the discovery of the Southeastern myotis was made, and consultations had occurred between the MDOT, the U.S. Fish and Wildlife Service, the Department of Interior – Bureau of Land Management and Mississippi Department of Wildlife, Fisheries and Parks, Mr. Andy Sanderson of the Mississippi Department of Archives and History provided the MDOT a letter dated March 24, 2011. His letter listed five species of concern that

have been documented within two miles of the proposed project area. The Southern Redbelly Dace and the Southeastern myotis were two of the five species listed in the letter. The letter also contained his recommendations for minimizing impacts on the Southeastern myotis and water quality. A copy of the letter is contained in **Appendix K**.

The build alternatives have the same potential construction impacts on the Southeastern myotis. It is anticipated that the build alternatives will take a number of years to construct. The possible Project Sequencing Plan has an estimated implementation year of 2040 for the beginning of the construction that could impact this species. Since it is possible the Southeastern myotis could be added to the protected, threatened or endangered list of species for Warren County prior to the construction of the build alternatives, the following steps will be taken to address the possible impacts of the construction on the Southeastern myotis:

- The MDOT will schedule a resurvey of the project area prior to the development of the construction plans for the projects where the species could be impacted.
- If the resurvey does not determine any of the species to be present, the MDOT will prepare the construction plans in accordance with their established procedures.
- If the resurvey determines the Southeastern myotis to still be using the box culverts year-round or for a portion of the year, the MDOT will contact the U.S. Fish and Wildlife Service, the Department of Interior – Bureau of Land Management, and the Mississippi Department of Wildlife, Fisheries and Park and determine the measures that will be implemented under the construction project to minimize the impacts on the Southeastern myotis.

To minimize water quality impacts on the habitat for the Southern Redbelly Dace and other species, best management practices will be properly implemented, monitored and maintained for compliance, specifically measures that will prevent suspended silt and contaminants from leaving the site in stormwater run-off.

Compliance with Section 7(1)(a) of the Endangered Species Act would be implemented to enhance conservation of threatened and endangered species.

Minimal or no impacts to any state listed species of concern in Warren County are expected due to the highly fragmented forest habitat and the lack of an adequate riverine system within this largely urban project area.

4.15 Historic and Archaeological Preservations

In November and December 2010, Coastal Environments Inc. (CEI) conducted a Phase I cultural resources survey of the Vicksburg Interstate 20 (I-20) Improvements project area and Area of Potential Effect (APE). The survey was conducted for Neel-Schaffer Inc., of Jackson, Mississippi, on behalf of the Mississippi Department of Transportation. The CEI report (Lowe et al. 2010) is titled, *A Phase I Cultural Resources Survey for the Proposed Vicksburg Interstate 20 Improvements, (State Project No. IMD-0020-01[181]/100367 002000); Warren County, Mississippi.* The cultural resources survey was intended to provide specific information concerning the nature and distribution of cultural resources within the APE, including preliminary determinations of National Register of Historic Places (NRHP) eligibility. The cultural resources survey report was forwarded to the Mississippi Department of Archives and History (MDAH) for review.

In correspondence to the MDOT dated March 4, 2011, the MDAH concurred that no intact archaeological or cultural deposits are likely to be affected within the boundaries of the project, and the seven structures built before 1965 identified in the report as being within the APE are not eligible for listing in the National Register of Historic Places. As such, the MDAH correspondence advised that they have no reservations with the project. A copy of the MDAH letter is contained in **Appendix K**.

4.15.1 Archaeological Sites

No intact archaeological deposits were encountered during the survey. Therefore, no further work is recommended.

4.15.2 Architectural Investigations

Although seven sites - six standing structures and one road remnant - were recorded within the APE, none are recommended as eligible for the listing on the National Register of Historic Places (NRHP)

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon cultural resources.

Build Alternatives B and C

The findings indicate that the construction of the build alternatives would not affect any cultural resources considered eligible for nomination to the NRHP. However, if previously undetected cultural resources are encountered during construction, work would cease in the immediate area and federal regulations pertaining to the emergency discovery situations would be followed. The Advisory Council on Historic Preservation and the Mississippi State Historic Preservation Officer (SHPO) would be contacted for evaluation of the situation.

4.16 Hazardous Waste Sites

The purpose of this section is to identify, using recognized acceptable parameters, environmental liabilities or potential environmental liabilities due to hazardous material generators or waste sites immediately within or adjacent to the proposed project area. The scope for the survey of potential hazardous materials sites included the following activities.

- Reporting of results of an inquiry by an environmental professional.
- Interviews with past and present owners, operators, and/or occupants of proposed project area as deemed necessary, for the purpose of gathering information regarding the potential for contamination at the facility.
- Review of historical sources, such as aerial photographs, topographic maps, and/or land use records, to determine previous uses and occupancies of the proposed project area.
- Review of federal, state and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal and spill records concerning contamination at or near the project area as provided by a commercial database service.
- Visual inspections of the proposed project area and adjoining properties from a driving (windshield) reconnaissance or survey along public roads.

Appendix J contains a copy of February 2011 report titled, Survey of Potential Hazardous Materials Sites, MDOT Vicksburg I-20 Improvement Project, Vicksburg, Warren County, Mississippi. The **Appendix J** report documents the analysis, opinions, and results and conclusions obtained during development of the hazardous materials survey. This survey is based on information collected by Neel-Schaffer Inc. and is correct and current as of the date of the research and site visits conducted in the spring of 2010. When a survey is completed with little or no subsurface exploration or chemical screening of soil and groundwater at or beneath the site, no statement of scientific certainty can be made regarding latent environmental conditions that may be the result of on-site or off-site sources. The findings and conclusions of the **Appendix J** report are not scientific certainties, but rather, probabilities based on professional judgment concerning the significance of the data gathered during the course of the environmental survey.

Neel-Schaffer, Inc. does not represent in the **Appendix J** report that the site or adjoining land contains no hazardous materials, oil, or other latent conditions beyond that detected or observed during the survey. The possibility always exists for contaminants to migrate through surface water, air, or groundwater. The ability to address the environmental risk associated with transport in these media is beyond the scope of the report. Further information regarding state and federal environmental records was provided by Environmental Data Resources (EDR) over two years prior to the date of the **Appendix J** report.

This survey revealed several sites listed in the EDR report have potential to cause contamination to portions of Build Alternatives B and C. Several sites found through site reconnaissance that are not documented in the EDR report also have potential to cause contamination to portions of the build alternatives. These sites have potential to handle and store hazardous materials and/or waste and are listed in the **Appendix J** report.

Based on the results of this survey, Neel-Schaffer, Inc. recommends that further investigation is warranted for several sites within the project area. The following sites located within or adjacent to the proposed right of way of the build alternatives contain or have the potential to contain hazardous materials and/or waste onsite and are considered moderate to high risk with respect to environmental concerns to the proposed project area.

- EDR – MLTS site

United States Army Corps of Engineers

- EDR – UST sites
 - Pantry #3739 DBA Kangaroo*
 - Pantry #3444 DBA Fast Lane*
- EDR – UST and LUST sites
 - Pantry #3445 DBA Fast Lane*
 - Pantry #3750 DBA Kangaroo*
 - Pantry #3753 DBA Kangaroo*
 - Mac's Fina Station #536*
 - Pump & Save #2634 (also Sac & Save #49)*
 - Interstate Station #28*
 - Pantry #3443 DBA Fast Lane*
 - Battlefield Truck Plaza*
 - Pantry #3447 DBA Fast Lane*
- EDR – SHWS site
 - Hall's Ferry Park and Dump*
- EDR – FINDS site
 - Plaza Auto Service and Tire Center*
- USEPA's Federal National Priorities List – RCRA CESQG site
 - Kroger/Former K-Mart*
- USEPA's Federal National Priorities List – RCRA SQG site
 - Vicksburg Ford Lincoln Mercury*
- EDR – FINDS, FTTS, HIST FTTS, UST, and LUST site
 - Vicksburg Medical Center/River Region West Campus*
- Potential Hazardous Materials Sites found through Site Reconnaissance
 - Hillcrest Motel (former service station)*
 - Vacant lot (carnival equipment storage area)*
 - Highway 61 North Superlube and Extreme ATV's*
 - United Cleaners/Corner Market Shopping Center*
 - Kolb Grand Cleaners*
 - Vicksburg Cycles*

The sites determined to potentially have low to moderate environmental risks should not eliminate either Alternate B or Alternate C from consideration as viable alternatives. The sites determined to potentially have high environmental risks will require more in depth field and laboratory research to determine their status and suggest acceptable remediation and monitoring.

The results of the findings of the survey are summarized in **Table 4-10** at the end of this section. Unknown hazardous materials sites may also be encountered during construction of the build alternatives. Should this occur, construction would cease immediately until hazards and safety considerations are determined. If additional information is needed, refer to the **Appendix J** report. **Figures 1** through **7** contained in the **Appendix J** report depict the locations of the potentially impacted sites.

The potential hazardous materials sites report contained in **Appendix J** was completed prior to the Value Engineering (VE) Study. Implementing the MDOT ideas selected from the VE Study Report involve a location where Build Alternatives B and C are the same in the US 61 North portion of the proposed combined Clay Street/US 80/US 61 North/SR 27 Interchange. The implementation of the selected ideas resulted in no estimated right of way being needed from the three impacted parcels in the northwest portion of the interchange and did not require an addendum to the report contained in **Appendix J**.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon hazardous materials/hazardous waste sites in the project area.

Build Alternative B

Build Alternative B has 52 potential hazardous sites adjacent to or within the proposed right of way. 38 of the sites are adjacent to the right of way and 14 of the sites are within the proposed right of way. Of the 52 potential hazardous sites, 32 are classified as low risk, 16 are classified as moderate risk and 4 are classified as high risk.

For more information on the sites, refer to **Table 4-10** at the end of this section. Because these sites have potential to contain hazardous materials and/or waste onsite further investigation may be warranted upon completion of project design.

Build Alternative C

Build Alternative C has the same 52 potential hazardous sites adjacent to or within the proposed right of way as Build Alternative B. Build Alternative C has 36 sites adjacent to the right of way and 16 sites within the proposed right of way. Of the 52 potential hazardous sites, 29 are classified as low risk, 17 are classified as moderate risk, and 6 are classified as high risk.

The differences between Build Alternative C and Build Alternative B concerning the number of potential sites adjacent to or within the proposed right of way and the risk classification assigned to the potentially impacted hazardous sites are mainly related to the additional right of way required at the proposed Indiana Avenue Exit 3 Interchange for the build alternatives. The relocation required for the Alternative C frontage roads displaces two Indiana Avenue convenience stores (Pantry #3739 Kangaroo, 3060 Indiana Avenue and Katz and Bestoff #298, 3046 Indiana Avenue). One of these convenience stores is in the southeast quadrant of the interchange and one is in the northwest quadrant of the interchange. The relocation of the North Frontage Road in the northwest quadrant of the interchange for Alternative C also requires additional right of way from an automobile dealership property (Vicksburg Ford Lincoln Mercury, 2431 North Frontage Road) containing a potential hazardous site. Build Alternative B does not displace the two convenience stores and does not require additional right of way from the automobile dealership. These three sites are where the differences in the potential impacts of the build alternatives occur.

For more information on the sites, refer to **Table 4-10** at the end of this section. Because these sites have potential to contain hazardous materials and/or waste onsite further investigation may be warranted upon completion of project design.

TABLE 4-10 SUMMARY OF SITES POTENTIALLY HAVING HAZARDOUS MATERIALS WITHIN OR ADJACENT TO PROPOSED RIGHT-OF-WAY

FACILITY NAME AND ADDRESS	DATABASE(S)	LOCATION RELATIVE TO PROPOSED ROW				ENVIRONMENTAL RISK						UST'S LISTED		LUST'S LISTED		COMMENT
		ADJACENT B	ADJACENT C	WITHIN B	WITHIN C	LOW		MODERATE		HIGH		B	C	B	C	
						B	C	B	C	B	C					
Pantry #3445 DBA Fast Lane, 574 Highway 61 North(at Riley Road)	UST, LUST			●	●					●	●	●	●	●	●	Four USTs currently in use. Requires relocate for Alt. B and C
Pantry #3750 DBA Kangaroo, 3326 Clay Street (at Old SR 27)	UST, LUST	●	●					●	●			●	●	●	●	Four Active USTs, NFA date: 3/23/01
Pantry #3753, 4460 Clay Street (at SR 27)	UST, LUST	●	●					●	●			●	●	●	●	Three active USTs, NFA date: 6/13/94, Not Trust Fund Eligible
Mac's Fina Station #536 (NW corner Highway 80 & SR 27)	UST, LUST			●	●			●	●					●	●	NFA date: 7/13/98; site formerly addressed under Highway 80 Project, ROW-84-01
Beechwood Mobile Home Park, 61 Berryman Road	FINDS, PERMITS, NPDES	●	●			●	●									No comment
Warren County, 61 Berryman Road	FINDS	●	●			●	●									No comment
Rivertown Toyota, 4105 E. Clay Street	UST	●	●			●	●					●	●			One UST permanently out of use, no reported release
BG JR Texaco, 4110 E. Clay Street	UST	●	●			●	●					●	●			Three active USTs, no reported releases
Department of the Army, 4155 Clay Street	MLTS			●	●			●	●							Potential exists for handling and storing hazardous materials. Minimal new ROW needed for both Alts.
Randy's Body Shop, 4105B Clay Street	FINDS, RCRA-NonGen.	●	●			●	●									Facility handles hazardous materials. One violation reported with compliance achieved following month
George Carr Buick Pontiac GMC, 2950 S. Frontage Road	UST	●	●			●	●					●	●			Three USTs exist: one permanently out of use, one active, one temporarily out of service, no reported releases
Atwood Chevrolet-Oldsmobile, 3531 Frontage Road	FINDS, RCRA-CESQG			●	●	●	●									Facility handles hazardous materials, no violations reported. Minimal new ROW needed for both Alts.
Pantry #3739 Kangaroo, 3060 Indiana Avenue	UST, FINDS	●			●	●							●	●		Potential exists for handling of hazardous materials, Four USTs removed in 1988, Four currently active USTs, no reported release. Requires relocation for Alt. C
Katz and Bestoff #298, 3046 Indiana Avenue																
Pantry #3444 DBA Fastlane, 3140 Indiana Avenue	UST, LUST	●			●	●							●	●	●	NFA date: 3/12/91, Eight USTs permanently out of use. Requires relocation for Alt. C
Interstate Station #34, 3134 Indiana Avenue																
Sack and Save #49, 2080 S. Frontage Road	FINDS, PERMITS	●	●			●	●									Site closed, Potential exists for previous handling of hazardous materials
Pump & Save #2634, 2080 S. Frontage Road	UST, LUST	●	●					●	●					●	●	NFA Date: 10/13/04, Three USTs removed in 2005, Site razed
Vicksburg Ford Lincoln Mercury, 2431 N. Frontage Road	FINDS, RCRA-CESQG			●	●	●			●							Facility handles hazardous materials, no violations reported
Suds N Smokes #202 (DBA Exxon), 3114 Halls Ferry Road	UST	●	●			●	●									Hill City owned tanks 2+ years, no spills, 601-634-6316, Blake Nasif previous owner, 275 Oak Ridge Road 601-636-0922, Three active USTs, no reported releases
Pantry #3443 DBA Fastlane, 3400 Halls Ferry Road (at Pemberton Square Blvd.)	UST, LUST	●	●					●	●			●	●	●	●	NFA Date: 3/20/98, Four active USTs
Saxton's, 3320 Halls Ferry Road	UST	●	●			●	●					●	●			Two USTs removed in 1970. Two USTs removed in 1991. No reported release
All Saints Episcopal School, 2717 Confederate Avenue	FINDS	●	●			●	●					●	●			Closed LUST status, four USTs permanently out of use
Plaza Auto Service & Tire Center, 1850 S. Frontage Road (at Plaza Drive), aka Battlefield Truck Plaza	FINDS	●	●					●	●							Potential exists for storage and handling of hazardous materials. NFA date: 7/8/98, four USTs removed in 1996
USACE Vicksburg District Supply Base, 2101 N. Frontage Road	FINDS, RCRA-LQG	●	●			●	●									No comment
Battlefield Truck Plaza, 1900 South Frontage Road	UST, LUST	●	●					●	●					●	●	NFA date: 7/8/98, four USTs removed in 1996
Vicksburg Printing and Publishing, 1601 N. Frontage Road	PERMITS			●	●	●	●					●	●			One UST onsite, no reported releases
The Vicksburg Post, 1601-F N. Frontage Road	UST															
T and S Tunnel Express Carwash, 3532 Pemberton Square Boulevard	FINDS	●	●			●	●									Business manager reported that hazardous materials neither handled nor stored
Interstate Station #28, 1435 N. Frontage Road (at Halls Ferry)	UST, LUST	●	●							●	●	●	●	●	●	Four USTs removed in 2007, Release confirmed 8/16/07,
Saxton's Garage and Tire Barn, 1345 S. Frontage Road and 1401-B S. Frontage Road	FINDS, RCRA-CESQG	●	●			●	●									On-site contacts Greg or Lois, no USTs, waste oil picked up by McClean Fuel
River Region West Campus, Vicksburg Medical Center, 1111 N. Frontage Road	UST, LUST, FINDS, FTTS, HIST FTTS			●	●					●	●	●	●	●	●	NFA date: 9/10/01, Two UST permanently out of use (1997 & 1998), One UST currently in use.
Ameristar Casino, 32-18-54, 90-54-00	SHWS, INST. CONTROL	●	●			●	●									NFA date: 10/27/04
Kroger (former K-Mart), 3408 Pemberton Square Blvd	RCRA-CESQG			●	●			●	●							Facility handles hazardous materials, no violations reported, Kroger active UST registrations not listed in database report

TABLE 4-10 SUMMARY OF SITES POTENTIALLY HAVING HAZARDOUS MATERIALS WITHIN OR ADJACENT TO PROPOSED RIGHT-OF-WAY

FACILITY NAME AND ADDRESS	DATABASE(S)	LOCATION RELATIVE TO PROPOSED ROW				ENVIRONMENTAL RISK						UST'S LISTED		LUST'S LISTED		COMMENT
		ADJACENT B	ADJACENT C	WITHIN B	WITHIN C	LOW		MODERATE		HIGH		B	C	B	C	
						B	C	B	C	B	C					
Wal-Mart Supercenter #708, 3505 Pemberton Boulevard	RCRA-CESQG	●	●			●	●									Facility no longer in operation
Pantry #3447 DBA Fastlane, 4150 Washington Street	UST, LUST	●	●					●	●					●	●	NFA date: 5/9/03
Pemberton Amoco, 4100 Pemberton Square (at US 61 South)	UST	●	●			●	●					●	●			Four USTs currently in use, no reported releases
Quality Lube of Vicksburg, 4050 Pemberton Square Blvd.	FINDS, RCRA-CESQG	●	●			●	●									Handles and stores hazardous materials, no violations reported
Walmart #708, 2150 Iowa Avenue	FINDS	●	●			●	●									Handles and stores hazardous materials, no violations noted in EDR report.
Pantry #3754 DBA Fastlane, 725 Highway 61 S. (at Iowa Blvd.)	UST	●	●			●	●					●	●			Two USTs currently in use, no releases reported.
61 North Super Lube and Extreme ATV's LLC, 600 Highway 61 North	*			●	●					●	●					Potential exists for handling hazardous materials
Highway 61 Motors, 750 Highway 61 North	*			●	●			●	●							Potential exists for handling hazardous materials
Southern Scottish Inns, 3955 Clay Street	*	●	●			●	●									Slab of razed building presents potential for previous handling of hazardous materials
United Cleaners, Corner Market Shopping Center, 3046 Indiana Avenue	*	●	●					●	●							Potential exists for handling hazardous materials
Corner Market Shopping Center, 3046 Indiana Avenue	*	●	●			●	●					●	●			Generator sitting atop UST, west side of building
Sears, 2480 S. Frontage Road	*	●	●			●	●									Potential exists for handling hazardous materials
Napa Auto Parts, 2406 S. Frontage Road	*	●	●			●	●									Potential exists for handling hazardous materials
Blackburn Dodge Nissan, 2195 N. Frontage Road	*			●	●	●	●									Potential exists for handling hazardous materials
Vicksburg Cycles, 1979 N. Frontage Road	*			●	●			●	●							Potential exists for the presence of USTs
Barnes Auto Glass and Windshield Repair	*	●	●			●	●									Potential exists for handling hazardous materials
Murphy Express, 4075 Pemberton Square Boulevard (at US 61 S.)	*	●	●			●	●					●	●			New facility, active USTs, UST registrations did not appear in database report
USACE Vicksburg Supply Base, 300 Battlefield Street, NW corner of former Battlefield Mall	*	●	●			●	●									USTs present, not registered with MDEQ
Hillcrest Motel, 40 Highway 80 East (former service station)	*			●	●			●	●							No visual indications of hazardous materials handling. USTs removed from site.
Vacant lot just north of Hillcrest Motel, used for stockpiling materials and equipment	*			●	●			●	●							Potential exists for handling hazardous materials
Kolb Grand Cleaners, 2180 Iowa Blvd.	*	●	●					●	●							Potential exists for handling hazardous materials
TOTALS		38	36	14	16	32	29	16	17	4	6					

*Facility did not appear in database report

4.17 Visual

This proposed reconstruction of I-20 for the build alternatives would utilize the existing interstate corridor. Minimal additional right of way is needed for performing the reconstruction to the required design standards in a manner that safely and efficiently accommodates the existing and projected 2040 Design Year traffic demand. The build alternatives have similar visual impacts over the approximate six miles between the proposed US 61 South Exit 1B Interchange and the proposed Clay Street/US 80/US 61 North/SR 27 Interchange.

Build Alternative B has one-way ultimate frontage roads, while Build Alternative C has two-way ultimate frontage roads. The major difference in the visual impacts of the two build alternatives occurs at the Indiana Avenue Exit 3 Interchange. Build Alternative B has a crossroad intersection on Indiana Avenue on the north and south sides of the interstate that combines the interchange ramps with the frontage road. Build Alternative C has two crossroad intersections on Indiana Avenue south of the interstate with one intersection for the interchange ramps and one for the frontage road. Build Alternative C on Indiana Avenue north of the interstate has one crossroad intersection for the interchange ramps and a west side road intersection for the frontage road.

For Alternative C, the distance between the ramp and frontage road intersections must be adequate for traffic signals to be installed at both intersections in a manner that safely and efficiently accommodates the existing and 2040 Design Year anticipated traffic demand. The reason that Build Alternative C does not have a crossroad frontage road intersection on the north side of I-20 pertains to relocating the North Frontage Road approach from the east to align with the opposing relocated North Frontage Road from the west at the required distance north of the ramp intersection. Such a relocation of the North Frontage Road cannot be accomplished without obtaining some of the current Vicksburg National Military Park property as permanent MDOT right of way. Therefore, to avoid the Section 4(f) issue related to impacting current Vicksburg National Military Park, the North Frontage Road for Build Alternative C must be dead-ended east of Indiana Avenue.

For both build alternatives, most of the nearby areas that are currently visible from the portion of the interstate undergoing construction or reconstruction would remain visible; and, most of the

interstate locations undergoing construction or reconstruction that are currently visible from nearby areas would remain visible.

In general, traffic on the reconstructed interstate will have slightly more visibility of the surrounding areas than currently exists. However, due to the adjacent or nearby tree buffer that will remain at many locations bordering the reconstructed interstate, the visibility of the reconstructed interstate from nearby areas will be increased slightly at some locations and remain restricted at other locations.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon the visual setting of the project area.

Build Alternative B

The following identifies the main locations where the interstate undergoing construction or reconstruction for Build Alternative B would be provided more identifiable visibility of the surrounding areas. However, based on the terrain and the possible presence of trees at these locations, the visibility of the interstate from these surrounding areas could be increased, restricted or not allowed;

- I-20, US 61 South, and Old US 80 at the US 61 South Exit 1B Interchange;
- I-20 at the bridge over the frontage road connector located between Halls Ferry Road and Wisconsin Avenue;
- I-20 at the bridge over the frontage road connector located slightly west of Old SR 27; and,
- I-20, US 61 North, and SR 27 at the US 61 North/SR 27 portion of the Clay Street/US 80/US 61 North/SR 27 Interchange.

Both build alternatives open a short new corridor of approximately 800 feet for a proposed connector from Porters Chapel Road to the South Frontage Road. The proposed Porter Chapel Road connector would intersect the South Frontage Road opposite the connector between the north and south frontage roads that passes underneath the I-20 frontage road circulation bridge.

Porters Chapel Road is a major street in Vicksburg that crosses Indiana Avenue south of I-20. Currently, Porters Chapel Road intersects the South Frontage Road slightly west of Old SR 27 and slightly east of the proposed frontage road circulation bridge. To address a need of providing Porters Chapel Road traffic improved access to the North Frontage Road, the short connector road was added to the build alternatives.

The added connector between the South Frontage Road and Porters Chapel Road is located in a heavily wooded area primarily on one landowner's property. The landowner has a residence on the property, but a tree buffer will be maintained between the connecting road and the residence. A residence is located on the east side of Porters Chapel Road near the proposed location where the connector will intersect Porters Chapel Road. There are trees on the east side of Porters Chapel Road fronting the residence.

The visual impacts of reconstructing the interstate and providing the Porters Chapel Road connector to the South Frontage Road are considered minor. If additional information is needed on the development of Alternative B, see Chapter 3 and **Appendix D**.

Build Alternative C

The visual impacts of Build Alternative B are shared by Build Alternative C. In addition, Build Alternative C would have identifiable visual impacts at the Indiana Avenue Exit 3 Interchange related to opening the new corridors for relocating the South Frontage Roads in the southeast and southwest quadrant of the interchange.

The relocation of the South Frontage Road in the southwest quadrant of the Indiana Avenue Exit 3 Interchange is mainly through land that has already been cleared and will have minimal visual impacts. However, the relocation will eliminate the Vicksburg Country Club's direct access to Indiana Avenue and provide a new access to the facility from Indiana Avenue via the relocated South Frontage Road. The Country Club's access point from the relocated South Frontage Road will be slightly west of the relocated South Frontage Road intersection with Indiana Avenue.

The approximate 1,400 feet relocation of the South Frontage Road in the southeast quadrant of the Indiana Avenue Exit 3 Interchange contains approximately 800 feet in an undeveloped, rugged terrain wooded area.

Although Build Alternative C has slightly more identifiable visual impacts than Build Alternative B, the impacts are still considered minor. If additional information is needed on the development of this alternative, see Chapter 3 and **Appendix E**.

4.18 Energy

Energy is supplied to Warren County by Entergy Mississippi and distributed by Vicksburg Utilities through substations. The study area contains a major substation north of I-20 on the western side of Iowa Boulevard that is not impacted by the build alternatives. The study area does not contain any natural gas pipelines.

Energy resources appear to be plentiful to meet any demands placed on the area from the construction and maintenance of the proposed transportation facility. The construction of a transportation facility represents a considerable one-time expenditure of energy resources both in the fabrication of construction materials and in the actual roadway construction process. Large amounts of electricity are used in initial preparation and fabrication of construction materials, whether derived from hydro or fossil fuel (coal) sources. Some of the construction materials may be manufactured in other locations and transported to the project area.

No Build Alternative

The No Build Alternative would have no effect, either beneficial or adverse, upon energy consumption.

Build Alternatives B and C

The build alternatives require minimal additional right of way. However, the construction of the build alternatives will require the relocation of some power poles currently located on the proposed new right of way and possibly some of the poles currently located on the existing right of way. This type relocation of power poles is to be expected. The relocations should be

carefully coordinated with Entergy Mississippi and the City of Vicksburg to minimize disruption of service.

The construction phase requires a large one-time commitment of energy resources in fabrication of materials and construction itself. Although the use of large amounts of energy during construction and many construction materials (plastics, asphalt, etc.) would require the consumption of crude oil, the net result of project construction would be a long term savings of this resource. The improvements associated with the proposed alternatives would allow for energy conservation resulting from improved traffic flow, creating or making direct routes more accessible, and reducing bottlenecks, stops, and starts.

4.19 Construction

During construction, temporary increases in water, noise, solid waste, and air pollution would be experienced. Construction also creates an inconvenience to road users, adjacent residents, and businesses. Traffic impacts during construction would result in some delays and inconvenience. However, construction planning would attempt to minimize delays and inconveniences at all levels.

No Build Alternative

The No Build Alternative would have no beneficial or adverse construction impacts.

Build Alternatives B and C

The construction of the build alternatives requires the North and South Frontage Roads between Halls Ferry Road and Old SR 27 to be reconstructed and widened to three-lanes; and, the corridor for the North and South Frontage Roads to be extended east as North and South Collector Distributor Roads from Old SR 27 to the eastern limit of the proposed Clay Street/US 80/US 61 North/SR 27 Interchange. The reconstructed and widened frontage roads would be placed in one-way operation and the frontage road/collector distributor roads would serve as detours for the interstate traffic while the I-20 East and I-20 West lanes are closed for reconstruction and widening. Build Alternative B would retain the frontage roads in one-way traffic operation after they are no longer serving as an interstate detour, while Build Alternative

C would restore the frontage roads to two-way traffic operation after they are no longer serving as an interstate detour.

To provide access between the North Frontage Road and the South Frontage Road circulation bridges will be provided for the build alternatives between Halls Ferry Road and Wisconsin Avenue and between Indiana Avenue and Old SR 27. To provide Porters Chapel Road improved access to the North Frontage Road, a new connector is proposed for the build alternatives between Porters Chapel Road and the circulation bridge that would be added between Indiana Avenue and Old SR 27.

Some positive impacts of Build Alternative B's permanent conversion of the widened and reconstructed frontage roads to one-way operation are: the frontage roads will be able to accommodate more traffic capacity because they would have three lanes in one direction; the frontage roads should be safer because there would be less traffic conflicts at intersections with driveways and streets; and, the operations of the traffic signals at the Indiana Avenue intersection would be improved. The major negative of Build Alternative B's permanent conversion of these frontage roads to one-way operation is the major advantage of Build Alternative C's conversion of the frontage roads back to two-way traffic operations after they are no longer needed for the interstate detour. Two-way frontage road destinations are in general more assessable; therefore, more planning and some out of direction travel is required by motorists when traveling to or between one-way frontage road destinations. The two frontage road circulation bridges and the Porters Chapel Road connector to the frontage road circulation bridge are provided for both build alternatives. For Build Alternative B, the frontage road circulation bridges will lessen the negative out of direction travel impact associated with permanently converting these frontage roads to one-way traffic operation.

Most of the construction-related water pollution associated with the build alternatives would be attributed to erosion and siltation of streams. A sediment control plan will be formulated incorporating best management practices. To minimize vegetation and wildlife impacts, the construction limits will be staked and enforced. A variety of controls are effective in preventing erosion and siltation during construction and in removing pollutants from roadways. Controls effective during construction may include phased clearing and grubbing, silt screens, staked hay bales, shell and gravel filters, and temporary sedimentation basins.

The construction activities would result in temporary noise and vibration impacts due to the use of heavy construction equipment. Mitigation of construction noise and vibration will be accomplished through development of a construction noise control plan. This plan could include prohibiting the use of certain types of construction equipment within established distances of specified military park monuments. This plan will include measures such as limiting certain construction activities or equipment use during the evenings, weekends, or holidays; locating storage and staging areas away from noise-sensitive sites; and shielding stationary equipment.

Increases in solid waste generation would result from removal of structures and materials that cannot be relocated or re-used. Any burning of wastes would be the responsibility of the construction contractor and must be performed in compliance with state and local laws and ordinances. Any hazardous materials encountered during construction would be removed and disposed in accordance with state and federal regulations. Disposal of excess material would be the responsibility of the contractor who would be contractually required to handle and dispose of the material in accordance with MDOT standard specifications.

All phases of construction operations would temporarily contribute air pollution. Airborne particulates would increase slightly in the corridor as dust from construction collects in the air surrounding the project. The construction equipment would also produce a slight increase in exhaust emissions. The emission of air pollutants would be reduced by the use of properly maintained equipment and the use of tarps and covers on trucks transporting construction materials and waste products.

Construction of either of the build alternatives would result in the relocation of utilities. Details regarding utility relocation would be included in final design plans. Appropriate officials and organizations would be contacted and coordinated with to minimize damage or disruption of existing service. The public would be notified of the timing and duration of expected outages.

In addition to known utilities, other subsurface obstructions or conditions may exist that are not known at this time. Archaeological materials, for example, may be uncovered during construction, and in this case, work in the area would cease. The Mississippi Department of Archives and History would be immediately contacted so that a representative of the office may

have the opportunity to examine and evaluate the materials. Unknown hazardous materials sites may also be encountered. Construction would cease immediately until hazards and safety considerations could be determined.

During the course of construction, safety of construction workers and the public is of utmost importance. Safety precautions will be implemented in accordance with Occupational Safety and Health Administration requirements and will include fencing and other barriers to separate pedestrians and vehicles from the construction site.

4.20 Secondary and Cumulative Effects

Secondary and cumulative impacts are a potential concern in any transportation improvement project. Secondary, or indirect impacts, are “caused by the action and occur later in time or farther removed in distance” as opposed to direct impacts. These effects are often less predictable than direct project effects but are still “reasonably foreseeable” (40 CFR 1508.8). Cumulative effects encompass all effects related to a project, both direct and indirect, as well as effects of any other actions that may impact the environment in the area under study. The cumulative impact of a project is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR 1508.7). Actions to be considered in a cumulative effects assessment include not only previous or future actions of MDOT, but actions of other government agencies, private citizens, corporations, and other entities which may be either related or unrelated to the project team. This section of the EA addresses the potential secondary and cumulative impacts associated with the implementation of the alternatives outlined in Section 2.0 and other projects/programs that are planned for the region.

Secondary, or indirect impacts, would mainly be the result of induced development that would be encouraged by construction of either build alternative. Induced development includes development that would not take place if not for the proposed action, or development that would take place at a different location, a smaller scale, or a later time. For a major interstate reconstruction project in an urban area such as this proposed project in and near Vicksburg, induced development can occur at any location where access is allowed near interchanges or on frontage roads between interchanges. However, for this project induced development will be controlled by: the existing development along and nearby the interstate; the nearby current and

former Vicksburg National Military Park property and City of Vicksburg Ordinance that maintains a 25-foot buffer free of construction; the severe terrain nearby and bordering the interstate; and, the restriction that limits to interchange locations any access to the north and south collector distributor roads paralleling I-20 between Old SR 27 and the eastern limit of the proposed Clay Street/US 80/US 61 North/SR 27 Interchange.

To evaluate cumulative effects, some major projects that are planned or under construction have been identified. It is not the intention of this document to evaluate or identify all impacts associated with these projects. Through contact with the MDOT and local officials, the following projects have been identified in the study area to evaluate cumulative impacts from the reconstruction of I-20 through Vicksburg.

Planned Projects in Study Area

MDOT

- Proposed Harbor Industrial Park Road from Washington Street in Vicksburg to US 61 North
- Proposed reconstruction of SR 27 between the Meridian Speedway railroad and US 80 at Vicksburg
- Proposed extension of South Frontage Road between Old SR 27 and Vicksburg Factory Outlets
- Proposed reconstruction of US 61 South between the Vicksburg Airport and Warrenton Road

Local Projects

- Construction of a small subdivision on Porters Chapel Road slightly south of I-20
- A possible renovation of the Pemberton Square Mall
- A one-mile resurfacing of Indiana Avenue near I-20

During construction of these projects, environmental resources such as soil, water, and air would be impacted for a short term. None of these resources would be expected to incur significant cumulative adverse impacts. The primary cumulative effect of past and proposed projects is permanent loss of vegetation and associated wildlife habitat.

Long-term indirect cumulative effects have occurred and would continue to occur. However, these effects, both beneficial and adverse, are difficult, if not impossible, to quantify. Reductions in habitat have undoubtedly created inter- and intra-species competition for available food and shelter and, eventually, slight reductions in some wildlife populations. Close coordination and approval from the appropriate state and federal agencies would be required for any activity potentially affecting any unique or sensitive areas (i.e., wilderness areas, conservation areas, national parks, etc.) to ensure adverse effects would be avoided or substantially reduced in significance.

Direct cumulative impacts on socioeconomics from these projects would be expected to be beneficial and significant. The build alternatives' proposed improvements to I-20 would enhance the economic benefits to each of the projects listed above due to improved traffic flow and safety, better accessibility, and better facilities to accommodate large truck traffic. The locations of many of these projects along existing I-20 and connecting routes – such as SR 27, US 61, and US 80 – will increase traffic flow to this area of the county. Proposed improvements for this I-20 reconstruction need to accommodate growth from these initiatives and enhance accessibility to these areas.

4.21 Relationship of Local Short-Term Uses vs. Long-Term Productivity

The local short-term impacts of the project are mainly associated with the period of construction. These impacts will affect the areas of construction as well as travelers utilizing the roadway system during this period. The short-term impacts during construction include the increased consumption of energy, increased waste production/pollution, and decreased traffic efficiency. Residents near the construction areas may be affected by increased levels of noise, vibration, fugitive dust, and lack of road access. Some temporary disruptions of travel patterns can be anticipated.

The greatest potential short-term impact to natural resources is anticipated to be an increase in the turbidity of water bodies immediately adjacent to construction areas. However, best management practices will be implemented for erosion control during construction to reduce this impact. The major short-term benefit of the proposed project is the economic stimulation derived from construction-related jobs and associated commercial activity.

The major long-term impact will be the taking of natural habitat and biotic communities and the associated displacement of wildlife. However, this impact is expected to pose no significant threat to the overall ecology of the area. The major long-term benefits of this project include improved transportation for the area, increased potential for economic development opportunities, and increased public safety. The economic base of the area will be improved through increases in economic development opportunities and improved access. The increased accessibility to the area will enhance the area's potential for both commercial and residential development. Such development increases property values, tax revenues, and available jobs.

4.22 Irreversible and Irretrievable Commitments of Resources

This project will require certain irreversible and irretrievable commitments of resources. These commitments involve natural, human, physical, and fiscal commitments of resources. Existing land uses within the proposed right-of-way will be irreversibly committed for the lifetime of the highway facility. However, these commitments are not anticipated to have significant adverse impacts to the ecology or economy of the study area. The construction of the roadway will require a considerable commitment of fuels, labor, and highway construction materials, including cement, aggregate, and bituminous materials. These materials are not generally retrievable. However, such materials are not in short supply and committing them to the construction of this highway will have no adverse impact upon the continued regional availability of these resources.

Construction of either proposed build alternative would require a substantial one-time commitment of both state and federal transportation funds, which are not retrievable. The cost estimates for the one design, two right of way and eight construction projects proposed for the completion of Build Alternatives B and C were computed based on the MDOT's 2009 cost data and Vicksburg – Warren County real estate and tax records. Detail information on the cost estimate computations is contained in **Appendix D** for Alternative B and in **Appendix E** for Alternative C. The estimated 2009 total design, right of way and construction costs are: \$221,176,449 for Build Alternative B and \$230,336,724 for Build Alternative C.

Based on anticipated funding, the implementation years and implementation year costs for the build alternatives' one design, two right of way and eight construction projects were estimated.

To determine the implementation year cost for the projects, the MDOT used a three percent (3%) compounded annually growth factor projected to the anticipated implementation year. **Table 4-11** and **Table 4-12** provide the implementation plan for Build Alternative B and C respectively. The estimated total implementation year costs are: \$410,600,000 for Build Alternative B and \$425,900,000 for Build Alternative C.

An important long-term cost to consider for a highway investment is maintenance cost. Maintenance costs include major items such as resurfacing as well as routine maintenance which includes re-striping, mowing, clearing drainage structures, patching potholes, repairing signs and guardrails, and bridge maintenance. Over time, maintenance costs can be a major expense.

The commitment of these resources is based upon the concept that local residents and other road users would benefit from the improved transportation system. The construction would result in improved accessibility, economic activity, and safety. Savings would be realized in both travel time and consumption of fuel from these improvements.

4.23 Summary of Impacts

This section provides a comparison of potential impacts that can be quantified for the build alternatives. **Table 4-13** is a summary of the potential impacts by Alternative B and C.

Comparing the two build alternatives reveals Build Alternative C has slightly more impacts than Build Alternative B. Both build alternatives require placing the widened and reconstructed frontage roads in one-way traffic operation while they are being used as construction detours for the interstate traffic. However, the C Alternative ultimately retains two-way traffic operations on the widened and reconstructed frontage roads, while the B Alternative permanently converts the widened and reconstructed frontage roads to one-way traffic operations. The main differences in the impacts of the build alternatives are related to the frontage roads at the Indiana Avenue Exit 3 Interchange and the traffic control at the frontage road intersections for the two circulation bridges proposed for providing access between the North Frontage Road and the South Frontage Road.

**TABLE 4-11
ALTERNATIVE B POSSIBLE PROJECT IMPLEMENTATION PLAN ⁽¹⁾**

TYPE PROJECT	2009 PROJECT COST	IMPLEMENTATION YEAR	IMPLEMENTATION YEAR COST ⁽⁶⁾
P.E. PROJECT (ROW AND FINAL PLANS FOR THE ENTIRE JOB)	\$10,015,280 ⁽²⁾	2012	\$10,900,000
ROW PROJECT TO ACQUIRE NEW ROW FOR THE ENTIRE JOB	\$8,852,506 ⁽³⁾	2014	\$10,300,000
CONSTRUCTION PROJECT ONE	\$2,501,505 ⁽⁵⁾	2014	\$2,900,000
ROW PROJECT TO ADJUST UTILITIES FOR THE ENTIRE JOB	\$2,003,056 ⁽⁴⁾	2015	\$2,400,000
CONSTRUCTION PROJECT TWO	\$43,148,325 ⁽⁵⁾	2020	\$59,700,000
CONSTRUCTION PROJECT THREE	\$9,951,100 ⁽⁵⁾	2024	\$15,500,000
CONSTRUCTION PROJECT FOUR	\$23,524,231 ⁽⁵⁾	2027	\$40,000,000
CONSTRUCTION PROJECT FIVE	\$12,094,621 ⁽⁵⁾	2030	\$22,500,000
CONSTRUCTION PROJECT SIX	\$21,743,196 ⁽⁵⁾	2033	\$44,200,000
CONSTRUCTION PROJECT SEVEN	\$58,278,168 ⁽⁵⁾	2036	\$129,500,000
CONSTRUCTION PROJECT EIGHT	\$29,064,461 ⁽⁵⁾	2040	\$72,700,000
TOTAL 2009 AND IMPLEMENTATION YEAR COST ESTIMATES	\$221,176,449	---	\$410,600,000

Neel-Schaffer, Inc. 2012

Table 4-11 Superscript Notes:

(1) Alternative B has three-lane, one-way ultimate frontage roads. Alternative C has three-lane, two-way ultimate frontage roads. Alternative B and C have similar construction concepts and costs.

(2) The P.E. Project (ROW and Final Plans for the Entire Job) 2009 Cost represents: (a) the estimated costs for preparing the right of way plans for the entire job so that the right of way projects can be scheduled for acquiring the needed additional right of way and performing the adjustments of the impacted utilities; and, (b) the estimated costs for preparing the plans, specifications and estimates for the entire job so that the lettings of the construction projects can be scheduled. These costs were computed at five percent (5%) of the 2009 Construction Cost for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.05 \times \$200,305,607 = \$10,015,280$). **Appendix D** contains the Alternative B 2009 cost estimate computations for the eight construction projects.

(3) The ROW Project to Acquire New Right of Way for the Entire Job 2009 Cost represents the appraisal and acquisition costs added to the right of way property and relocation costs for acquiring the new right of way for the entire job. The costs of providing the right of way appraisal and acquisition services were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.01 \times \$200,305,607 = \$2,003,056$). **Appendix D** contains the Alternative B 2009 cost estimate computations for the eight construction projects. **Appendix D** also contains the estimated right of way cost computations of \$6,909,650 for acquiring the land and impacted property improvements that are located on the land – such as residences, businesses and outdoor advertising signs. Therefore, \$2,003,056 plus \$6,849,450 or \$8,852,506 is the assumed 2009 cost for this ROW project.

(4) The ROW Project to Adjust Utilities for the Entire Job 2009 Cost represents the cost to the MDOT of adjusting impacted utilities located on the additional right of way needed for the entire job. These costs were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative B (or $.01 \times \$200,305,607 = \$2,003,056$). **Appendix D** contains the Alternative B cost estimate computations for the eight constructions projects. The \$2,003,056 does not include the costs to the local jurisdictions of adjusting their impacted utilities.

(5) **Appendix D** contains the Alternative B cost estimate computations for the eight construction projects.

(6) The Preliminary Engineering (P.E.), Right of Way (ROW) and Construction Project Implementation Year Cost Estimates were obtained by projecting the 2009 estimated costs at 3% to the implementation year.

TABLE 4-12
ALTERNATIVE C POSSIBLE PROJECT IMPLEMENTATION PLAN ⁽¹⁾

TYPE PROJECT	2009 PROJECT COST	IMPLEMENTATION YEAR	IMPLEMENTATION YEAR COST ⁽⁶⁾
P.E. PROJECT (ROW AND FINAL PLANS FOR THE ENTIRE JOB)	\$10,229,508 ⁽²⁾	2012	\$11,200,000
ROW PROJECT TO ACQUIRE NEW ROW FOR THE ENTIRE JOB	\$13,471,152 ⁽³⁾	2014	\$15,600,000
CONSTRUCTION PROJECT ONE	\$2,501,505 ⁽⁵⁾	2014	\$2,900,000
ROW PROJECT TO ADJUST UTILITIES FOR THE ENTIRE JOB	\$2,045,902 ⁽⁴⁾	2015	\$2,400,000
CONSTRUCTION PROJECT TWO	\$43,148,325 ⁽⁵⁾	2020	\$59,700,000
CONSTRUCTION PROJECT THREE	\$8,520,040 ⁽⁵⁾	2024	\$13,300,000
CONSTRUCTION PROJECT FOUR	\$25,628,731 ⁽⁵⁾	2027	\$43,600,000
CONSTRUCTION PROJECT FIVE	\$10,991,656 ⁽⁵⁾	2030	\$20,400,000
CONSTRUCTION PROJECT SIX	\$21,743,196 ⁽⁵⁾	2033	\$44,200,000
CONSTRUCTION PROJECT SEVEN	\$62,992,248 ⁽⁵⁾	2036	\$139,900,000
CONSTRUCTION PROJECT EIGHT	\$29,064,461 ⁽⁵⁾	2040	\$72,700,000
TOTAL 2009 AND IMPLEMENTATION YEAR COST ESTIMATE	\$230,336,724	—	\$425,900,000

Neel-Schaffer, Inc. 2012

Table 4-12 Superscript Notes:

(1) Alternative B has three-lane, one-way ultimate frontage roads. Alternative C has three-lane, two-way ultimate frontage roads. Alternative B and C have similar construction concepts and costs.

(2) The P.E. Project (ROW and Final Plans for the Entire Job) 2009 Cost represents: (a) the estimated costs for preparing the right of way plans for the entire job so that the right of way projects can be scheduled for acquiring the needed additional right of way and performing the adjustments of the impacted utilities; and, (b) the estimated costs for preparing the plans, specifications and estimates for the entire job so that the lettings of the construction projects can be scheduled. These costs were computed at five percent (5%) of the 2009 Construction Cost for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.05 \times \$204,590,162 = \$10,229,508$). **Appendix E** contains the Alternative C 2009 cost estimate computations for the eight construction projects.

(3) The ROW Project to Acquire New Right of Way for the Entire Job 2009 Cost represents the appraisal and acquisition costs and the right of way and relocation costs for acquiring the new right of way for the entire job. The costs of providing the right of way appraisal and acquisition services were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.01 \times \$204,590,162 = \$2,045,902$). **Appendix E** contains the Alternative C 2009 cost estimate computations for the eight construction projects. **Appendix E** also contains the estimated right of way computations of \$11,425,250 for acquiring the land and impacted property improvements that are located on the land – such as residences, businesses and outdoor advertising signs. Therefore, \$2,045,902 plus \$11,425,250 or \$13,471,152 is the assumed 2009 cost for this ROW project.

(4) The ROW Project to Adjust Utilities for the Entire Job 2009 Cost represents the cost to the MDOT of adjusting impacted utilities located on the additional right of way needed for the entire job. These costs were computed at one percent (1%) of the 2009 Construction Costs for all eight of the proposed construction projects needed for the ultimate completion of Alternative C (or $.01 \times \$204,590,162 = \$2,045,902$). **Appendix E** contains the Alternative C cost estimate computations for the eight constructions projects. The \$2,045,902 does not include the costs to the local jurisdictions of adjusting their impacted utilities.

(5) **Appendix E** contains the Alternative C cost estimate computations for the eight construction projects.

(6) The Preliminary Engineering (P.E.), Right of Way (ROW) and Construction Project Implementation Year Cost Estimates were obtained by projecting the 2009 estimated costs at 3% to the implementation year.

Table 4-13
Summary of Build Alternatives' Potential Impacts

Category	Alternative B	Alternative C
Land Use (acres)	585	598
Existing Public Maintained Land (acres)	403 of the 585	403 of the 598
Prime Farmlands (acres)	0	0
Residences Assumed Relocated	7	7
Residents Assumed Relocated	9	9
Total Business Assumed Relocated	24	32
Businesses Assumed Relocated due to Apparent Right of Way Encroachment	14 of the 24	17 of the 32
Total Employees Assumed Displaced	106	190
Employees Assumed Displaced Due to Apparent Right of Way Encroachment	63 of the 106	79 of the 190
Noise Receptors Including Relocations	35 of 117 Examined Sites	38 of the 117 Examined Sites
Noise Receptors Excluding Relocations	31 of the 117 Sites	32 of the 117 Sites
Wetlands Crossed (acres)	0	0
Waters of the U.S. Streams (linear feet)	10,917	11,557
Waters of the U.S. Pond (acres)	0.67	0.67
Floodplain crossed (acres)	12.06	12.06
Federally-Listed Species of Concern	Southeastern myotis	Southeastern myotis
State-Listed Species of Concern	Southeastern myotis and Southern Redbelly Dace	Southeastern myotis and Southern Redbelly Dace
Hazardous Waste Sites (number of sites and their potential impact)	52 (32 Low Risk, 16 Moderate Risk and 4 High Risk)	52 (29 Low Risk, 17 Moderate Risk and 6 High Risk)
Estimated 2009 Design, Right of Way and Construction Costs	\$221,176,449	\$230,336,724
Estimated Design, Right of Way and Implementation Year Costs	\$410,600,000	\$425,900,000

Neel-Schaffer, Inc. 2012

5.0 COMMENTS, COORDINATION, and PUBLIC INVOLVEMENT

This section describes the project development team's coordination activities. Some activities only involve the project development team; some activities involve project development team meetings with the local officials, project stakeholders and governmental agencies; and, some activities involve advertised public involvement meetings. Supplementing this section, **Appendix K** contains copies of correspondence with the governmental agencies and Native American tribes; **Appendix L** contains more detailed information on coordination meetings involving the project development team, agencies, local officials, and project stakeholders; and, **Appendix M** contains more detailed information on the advertised public meeting. **Appendix O** will be added later and contain detailed information on the Public Hearing.

5.1 MDOT/FHWA/Neel-Schaffer Kickoff Meeting on October 4, 2007

Representation from the MDOT, FHWA and Neel-Schaffer attended this meeting that had the following goals:

- to discuss the task-specific schedule;
- to establish procedures & expectations within scope & fee;
- to exchange information;
- to initiate requests for other necessary data; and,
- to explain contract administration.

The major discussions and decisions made at the meeting included the following.

- For the Design Year Traffic, the Year 2040 will be used.
- Every possible effort should be made to avoid 4(f) issues related to encroaching on the Vicksburg National Military Park property.
- As the alternatives are developed, additional coordination will be needed concerning design criteria, access control, whether both one-way and two-way frontage road options will be considered, and maintaining traffic while reconstruction is occurring.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.2 MDOT/Neel-Schaffer Coordination Meeting on May 9, 2008, and Follow-up Action(s)

The Coordination Meeting was held to discuss the following:

- the initial alternative concepts under consideration;
- the Indiana Avenue Interchange Bridge widening or replacement requirements for the initial alternative concepts; and,
- the access control requirements for the initial alternative concepts.

The attendees reviewed the access control requirements at the Indiana Avenue Interchange for the three alternatives. Due to bridge costs and the access control required along the frontage roads for the one-way frontage road alternative with the flyover bridges, the attendees agreed dropping the alternative could be justified.

After the meeting, the three alternatives were placed on the MDOT ftp site and the MDOT Bridge Division provided an e-mail on the Indiana Avenue Bridge over I-20.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.3 MDOT/Neel-Schaffer Coordination Meeting on August 4, 2008

The purpose of the meeting was to select a procedure for updating the progress schedule. While discussing the progress schedule and project status, a tentative action plan was developed for scheduling agency and public involvement meetings through the public hearing.

The meeting attendees agreed that the progress schedule needs updating based on the actual time it took to complete the required design level survey. After considerable discussion, the attendees finalized a recommended action plan for working towards scheduling the stakeholders, local officials, and scoping meetings; the public meeting; and, the public hearing. Based on the recommended action plan, N-S will revise the progress schedule and resubmit it to the MDOT. They then discussed the work assignments required to finalize the action plan.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.4 MDOT/Neel-Schaffer Coordination Meeting on January 30, 2009, and Follow-up Action(s)

The following were the goals of the January 30th Coordination Meeting:

- to review the status of the preliminary alternative development;
- to verify everyone is satisfied with the continued development of the preliminary alternative to an acceptable level for public presentation;
- to present unresolved remaining issues that were delaying presenting the preliminary alternative to the public; and,
- to prepare an action plan for addressing the unresolved issues.

Representatives from the FHWA, the MDOT Central District Commissioner's Office, various MDOT Divisions, the MDOT Third District and Neel-Schaffer attended the meeting.

Mr. Chad Wallace of the MDOT and Mr. Robert Walker provided an overview of the existing conditions on this section of I-20 and its interchanges. Mr. Walker then used a wall mounted display to provide an overview of the preliminary alternative. He commented that the major change made in the development of the preliminary preferred alternative since the last coordination meeting was retaining the left exit for I-20 West traffic to US 61 South. He advised retaining the left exit has merit to prevent major detours during construction and to provide an acceptable location between the Halls Ferry Road and the Washington Street/Warrenton Road interchanges for dropping the lane that will be added in the median for I-20 West traffic. Robert Walker added that reduced construction costs will be an additional benefit of retaining the left exit. He stated the FHWA's concurrence will be needed to retain this left exit.

The wall mounted display Mr. Walker used for reference depicted one-way frontage roads. He advised the basic preliminary alternative concept is applicable for one-way or two-way ultimate frontage roads, and the differences in the one-way and two-way frontage road treatments were addressed by Mr. Jimmy Shirley in a later presentation.

Mr. Jimmy Shirley of Neel-Schaffer discussed a plan that could accomplish the ultimate reconstruction by implementing seven separate construction projects. The proposed plan called for accomplishing the projects in sequential order. If adequate funding was available, Mr. Shirley advised some of the projects could be combined. He commented that the construction project sequencing was adaptable for either one-way or two-way ultimate frontage roads.

Messrs. Walker and Shirley discussed the differences in access control for the preliminary preferred alternative with one-way and two-way frontage roads. It was agreed that a follow-up meeting with MDOT Roadway Design Division personnel would be needed to finalize the recommended access control changes.

During the question and comment period, some of the questions and/or comments required follow-up action after the meeting.

None of the attendees opposed the concept being used by the Neel-Schaffer consultant team for the preliminary alternative. After the needed follow-up actions in response to this meeting are completed, it should be possible to finalize a plan and estimated time for presenting the preliminary alternative to Vicksburg Port Director Mr. Wayne Mansfield for input.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.5 MDOT/Wilbur Smith/Neel-Schaffer Coordination Meeting on February 19, 2009

Wilbur Smith Associates is preparing plans for the extension of the I-20 South Frontage Road between Old SR 27 and Clay Street/US 80. The work being performed by Wilbur Smith is inside the limits of this environmental and location study for the reconstruction of I-20 through Vicksburg. The purpose of the meeting was to coordinate the design work Wilbur Smith is performing with the environmental and location study.

Representatives from the MDOT Bridge Division, the MDOT Roadway Design Division, the MDOT Environmental Division, the MDOT Third District, Wilbur Smith Associates, and Neel-Schaffer, Inc. were in attendance at the meeting.

It was agreed that early coordination was needed with the KCS (Meridian Speedway railroad) and that the Wilbur Smith project should have an initial goal of being able to construct the project in a manner that would not encroach on the railroad right of way.

Based on the status of the environmental and location study, the representatives of Neel-Schaffer advised the ultimate width of this frontage road bridge over the railroad must

accommodate two lanes of exiting interstate traffic, a concrete barrier separating the frontage road traffic from the exiting interstate traffic, two lanes of frontage road traffic for one-way operation or three lanes of frontage road traffic for two-way operation.

After brief discussions concerning other design issues, the meeting concluded with a commitment from the MDOT and the two consultants of striving to maintain the needed coordination to not delay the Wilbur Smith plan development requirements for their contract with the MDOT.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.6 MDOT/FHWA/Neel-Schaffer Coordination Meeting on February 20, 2009

The following were the goals of the Coordination Meeting:

- to review the status of the preliminary alternative development with the appropriate engineering staff members of the Federal Highway Administration (FHWA);
- to verify everyone is satisfied with the continued development of the preliminary alternative to an acceptable level for public presentation;
- to discuss the locations where the FHWA engineering staff needed to evaluate special design approvals or design exceptions; and,
- to prepare an action plan for addressing the location(s) where the FHWA engineering staff's determines special design approvals or design exceptions are needed.

Representation from the FHWA; MDOT Third District; MDOT Roadway Design Division; MDOT Bridge Division; MDOT Environmental Division; and, the Neel-Schaffer (NS) consultant team were in attendance at the meeting.

Updates were provided on follow-up actions that had been taken in response to the previous meeting conducted on January 30th. From the FHWA's perspective, Mr. Bob Webster advised Mr. Jeff Schmidt was also unable to attend this meeting due to an emergency conflict and based on the discussions at this meeting another meeting may be needed with Mr. Schmidt.

Mr. Walker commented that the major change made in the development of the preliminary alternative is retaining the left exit for I-20 West traffic to US 61 South. After he provided the merits of retaining the left exit, Mr. Webster responded the FHWA's concurrence would need to be coordinated through Mr. Schmidt. When Mr. Walker was providing his overview of the preliminary alternative, Mr. John Reese of the MDOT Roadway Design Division identified and discussed four interchange locations where FHWA concurrence of the proposed loop radii was needed. In response, Mr. Webster gave his opinion on the proposed radii, but advised Mr. Schmidt would have to provide or coordinate a final response.

Using the table display of the preliminary alternative, Mr. Jimmy Shirley of N-S discussed a plan that could accomplish the ultimate reconstruction in seven separate construction projects. If adequate funding was available, he advised some of the projects could be combined.

Using table displays and detailed plots, Messrs. Walker and Shirley discussed the differences in access control for the preliminary alternative with one-way and two-way frontage roads and updated the group on the current status of the proposed access control. After reviewing the access control shown on the displays, the MDOT gave their concurrence.

Using displays, Mr. Shirley discussed the traffic operational differences in the one-way and two-way frontage road concepts and advised a handout comparing the two concepts was available.

Mr. Webster was made aware of the follow-up meeting held with Wilbur Smith and Associates to coordinate their MDOT design project for the extension of the I-20 South Frontage Road in the vicinity of Vicksburg Factory Outlets with this study.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.7 Stakeholder Meeting with Mr. Wayne Mansfield on April 10, 2009

The following were the primary goals of the meeting with Mr. Mansfield, the Executive Director of the Vicksburg-Warren Economic Development Foundation:

- to receive his input on the status of the preliminary alternative development; and,
- to receive his input on presenting the preliminary alternative to other project stakeholders and eventually to the public.

The attendees at the meeting were: Mr. Mansfield; Mr. Kevin Magee, the MDOT Third District Engineer; Messrs. Claiborne Barnwell and Chad Wallace of the MDOT Environmental Division; and, Messrs. Robert Walker and Jimmy Shirley of Neel-Schaffer, Inc.

During Mr. Walker's overview of the Purpose and Need, Mr. Mansfield acknowledged the obvious need to reconstruct this section of interstate to meet the increased traffic demand and to improve the safety and operations at interchange locations where traffic is entering and exiting I-20 on substandard ramps and loops.

When providing an overview of the preliminary alternative, Mr. Walker used two aerial photography mapping displays of the alternative flat on the table. He explained the main difference in the two displays is the concept for the US 61 South Interchange. Mr. Walker advised one concept would eliminate the left exit for I-20 West traffic to US 61 South and the other concept would retain that left exit. He commented the concept that would retain the left exit would require the approval of the Federal Highway Administration (FHWA). Mr. Walker also commented that the Federal Highway Administration's input and concurrence was needed for the radii of the interchange loop ramps proposed in the northwest and southeast quadrants of the SR 27/US 61 North Interchange and the northeast quadrant of the Halls Ferry Road Interchange.

During his preliminary alternative presentation, Mr. Walker emphasized that a widened and improved frontage road system between Halls Ferry Road and Old SR 27, as well as a new collector-distributor road system between Old SR 27 and SR 27/US 61 North, would be used as a detour for the interstate traffic while the interstate is being widened and reconstructed. He commented that the frontage road and the collector-distributor road systems must be placed in one-way operation while being used as an interstate detour. Mr. Walker advised the frontage roads could be converted back to two-way operation after the interstate reconstruction is completed. However, he emphasized only three lanes are proposed for the ultimate frontage roads.

Mr. Jimmy Shirley then used the table display for the preliminary alternative to present the proposed plan for implementing the construction in seven separate construction projects. Mr. Walker then discussed the differences in access control with the preliminary alternative having one-way and two-way frontage roads.

To keep the study moving, the attendees agreed to the following.

- Another meeting with a select group of the Economic Development Foundation (EDF) Board Members would be scheduled. In preparation for the meeting, the project team would make more use of visualization techniques to aid the board members' understanding of the preliminary alternative and its impacts on residential and commercial relocations.
- In response to a request made by Mr. Mansfield, an estimated time for construction would be provided as soon as possible.
- As soon as possible, the meeting with the FHWA would be held to discuss eliminating or retaining the left exit for I-20 West traffic to US 61 South and the loop radii at the Halls Ferry Road and SR 27/US 61 North Interchanges.
- The project team would continue making preparations for a First Public Meeting sometime after the meeting is held in with select members of the EDF Board.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.8 MDOT/FHWA/Neel-Schaffer Coordination Meeting on April 29, 2009

The following were the goals of the Coordination Meeting:

- to review the status of the preliminary alternative development with Mr. Jeff Schmidt of the Federal Highway Administration (FHWA);
- to discuss the preliminary alternative's design controls at several locations where the MDOT had determined that Mr. Schmidt's input was needed; and,
- to verify everyone is satisfied with the continued development of the preliminary alternative to an acceptable level for public presentation.

Representation from the FHWA, MDOT Third District, MDOT Roadway Design Division, MDOT Bridge Division, MDOT Environmental Division, MDOT Planning Division, MDOT Traffic Engineering Division, MDOT Right of Way Division, and the Neel-Schaffer (N-S) consultant team attended the meeting.

After Mr. Robert Walker of N-S commented on the purpose and need, he provided an overview of the preliminary alternative using a power point presentation and some of the preliminary alternative displays Mr. Wallace had placed on the MDOT FTP Site.

While Mr. Walker provided the overview of the preliminary alternative, some noteworthy comments or decisions were made. At the US 61 South Interchange, it was agreed that the I-20 West left exit to US 61 South would be eliminated and a right exit would be used. It was agreed some specific locations would be reviewed to verify current design standards will be met and that adequate lanes and storage lengths are provided.

The following major design decisions were then made concerning the US 61 South Interchange options and the loop radii constraints.

- It was agreed that the right exit for I-20 East to US 61 South should meet a minimum 50 MPH Design Speed.
- The 175 feet radius was determined to be acceptable for the proposed loop in the northeast quadrant of the Halls Ferry Road Interchange.
- The 300 feet to 200 feet to 300 feet radii was determined to be acceptable for the proposed loop from the C-D Road in the southeast quadrant of the SR 27/US 61 North Interchange.
- The 150 feet radius was determined to be acceptable for the proposed loop from the C-D Road in the northwest quadrant of the SR 27/US 61 North Interchange.

Messrs. Walker and Shirley provided a power point presentation for the seven construction projects proposed for the preliminary alternative. At the conclusion of the presentation, the MDOT and FHWA representatives provided comments on the power point presentation as well as the manner for presenting the preliminary alternative and the construction plan to the public.

The meeting then addressed the one-way and two-way frontage road comparison and the access control changes. At the conclusion of the discussions, Mr. Kevin Magee requested that the one-way and two-way frontage road options for the completed preliminary alternative be carried forward for presentation at the first public meeting.

The attendees were updated on the meeting held with Mr. Mansfield on April 10, 2009. It was agreed the first public meeting could be held in middle to late June. It was also agreed that the

preliminary alternative with one-way and two-way frontage roads would be presented at that meeting for public input and comment. An agency meeting, a meeting with the National Park Service, and another meeting with Mr. Mansfield and some of his board members may be required prior to or on the day of the first public meeting. In the meantime, Neel-Schaffer will work with the MDOT Environmental Division in making the necessary preparations for presenting the preliminary alternative at upcoming meetings. The preparations will include developing one or more videos.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.9 Stakeholders Meeting at Vicksburg-Warren County Chamber of Commerce on September 30, 2009

This meeting was scheduled in response to a meeting with Mr. Wayne Mansfield on April 10, 2009, and a project development team meeting on April 29, 2009.

The people invited to the meeting included:

- some of the business owners who will be directly or indirectly impacted by the project;
- Board Members of the Vicksburg-Warren County EDF;
- representatives from the Vicksburg-Warren County Chamber of Commerce; and,
- officials with the City of Vicksburg.

The goals of the meeting were:

- to present the preliminary alternative, with its one-way and two-way frontage road concepts, to this stakeholder group for input; and,
- to determine from this group of stakeholders if there are any major issues that the project development team needs to address prior to presenting this alternative to others in the community, including the public.

When providing the overview of the seven proposed projects for the preliminary alternative, Mr. Walker used a power point presentation. The power point presented the study area on an aerial photography background. For each project, the first image depicted the existing conditions. The second image for each project identified the proposed reconstruction's finished product.

Due to time constraints, Mr. Shirley's presentation on the construction concept overview was shortened. However, he did briefly discuss the differences in the one-way and two-way frontage road concepts for the two versions of the preliminary alternative. The proposed access control changes at Indiana Avenue were addressed in detail during Mr. Shirley's presentation.

During the question and comment period, several stakeholders expressed their appreciation for the work that had been accomplished to present an alternative for reconstructing this section of interstate in a manner that could accommodate either one-way or two-way ultimate frontage roads. Most of the stakeholders were very concerned about the alternatives proposed access control for the reconstructed Indiana Avenue Interchange. The stakeholders wanted to know an estimated cost, an estimate for when construction would begin, and an estimate on how long before the entire project would be completed. In response, they were advised that was dependent upon the MDOT's available funding and priorities, and that at the present time no major work on the interstate is programmed beyond this environmental and location phase.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.10 Local Officials Meeting at Vicksburg on October 5, 2009

This meeting was held in the Office of Vicksburg Mayor Paul Winfield. The goals of the meeting were:

- to present the preliminary alternative, with its one-way and two-way frontage road concepts, to the local officials; and,
- to determine from the local officials if there are any major issues that the project development team needs to address prior to presenting this alternative to the public.

The local officials attending the meeting included: Mayor Paul Winfield, members of Mayor Winfield's administrative staff, a City of Vicksburg Alderman, the President of the Warren County Board of Supervisors, and Mr. Wayne Mansfield. The project development team representatives in attendance were: Mr. Chad Wallace of the MDOT Environmental Division; Mr. Durwood Graham, MDOT Assistant Third District Engineer; Mr. Keith Purvis, MDOT Assistant Chief Engineer over Preconstruction; and, Messrs. Robert Walker and Jimmy Shirley of Neel-Schaffer.

When providing the overview of the seven proposed projects for the preliminary alternative, Mr. Walker used a power point presentation. During Mr. Shirley's presentation on the construction concept overview, the differences in the one-way and two-way frontage road concepts were discussed. He also addressed the proposed access control changes. Particular attention was taken by Mr. Shirley in addressing the proposed access control at the Indiana Avenue Interchange.

The following are some of the noteworthy discussions that occurred during the question and comment period or during the meeting's presentations.

- In response to their request, the local officials were provided the status of the project that would extend the I-20 South Frontage Road to Vicksburg Factory Outlets.
- The local officials were concerned about the major impacts the access control proposed for the alternatives will have on some existing businesses.
- The proposed project will require adjusting or relocating utilities located on and off existing MDOT right of way. The MDOT policy for adjusting or relocating utilities under the two scenarios was discussed. Since the City of Vicksburg is typically responsible for relocating utilities currently located on MDOT right of way under a permit, this is an important issue for the local officials.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.11 Scoping Meeting at Vicksburg on November 17, 2009

The goals of the meeting were:

- to present the preliminary alternative, with its one-way and two-way frontage road concepts, to the appropriate representatives of the resource agencies and the Vicksburg National Military Park; and,
- to solicit views from representatives of the resource agencies and the Vicksburg National Military Park which by law, interest, or expertise can assist the project planners with the timely identification of economic, social and environmental opportunities and constraints within the study area.

The attendees at the meeting represented the Mississippi Department of Wildlife, Fisheries and Parks; the Vicksburg National Military Park; the U.S. Fish and Wildlife Service; the U.S. Army Corps of Engineers; the Mississippi Department of Transportation (MDOT); the Federal Highway Administration (FHWA); and, the Neel-Schaffer (N-S) Inc. consultant team.

After the opening comments, Mr. Walker provided a project overview addressing the study area, purpose and need, study approach, public involvement and proposed schedule.

When providing the overview of the seven proposed projects for the preliminary alternative, Mr. Walker used a power point presentation. The power point presented the study area on an aerial photography background. He explained that the same video, but with voice over, would be used when playing the video for the public at the meeting later in the day. For each project, the first image depicted the existing conditions while the second image identified the proposed reconstruction's finished product.

The attendees then viewed aerial photography mapping displays of the preliminary alternative with a one-way ultimate frontage road concept and a two way ultimate frontage road concept. When viewing and discussing the displays, the representatives of the Vicksburg National Military Park and the resource agencies made the following major comments.

- The Vicksburg National Military Park directly administers the Military Park property located east of Indiana Avenue. The preliminary alternative with the two-way frontage road concept would relocate the west approach on the North Frontage Road to Indiana Avenue to the north. Any relocation to the north of the east approach on the North Frontage Road at the Indiana Avenue intersection can't be accomplished without impacting Military Park property and becoming a 4(f) issue.
- The Vicksburg National Military Park has turned over the administration of the Military Park property west of Indiana Avenue to the City of Vicksburg.
- The representative of the Mississippi Department of Wildlife, Fisheries and Parks advised the Southern Redbelly Dace, an endangered species, could be located in the study area.

There were no objections expressed to continuing the development of the preliminary alternative with the two frontage road concepts. If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.12 Public Meeting at Vicksburg on November 17, 2009

The Open House Public Meeting was conducted in two rooms of the Vicksburg Convention Center. The purpose of the meeting was to receive input from the public on two alternatives for reconstructing the subject section of I-20. Both alternatives have similar concepts for reconstructing the mainline interstate and the interchanges. However, one alternative has one-way frontage roads in its completed state and the other alternative has two-way frontage roads in its completed state.

The public was invited to the meeting by the placement of newspaper advertisements in the *Vicksburg Post*. At the registration table, the attendees received a handout containing fact sheets and a comment sheet. After registering their attendance, the attendees were asked to view the project video. The video was approximately 20 minutes in length and shown in one of the two meeting rooms at random times throughout the meeting.

The second room at the convention center contained maps of the alternatives on an aerial photography background. Members of the project development team were available throughout the room to address the public's questions and to receive the public's input.

Of the 98 people who registered their attendance at the meeting, 72 are considered public representatives and 26 are considered representatives of the project development team. The questions and discussions between the public and the project development team primarily concerned: opinions and comparisons of the one-way and two-way ultimate frontage road alternatives; and, potential right of way impacts associated with the loss of private property for future highway right of way or loss of private property due to the proposed changes in access control.

There were twelve written comments submitted in response to the meeting. Seven of these comments were submitted at the meeting and five were submitted to the MDOT after the meeting. The following summarizes the content of those twelve comments.

- Six comments supported the two-way ultimate frontage road alternative. The support was based on the convenience of access and the belief that the one-way ultimate frontage road alternative would create an economic hardship on the frontage road businesses.
- Two comments supported the one-way ultimate frontage road alternative and expressed their desire for advancing the study as quickly as possible.
- One comment supported either alternative because both provided good access to the Vicksburg Factory Outlets.
- One comment supported doing nothing, stated making frontage roads one-way is not economically feasible and advised under current economic conditions the money should be spent on more critical projects.
- One comment expressed a desire for the signs and markings used on project to take into account the visibility needs of the older drivers.
- One comment expressed concern about the impact the project could have on his wife's sleeping. She works nights, is on-call, and has a limited amount of time to report to the hospital for emergency surgeries.

If additional information is needed on the meeting and follow-up actions taken in response to the meeting, refer to the meeting summary contained in **Appendix M**.

5.13 MDOT/FHWA/Neel-Schaffer Coordination Meeting on January 27, 2010

The goals of the meeting were: to discuss the actions taken in response to the First Public Meeting; and, to resolve any issues preventing scheduling follow-up meetings in Vicksburg with the local officials and the Indiana Avenue stakeholders.

The project development team representatives at the meeting included representation from the MDOT Environmental Division, the MDOT Roadway Design Division, the MDOT Bridge Division, the MDOT Planning Division, the MDOT Third District, the FHWA and Neel-Schaffer, Inc.

Messrs. Robert Walker and Jimmy Shirley updated the group on N-S actions taken in response to the first public meeting. The following are some of the discussions that occurred in response to the update.

- The changes made in the Indiana Avenue Access Control for the one-way frontage road alternative were determined to be acceptable. The changes moved the shared intersections of the interchange ramps and frontage roads at Indiana Avenue to the location of the current interchange ramp intersections with Indiana Avenue.
- The Indiana Avenue bridge width requirements at I-20 for the two alternatives were discussed based on not being able to remove the raised curbed island in the middle of the bridge as a control.
- For the two-way frontage road alternative on the north side of I-20 between Old SR 27 and the circulation bridge west of Old SR 27, the attendees supported the concept of not allowing any access.
- The attendees supported the proposed concept as presented that allows the two-way alternative, if it becomes the selected alternative and is eventually constructed, to be retrofitted at some unknown point in the future to an alternative very similar to the one-way alternative.

The following decisions are some of the decisions made in response to the discussion items shown on the agenda.

- If the raised curbed island on the Indiana Avenue Bridge over I-20 cannot be removed, Mr. Nick Altobelli and Mr. John Reese agreed that it appeared the bridge should be replaced for both alternatives.
- After discussing the width requirements of the South Frontage Road Bridge over the Kansas City Southern railroad (Meridian Speedway), it was decided that the MDOT representatives will coordinate the checking of the Wilbur Smith design files to verify they are compatible with the N-S design files.
- During the reconstruction of the mainline interstate between the Halls Ferry Road Interchange and the Clay Street/US 80 Interchange, traffic signals are proposed at three locations where the temporary connections join the frontage roads. It was agreed that prior to the public hearing these driveway locations would be reviewed to determine if any special treatments were needed during the construction phases.

The following decisions were made in response to agenda items concerning closing comments, questions and follow-up actions.

- Mr. Claiborne Barnwell wanted to know if any current military park property, or former military park property that has been turned over to the City of Vicksburg for administering, was impacted. He also wanted to know if the project would require any military monuments to be relocated. It was agreed a determination should be made of the impacted property ownership and that a coordination meeting should be scheduled with the Vicksburg National Military Park personnel.
- It was pointed out that the military park personnel have not provided a response to the one-way and two-way alternatives presented to them at the Scoping Meeting held on November 17, 2009. It was agreed to discuss this with them at the upcoming coordination meeting.
- The MDOT concurred in scheduling follow-up meetings at Vicksburg with the local stakeholders and officials.

If additional information is needed on the meeting and follow-up actions taken in response to the meeting, refer to the meeting summary contained in **Appendix L**.

5.14 Vicksburg/Warren County Local Officials and Stakeholders Meeting on February 11, 2010

The goals of the meetings were to discuss with the local officials and stakeholders actions taken in response to the First Public Meeting and to resolve issues preventing the completion of a Preliminary Environmental Assessment so that a public hearing could be scheduled.

At approximately 9:30 a.m., Mr. Jimmy Shirley of Neel-Schaffer met at the Chamber's Office with Mr. Edley Jones, the owner of the residence located in the northeast quadrant of the Indiana Avenue interchange between the North Frontage Road and Bugle Ridge Drive. The meeting was held at the request of Mr. Jones to update him on the status of the one-way and two-way frontage road alternatives.

The project development team representatives at the 10:00 a.m. scheduled meeting included representatives from the MDOT Environmental Division, the MDOT Third District, the MDOT Right of Way Division, the MDOT Central District Transportation Commissioner's Office, the FHWA, and Neel-Schaffer, Inc. The Vicksburg-Warren County officials attending the meeting included Mayor Paul Winfield, Ms. Kenya Burks, Mr. Lee Thames, Warren County District One

Supervisor David McDonald and Ms. Christi Kilroy with the Chamber. The Vicksburg-Warren County Stakeholders attending the meeting included: Messrs. John Moss, Ronnie Andrews, Dan Waring, Richard Waring, Howard Waring, Brother Blackburn and Mark Buys.

The meeting with the Vicksburg-Warren County officials and stakeholders began at approximately 10:15 a.m. After the welcoming and introductory comments, Messrs. Robert Walker and Jimmy Shirley of Neel-Schaffer updated the group on actions taken in response to the first public meeting. The following summarizes the update and the discussions held in response to the update.

- The changes made in the Indiana Avenue Access Control for the one-way frontage road alternative generally received favorable comments.
- During the discussions of the two-way alternative at the Indiana Avenue Interchange, the project development team provided the attendees background information on the alternative currently avoiding 4(f) issues relating because it does not directly impact property owned by the Vicksburg National Military Park.
- The raising and widening of the Indiana Avenue Bridge over I-20 for the two alternatives was briefly discussed. The attendees appeared to understand this had to be done and that it could be accomplished under several construction project scenarios.
- The reconstruction and widening of the frontage roads to three lanes was briefly discussed. The attendees recognized the improvements must be made to the frontage roads so that the frontage roads can be placed in one-way operation and function as interstate detours while the adjacent east bound and west bound lanes on I-20 are reconstructed.
- The attendees supported providing two frontage road circulation bridges at the same locations for the one-way and two-way frontage road alternatives. For the circulation bridge slightly west of Old SR 27 on the south side of I-20, the attendees did not express any objections to providing a connection from Porters Chapel Road to the South Frontage Road for both the one-way and two-way frontage road alternatives.
- For the two-way frontage road alternative on the north side of I-20 between Old SR 27 and the circulation bridge west of Old SR 27, the attendees did not object to the concept of not allowing any access. The attendees also did not object to

extending the no access limit west of the roundabout to the North Frontage Road access provided for the church and residential property.

- The attendees did not object to the concept at the Halls Ferry Road Interchange for the one-way frontage road alternative of providing a connector to the South Frontage Road from the I-20 East on-ramp.
- The attendees appeared to support the proposed concept as presented that allows the two-way alternative to be retrofitted at some point to an alternative very similar to the one-way alternative.
- The attendees did not object to using the same North Collector Distributor Road/Old SR 27 connector design for the two-way and one-way frontage road alternatives.
- Several attendees requested and received a status report on the project that would extend the I-20 South Frontage Road between Old SR 27 and the Vicksburg Factory Outlets by providing a bridge over the KCS (Meridian Speedway) railroad.
- Due to time constraints, the snapshot of the refined one-way and two-way alternatives was not discussed.

The following noteworthy comments were made before the meeting adjourned.

- Mayor Winfield advised another meeting might be needed to address site specific questions, comments or concerns.
- Robert Walker informed the attendees that the goal was to finalize these two alternatives as soon as possible so that the Preliminary Environmental Assessment could be completed and approved for presentation at a public hearing by sometime in the early summer of 2010.

At approximately 11:30 a.m., the meeting adjourned. If additional information is needed refer to the meeting summary contained in **Appendix L**.

5.15 Vicksburg National Military Park Agency Meeting on February 11, 2010, and Follow-up Action(s)

The goals of the meetings were to discuss with the military park officials actions taken in response to the First Public Meeting and to resolve issues preventing the completion of a Preliminary Environmental Assessment so that a public hearing could be scheduled.

The project development team representatives at the meeting included Messrs. Chad Wallace and John Underwood of the MDOT Environmental Division; MDOT Third District Engineer Kevin Magee; Mr. Claiborne Barnwell of the FHWA; and, Messrs. Robert Walker and Jimmy Shirley of Neel-Schaffer, Inc.

Mr. Mike Madell was selected as the new Superintendent of Vicksburg National Military Park effective January 17, 2010. Therefore, he did not attend the prior scoping or public meetings on November 17, 2009. In addition to Mr. Madell, the Military Park officials at the meeting were Ms. Virginia DuBow, Mr. Terry Winschel and Mr. Jerrel Cooper.

After opening comments were made, Robert Walker used a projector display of the snapshot of the one-way and two-way alternatives to update the Military Park officials on the changes made in the two alternatives since the public and scoping meetings held on November 17, 2009. The update paid particular attention to locations where the alternatives border their current or former property.

The following are some of the noteworthy questions asked or comments made by the Military Park personnel during the review of the two alternatives.

- At the proposed US 61 South reconstructed interchange, Mr. Terry Winschel expressed concern about the location of proposed flyover for west bound I-20 traffic to US 61 South relative to the right of way for Iowa Boulevard. As part of the City's administration of this property, there is a clause that a minimum 25 foot wide buffer free of any construction will be maintained beyond the former military park property. After the attendees reviewed the flyover, they determined one point where the construction is inside the 25 foot buffer, but not encroaching on the former military park property. Jimmy Shirley commented the location is within the limits of a proposed bridge and that the MDOT had recommended that the alignment for this bridge meet a 50 mph Design Speed. Due to the design constraints, Jimmy Shirley commented it might be difficult to adjust the alignment so that the construction would be outside the 25 foot buffer and still meet the 50 mph Design Speed. If it is not possible to make the requested adjustment and still meet the 50 mph Design Speed, Mr. Winschel advised there is a procedure for obtaining a variance.

- Mr. Winschel advised there is also former park property that has been turned over to the City at the north end of the Wisconsin Avenue Bridge over I-20. The project development team responded that the current plans for the widening of the frontage road would not require any reconstruction of this bridge or the Wisconsin Avenue approaches to the bridge.
- Considerable time was spent reviewing the one-way and two-way frontage road alternatives in the northeast quadrant of the Indiana Avenue Interchange. To explore the possibility of a future land swap for the two-way frontage road alternative that could increase the Military Park buffer, the park officials asked the project development team to develop an alternate concept to dead-ending the North Frontage Road east of Indiana Avenue. The alternate concept would minimally impact the park property by extending and relocating the east approach on the North Frontage Road to intersect Indiana Avenue opposite the opposing relocated North Frontage Road approach from the west.
- Mr. Madell was reassured that the study at all times will maintain I-20 access to and from the Military Park.

In e-mail correspondence to Mr. Winschel dated March 8, 2010, Mr. Robert Walker addressed the park officials request for a concept that could relocate and align the east approach on the North Frontage Road at Indiana Avenue with the proposed relocated west approach on the North Frontage Road. The concept impacted military park property, but did not require the relocation of the motel. Therefore, the concept did not open the possibility of a land swap with the NPS obtaining the motel property in exchange for the land the NPS would give up for relocating the frontage road.

If additional information is needed refer to the meeting summary contained in **Appendix L**.

5.16 MDOT/Neel-Schaffer Coordination Meeting on April 29, 2010, and Follow-up Action(s)

This meeting concerned the proposed I-20 West exit from the North Collector Distributor Road located between Old SR 27 and the Distributor Road/Frontage Road Circulation Bridge. The goals of the meeting were: to discuss the design constraints at the current location of the exit; and, to discuss an alternate location plan for the exit ramp.

The project development team representatives at the meeting included: Mr. John Reese, the MDOT Roadway Design Division Engineer; and Messrs. Aubrey Kopf and Jimmy Shirley of Neel-Schaffer, Inc. Mr. Adam Boggan of the MDOT Roadway Design Division and Mr. Chad Wallace of the MDOT Environmental Division were unable to attend the meeting due to conflicts in their schedule.

Messrs. Kopf and Shirley discussed the differences in elevation that are occurring between the North Collector Distributor Road traffic lanes and the interstate lanes at the current proposed exit location. They advised the relatively short distance between the I-20 West and the North Collector Distributor Road traffic lanes, along with their differences in pavement elevations, do not allow the exit to meet the required design standards at the location currently proposed.

Between Clay Street/US 80 and the bridges over the Kansas City Southern (Meridian Speedway) railroad, Messrs. Kopf and Shirley advised Mr. Reese a two-lane exit to I-20 West from the North Collector Distributor Road is now being proposed and the previous exit to I-20 West between Old SR 27 and the Distributor Road/Circulation Bridge would be eliminated.

Messrs. Kopf and Shirley used a display for discussing the alternate location plan and the benefits of moving the ramp to the alternate location. The alternate plan would eliminate the diamond type ramp to the west of Clay Street/US 80 on the north side of I-20 and have all the Clay Street/US 80 traffic enter the North Collector Distributor Road on the opposite side of Clay Street through a loop type ramp. Since low design year traffic volumes are projected to be proceeding west on the North Collector Distributor Road where the I-20 West two-lane exit occurs, they advised the proposed new I-20 West exit is projected to perform at a Level of Service B.

After receiving the briefing, Mr. Reese gave his concurrence to the plan. However, he advised the concurrence of the Federal Highway Administration was also needed. Later in the day, Messrs. Jimmy Shirley and Chad Wallace met on another matter. After Mr. Shirley provided Mr. Wallace with a summary of the earlier meeting with Mr. Reese and after Mr. Wallace reviewed the plot of the proposed plan, Mr. Wallace sent Mr. Jeff Schmidt an e-mail with the plan attached requesting FHWA approval of the plan.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.17 MDOT/Neel-Schaffer Coordination Meeting on August 3, 2010, and Follow-up Action(s)

The meeting concerned: reviewing the existing plan for making the Riley Road connection to US 61 North at the proposed Clay Street/US 80/US 61 North/SR 27 Interchange; discussing an alternate plan proposed by Neel-Schaffer for making the connection; and, determining whether or not the MDOT concurred in changing to the alternate plan.

At the beginning of their meeting, the attendees discussed: the existing Riley Road intersection with US 61 North; and, the existing traffic generators between the US 61 North intersections with Riley Road and Keystone Circle. The attendees then reviewed the plan presented at the First Public Meeting for relocating the Riley Road intersection with US 61 farther north.

Since the First Public Meeting, the design of the interchange was modified slightly. The attendees recognized a traffic signal might eventually be warranted and needed at the proposed new US 61 North/Riley Road Intersection, and that the proposed extension of Riley Road does not provide the design needed for the efficient operation of a signalized intersection. Therefore, the attendees agreed other options needed exploring.

The attendees then discussed the option now being recommended of extending Riley Road farther north to Keystone Circle, and they agreed that option would provide an improved design. Neel-Schaffer was to coordinate making the necessary changes and provide a file to the MDOT depicting the agreed upon revisions. On September 1, 2010, Neel-Schaffer provided the requested correspondence to the MDOT by e-mail.

This concludes the summary of this meeting and follow-up actions. If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.18 MDOT/FHWA/Neel-Schaffer Coordination Meeting on October 18, 2010

Meeting Background

The Code of Ordinances for the City of Vicksburg contains an Appendix-A Zoning with eleven articles. The Article IV Regulations portion of Appendix-A Zoning has twelve sections numbered Sections 400 through 411.

Section 404.11 addresses a Buffer Zone for Vicksburg National Military Park and states, “Around the perimeter of the Vicksburg National Military Park, there shall be established a twenty-five foot minimum buffer in which building or construction or parking is prohibited. Any proposed development occurring on property bordering the Vicksburg National Military Park properties or former Vicksburg Military Park properties held in title by the mayor and alderman of the City of Vicksburg shall be presented to the building official for site plan review and approval in order to mitigate potential for any adverse effects. Subject to impact of proposed development, the city may require a developer to landscape the buffer zone between the proposed development and the park property or former park property. The minimum allowable buffer zone shall be twenty-five (25) feet.”

The Article V Administration portion of Appendix-A Zoning has seven sections numbered Sections 500 through 506. Section 503.3 pertains to Variances, conditions, governing application procedures. Therefore, means are available to apply for a variance from the minimum allowable 25 foot buffer zone between the proposed construction for the build alternatives and current or former park property.

Meeting Summary

Representatives from the MDOT Environmental Division, the Federal Highway Administration, and Neel-Schaffer, Inc. (N-S) attended this meeting in the MDOT Environmental Division Conference Room that had the following goals:

- to review locations apparently covered under the City Ordinance where the build alternatives are within 25 feet of current or former Vicksburg National Military Park property;
- to review locations where input is needed on the adjacent property ownership from officials with the City of Vicksburg or the Vicksburg National Military Park to assist the project development team in determining whether or not the build alternatives are within 25 feet of current or former Vicksburg National Military Park property apparently covered under the City Ordinance;

- to develop an action plan for scheduling a follow-up joint meeting with Vicksburg Public Works Director Bubba Rainer and Vicksburg National Military Park officials or separate meetings with Mr. Rainer and the Vicksburg National Military Park officials.

Based on the property ownership records available to N-S electronically, no current or former military park property is believed needed for additional right of way. Using aerial photography maps of the build alternatives, the attendees reviewed all potential locations where the 25 foot buffer City Ordinance for current and former military park property might apply. The project development team agreed that the existing and proposed right of way for the build alternatives, construction limits for the build alternatives and the adjacent property ownership, should be reviewed and/or researched so that as accurate information as possible would be available for discussions at the meeting with the military park officials.

At the conclusion of the meeting, it was decided a meeting should be scheduled as soon as possible with City of Vicksburg Public Works Director Bubba Rainer. The goals of the meeting with Mr. Rainer would be: to finalize the locations where the 25 foot buffer for current and former military park property applies; to receive Mr. Rainer's input on actions the project development team needs to take prior to scheduling a meeting with the military park officials; and, to determine if Mr. Rainer, in hopes of possibly expediting the process of addressing the military park buffer ordinance, would attend the meeting with the military park officials.

This concludes the background and summary of this meeting. If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.19 City of Vicksburg Coordination Meeting on October 21, 2010

The goals of this coordination meeting held with the City of Vicksburg officials at the Vicksburg City Hall Annex were:

- to review locations apparently covered under the City Ordinance where the build alternatives are within 25 feet of current or former Vicksburg National Military Park property;
- to review locations where input is needed on the adjacent property ownership from officials with the City of Vicksburg to assist the project development team in determining whether or not the build alternatives are within 25 feet of current or

former Vicksburg National Military Park property apparently covered under the City Ordinance; and,

- to determine if the City of Vicksburg officials want to attend a follow-up meeting with the Vicksburg National Military Park officials.

Vicksburg Public Works Director Bubba Rainer and City Engineer Garnet Van Norman were the City of Vicksburg Officials present at this meeting with Mr. Jimmy Shirley of Neel-Schaffer, Inc.

Using aerial photography maps of the build alternatives, the attendees reviewed the following locations with respect to the 25 foot buffer City Ordinance for current and former military park property.

1. The proposed reconstructed US 61 South Interchange where the build alternatives are the same; where the current eastern former military park eastern right of way for Iowa Boulevard north of I-20 would become the western limit of the proposed new additional right of way for the reconstructed interchange; and, where the MDOT wants to pursue a variance from the 25 foot buffer City Ordinance that would allow construction anywhere on the proposed new right of way.
2. The proposed reconstructed North Frontage Road slightly east of the bridge on Wisconsin Avenue over the interstate where the build alternatives are the same and additional right of way is shown to be needed.
3. The North Frontage Road between Indiana Avenue and Old SR 27 where: the existing right of way is adjacent to current military park property; no additional right of way is needed for the build alternatives; and, the construction limits at some locations for reconstructing the frontage road will be within 25 feet of the current military park property.
4. The North Frontage Road between Indiana Avenue and Old SR 27 where additional right of way is needed for the build alternatives from private properties located between the frontage road and current military park property. At some of the locations, the additional needed right of way will be within 25 feet of the current military park property.
5. The northwest quadrant of the US 61 North/SR 27 Interchange where the build alternatives are the same, no additional right of way is needed for the

reconstructed Clay Street/US 80/US 61 North/SR 27 Interchange, and, the existing right of way might be within 25 feet of current military park property.

6. The northwest quadrant of the US 61 North/SR 27 Interchange where the build alternatives are the same, additional right of way is needed for the reconstructed Clay Street/US 80/US 61 North/SR 27 Interchange, and the additional needed right of way might be within 25 feet of current military park property.

Concerning Item 1 shown above, Messrs. Rainer and Van Norman were advised the project development team is recommending pursuing a variance from the 25 foot buffer ordinance with the City of Vicksburg allowing construction north of I-20 anywhere along or to the east of the former military park property right of way line for Iowa Boulevard, which would become the western right of way line for the reconstruction interchange. After Messrs. Rainer and Van Norman discussed the proposed design and the project development team's desire for pursuing the variance in the ordinance for this location, Mr. Rainer advised the variance could probably be granted. However, Mr. Rainer stated coordination and concurrence would be needed with the military park officials.

Concerning Item 2 shown above, Messrs. Rainer and Van Norman agreed with the MDOT property maps that the MDOT right of way tie points at the north end of the Wisconsin Avenue Bridge are to current or former military park property and that the proposed construction of the build alternatives at this location does not have a military park property issue covered under the city's ordinance. At the follow-up meeting with the military park officials, it was agreed the park officials would be updated on this finding and asked to concur.

Concerning Item 3 shown above, Messrs. Rainer and Van Norman believed a variance is probably needed from the City Ordinance at those locations. They agreed this should be further discussed at the follow-up meeting with the military park officials.

Concerning Item 4 shown above, Messrs. Rainer and Van Norman agreed that the need for obtaining a variance from the City Ordinance should be discussed at the follow-up meeting with the military park officials.

Concerning Items 5 and 6 shown above, Messrs. Rainer and Van Norman advised there is no current or former military park adjacent to or within 25 feet of the existing or proposed additional

needed right of way in the northwest quadrant of the US 61 North/SR 27 Interchange. Therefore, the city ordinance does not apply to properties impacted by the construction in the northwest quadrant of the US 61 North/SR 27 Interchange.

At the conclusion of the meeting, it was decided that Mr. Rainer and possibly Mr. Van Norman would attend the follow-up meeting with the military park officials. This concludes the background and summary of this meeting. If additional information is needed, refer to the meeting summary contained in **Appendix L**

5.20 MDOT/FHWA/Neel-Schaffer Coordination Meeting on November 23, 2010

The goals of this Mississippi Department of Transportation/Federal Highway Administration/Neel-Schaffer Inc. Coordination Meeting held in the MDOT Environmental Division Conference Room were:

- to update the Federal Highway Administration, the MDOT Environmental Division, the MDOT Roadway Design Division and the MDOT Third District on the current status of the study;
- to review the format and presentation that N-S is proposing for an agency meeting scheduled with the Vicksburg National Military Park officials for November 29, 2010;
- to prepare unified project development team responses to possible questions that might be asked or comments that might be made by the Vicksburg National Military Park officials at the meeting on November 29th; and,
- to determine if any additional preparations are needed for the meeting with the Vicksburg National Military Park officials on November 29th.

The attendees at the meeting included representation from the MDOT Environmental Division, the MDOT Roadway Design Division, the MDOT Third District, the Federal Highway Administration, and Neel-Schaffer, Inc.

Prior to the meeting, Neel-Schaffer provided the MDOT Environmental Division several electronic files for images that Neel-Schaffer wanted available for use during their presentation. Mr. Wallace of the MDOT Environmental Division loaded the images on a projector and operated the projector at the meeting.

The meeting opened with Mr. Jimmy Shirley of Neel-Schaffer commenting that the construction project plan sequencing for implementing the ultimate completion of the build alternatives had been changed from seven projects to eight. He advised that Projects One through Five have not changed, but the additional project at the Clay Street Interchange was needed to separate into two projects the costs of accomplishing the reconstruction of the interstate and interchanges between the east side of Indiana Avenue and the east side of Clay Street.

Mr. Shirley continued by making additional comments on the presentation format and the build alternatives. He then updated the attendees on his October 21, 2010, meeting with Vicksburg Public Works Director Bubba Rainer and City Engineer Garnet Van Norman when the locations of the build alternatives were reviewed with respect to the 25 foot buffer City Ordinance for current and former military park property.

As N-S provided the update on the status of the study and the report of the meeting with the City of Vicksburg officials, the following noteworthy comments were made concerning the goals of the coordination meeting.

- At the US 61 South Exit 1B Interchange, the project developed team discussed the need of providing fencing at the following locations north of I-20: along the portion of the proposed new interchange right of way line that is concurrent with the existing former military property eastern right of way line for Iowa Boulevard; and, along the portion of the proposed new interchange right of way line that is concurrent with the existing southern right of way line for Old US 80. It was agreed that Adam Boggan would look into this issue and report his findings to the project development team prior to the meeting with Vicksburg National Military Park officials.
- For the upcoming meeting with Vicksburg National Military Park officials, it was agreed the projector mapping images used for presenting Alternative B were acceptable and that similar projector mapping images should be prepared for presenting Alternative C.
- At a previous meeting, the Vicksburg National Military Park officials expressed concerns about the project possibly having construction, noise, and maintenance of traffic impacts. At the previous meeting the park officials also made the project development team aware of the 25 foot buffer City Ordinance for current and former military park property. For the upcoming meeting with military park

officials, the project development team members agreed they obviously need to be prepared to address these concerns expressed at the prior meeting.

- The major goals of the upcoming meeting with the Vicksburg Military Park officials are: to update them on the status of the study; to receive their input on the locations where variances are needed from the 25 foot buffer City of Vicksburg Ordinance involving current and former military park property; and, to receive any other comments and questions they have on the project.

If additional information is needed, refer to the meeting summary contained in **Appendix L**.

5.21 Agency Meeting with Vicksburg National Military Park officials on November 29, 2010, and Follow-up Action(s)

The goals of this agency meeting with the Vicksburg National Military Park officials were:

- to update the military park officials on the status of the study;
- to receive input from the military park officials on the locations where variances are needed from the City of Vicksburg Ordinance that establishes a 25-foot construction free buffer for current and former military park property;
- to receive questions and comments from the military park officials on the status report they receive at the meeting; and,
- to determine the action plan for processing the 25-foot buffer City Ordinance variance requests to the City of Vicksburg.

The attendees that registered their attendance at the meeting included representation from the Vicksburg National Military Park, the City of Vicksburg, the MDOT Environmental Division, the MDOT Third District, the Federal Highway Administration and Neel-Schaffer, Inc.

Prior to the meeting, representatives of Neel-Schaffer provided Mr. Chad Wallace of the MDOT Environmental Division several electronic files for images that Neel-Schaffer wanted available for viewing at the meeting with the military park officials. Mr. Wallace agreed to load the images on a projector and operate the projector at the meeting.

Most of the meeting was spent doing the following:

- reviewing the locations for the build alternatives where variances are needed in the City Ordinance that prevents construction within a 25-foot buffer for current and former military park property;
- receiving input from the military park officials on the locations where variances from the 25-foot buffer ordinance are needed;
- addressing questions or comments from the military park officials; and,
- developing an action plan for processing the request for variances to the 25-foot buffer City Ordinance.

The meeting opened with introductions. Using the mapping projector images for Alternative B and Alternative C that do not contain aerial photography, Mr. Jimmy Shirley of Neel-Schaffer reviewed the locations with nearby current or former military park property and advised whether or not the construction of the build alternatives at the reviewed locations necessitates pursuing a variance to the 25-foot buffer City Ordinance.

During and after Mr. Shirley's presentation, several questions from the military park officials were addressed. A number of comments were also made by the military park officials and the project development team. The following summarizes those discussions.

- Even though fencing will probably have to be provided north of I-20 at the proposed US 61 South Interchange to control access and protect the former military park property along the proposed new right of way line that would be concurrent with the former military park eastern right of way line for Iowa Boulevard, the MDOT can commit to staying off the former military park property and seeking to minimize the construction limits.
- At previous meetings, the military park officials made the project development team aware of the military park property along Wisconsin Avenue that begins near the northern limits of the Wisconsin Avenue Bridge over I-20. The proposed North Frontage Road reconstruction for the build alternatives can be accomplished inside that formerly acquired additional right of way and not within the 25-foot buffer ordinance for park property.
- For the build alternatives at Indiana Avenue, the military park officials made the project development team aware that some of the former military park property that was donated as right of way when the Indiana Avenue Interchange for I-20 was originally constructed might no longer be needed for MDOT right of way.

The military park officials advised the deed contains wording similar to, if all or a portion of the donated military park property ceases to be needed for transportation purposes, the no longer needed property will be returned to the military park. The MDOT agreed to conduct the appropriate research and advise the military park officials of the findings. If needed, the appropriate commitment would then be made in the Environmental Assessment.

- The project development team commented several times that efforts were made to minimize the additional needed right of way for the build alternatives and to keep the construction of the build alternatives off current or former military park property.
- Relative to the locations where the MDOT wants to pursue variances to the 25-foot buffer ordinance for current and former military park, Park Superintendent Mr. Mike Madell commented that he has no issues from a strict land use perspective. City of Vicksburg Public Works Director Mr. Bubba Rainer commented that he does not believe the variances are big issues because the areas will not have a major affect on the citizens of Vicksburg.
- The military park officials and Mr. Rainer did not state any objections when Mr. Robert Walker of Neel Schaffer suggested that the project development team process the request for variances to the city ordinance to Mr. Rainer for him to address in accordance with their established procedures.
- Mr. Madell restated there were no real land uses. Concerning 4(f), he advised his possible Constructive Use comments relating to noise and seismic impacts were preliminary.
- Mr. Madell's preliminary comments on possible seismic impacts concerned nearby military park monuments.
- Mr. Madell's comments on noise impacts referenced an active natural sound program study being conducted at select sites in the Vicksburg National Military Park by the Fort Collins Office of the National Park Service. After some brief discussions comparing the procedures being used for the Fort Collins study at the Vicksburg National Military Park with those used by the project development team for the noise study in their Environmental Assessment, it was agreed that further discussions were needed to determine the accuracy of comparing the two studies results and how best to compare the results.

- Mr. Madell asked to what extent the interstate access to Clay Street and the military park will be affected, and if the interstate traffic will be able to access the park well? In response, Mr. Jimmy Shirley briefly explained the possible construction project sequencing plan. He assured Mr. Madell that the interstate traffic access to Clay Street and the military park would be maintained at the current level through project six and at a comparable level after project six. He explained that traffic leaving the park on Clay Street and traffic approaching I-20 from Downtown Vicksburg on Clay Street would not be able to enter I-20 West during one of the construction phases for project seven. During that project seven construction phase, Mr. Shirley explained this traffic would be detoured to I-20 West over the North Collector Distributor Road and the North Frontage Road to the Indiana Avenue Interchange.
- While addressing Mr. Madell's comments about access to Clay Street and the military park during the reconstruction of the interstate, the project development team assured Mr. Madell that adequate guide signing for the military park would be maintained and relocated as needed throughout reconstruction of the interstate. The project development team advised Mr. Madell the assurance will be documented as a commitment in the Environmental Assessment.
- The project development team and Mr. Madell agreed to communicate further on comparing the results of the EA noise study with the Fort Collins noise study.

This concludes the summary of the agency meeting with the Vicksburg National Military Park officials. If additional information is needed, refer to the meeting summary contained in **Appendix L**.

Following the meeting, the project development team and the military park officials communicated by telephone and e-mail on the noise study comparison for the two noise studies. Some receptor locations used in the military park study were added to the noise study being prepared for this EA. Members of the project development team also participated in a conference telephone call with the Fort Collins group preparing the noise study for the military park. As soon as the noise study for this EA is completed, the project team agreed to provide a copy of the noise study to the military park officials.

Mr. Jimmy Shirley and Vicksburg Public Works Director Bubba Rainer had a telephone conversation following the meeting concerning the submittal of the request for variances to the City Ordinance. Mr. Chad Wallace of the MDOT Environmental Division then submitted request by two separate e-mails to Mr. Rainer on December 17, 2010.

The project development team asked the MDOT Right of Way Division to provide a copy of the instrument for the former military park property acquired as right of way at the Indiana Avenue Interchange for the original construction of I-20. The instrument verified that formerly acquired military park property determined to be no longer needed for transportation purposes is to be returned to the military park.

This concludes the documentation of follow-up actions to the military park agency meeting through December 22, 2010.

5.22 Coordination Meeting with City of Vicksburg officials on January 24, 2011, and Follow-up Action(s)

The goals of this meeting with the City of Vicksburg officials were to finalize a plan for addressing the locations where variances or exceptions would be needed from the City Ordinance preventing construction within 25 feet of current or former military park property.

The City of Vicksburg officials at the were: Mr. Bubba Rainer, the Public Works Director, who supervises the Engineering Department; Mr. Garnet Van Norman, who works in the Utility Department; and, Messrs. Victor Gray-Lewis and Dalton McCarty, who work in the Inspection Department. Messrs. Chad Wallace of the MDOT Environmental Division and Mr. Jimmy Shirley of Neel-Schaffer, Inc., were the project development team representatives at the meeting.

In preparation for the meeting and for the benefit of Messrs. Gray-Lewis and McCarty, Mr. Shirley prepared a handout.

Mr. Shirley opened the meeting by providing a brief overview of the study and the status of the study. He then used the maps from the handout to identify the location bordering Iowa Boulevard south of Old US 80 and the location along the North Frontage Road from slightly east

of Indiana Avenue to the Honda dealership where the project development team wanted to discuss the possibilities of obtaining variances or exceptions to the 25-foot construction free buffer from the City of Vicksburg. Mr. Shirley advised the requested variance or exception at the US 61 South Exit 1B Interchange would allow construction within the entire 25 feet of the 25-foot construction free buffer. He commented that a similar variance or exception was being requested allowing construction within the entire 25 feet of the 25-foot construction free buffer for the current military park property along the North Frontage Road from slightly east of Indiana Avenue to the Honda dealership.

When an adjacent property owner makes a request for a variance or exception to the 25-foot construction free buffer, Messrs. Gray-Lewis and McCarty advised the adjacent property owner is required to provide a survey, legal description and/or site plan of the property depicting the area of the encroachment within the 25-foot buffer. In response, Messrs. Wallace and Shirley advised this study will result in one alternative being selected for the reconstruction of this section of I-20 through Vicksburg. A subsequent project or projects would then be implemented to acquire any needed additional right of way bordering the current or former military park property. Messrs. Wallace and Shirley commented that it would be during the subsequent design projects when the actual construction limits inside the 25-foot buffer would be determined. The attendees then agreed that the request for variances or exceptions to the military park ordinance should not be addressed until the MDOT becomes the adjacent property owner for all locations where variances or exceptions to the ordinance are needed and the MDOT can provide the City of Vicksburg their desired survey description for the locations where the construction will encroach within 25 feet of the current and former military park property.

The City of Vicksburg officials discussed the good relationship they have with the Vicksburg National Military Park officials and their history of cooperation in approving reasonable requests for variances or exceptions to the ordinance. The attendees then discussed the possibility and need of scheduling another joint meeting with the military park and city officials.

This concludes the summary of the meeting. If additional information is needed on this coordination meeting, refer to the meeting summary contained in **Appendix L**.

Following the meeting, Mr. Claiborne Barnwell of the Federal Highway Administration was made aware of the discussions that were held at the meeting with the City of Vicksburg officials on

January 24, 2011. After Mr. Barnwell had communicated on several occasions with Mr. Chad Wallace of the MDOT and Mr. Michael Madell, the Vicksburg National Military Park Superintendent, Mr. Barnwell sent Mr. Madell an e-mail dated February 17, 2011.

Based on the recent meeting with the City of Vicksburg officials and the follow-up communications between Messrs. Barnwell and Mr. Michael Madell, the MDOT and FHWA decided that a project development team meeting with the City of Vicksburg and Vicksburg National Military Park officials was not needed and that the Preliminary Environmental Assessment would be prepared and approved for presentation at a Public Hearing as soon as possible.

This concludes the documentation of follow-up actions to City of Vicksburg Coordination Meeting through February 17, 2011.

5.23 Value Engineering Study Kickoff Meeting and Site Visit on May 23, 2011 and Follow-up Actions through May 27, 2011

The MDOT decided it was in everyone's best interests for the required Value Engineering (VE) Study to be conducted as part of this study's Environmental and Location Phase instead of later during the Design Phase. MACTEC Engineering and Consulting, Inc. were selected to conduct the VE Study. To assist MACTEC in preparing for their study and this meeting, the MDOT provided them a copy of the unapproved Preliminary Draft EA that Neel-Schaffer had submitted and any other MDOT available information that MACTEC had requested.

The Kickoff Meeting was held at Jackson in the MDOT First Floor Auditorium during the morning of May 23, 2011. Representatives from the MDOT, FHWA, MACTEC and Neel-Schaffer, Inc. attended the meeting. After brief opening comments and introductions were made, representatives from the MDOT and Neel-Schaffer presented the project's status, opportunities, and constraints. In response to the MDOT and Neel-Schaffer presentations, MACTEC representatives asked questions and made comments to assist them in their study. Between 11:00 and Noon, the meeting concluded with closing comments by the MDOT.

A representative of Neel-Schaffer met the MACTEC representatives during the early afternoon to view the Vicksburg project site and assist the MACTEC representatives by addressing questions or comments that their site visit generated.

Between the late afternoon of May 23rd and the early morning of May 27th, the MACTEC representatives completed the VE Study to sufficient detail for them to make a presentation on an overview of their proposed Draft Report during the mid-morning of May 27th. Representatives from the MDOT, FHWA, Neel-Schaffer, and MACTEC attended the May 27th presentation held in the MDOT First Floor Auditorium at Jackson. During their presentation, the MACTEC representatives answered questions and addressed comments that were made by the attendees. Between 11:00 and Noon, the meeting concluded with the MDOT Value Engineering Coordinator expressing the MDOT's appreciation for the work performed by the MACTEC representatives, and the MDOT Value Engineering Coordinator advising the MDOT was looking forward to receiving the Draft Report.

5.24 Value Engineering Draft Report Processed to MDOT on June 6, 2011

An electronic copy of MACTEC's Draft Report was processed to the MDOT for review and comments on June 6, 2011. A copy of the Draft Report is contained in **Appendix N**.

5.25 Review and Evaluation of VE Draft Report between June 7, 2011, and January 19, 2012.

After the Draft Report was reviewed, a decision was made on the ideas or recommendations contained in the Draft Report that the MDOT did not want to pursue and the ideas that the MDOT wanted to pursue as possible modifications to Build Alternatives B and C. Of the ideas the MDOT wanted pursued, one concerned the US 61 South Interchange, two concerned the US 61 North/SR 27 Interchange and two concerned the Indiana Avenue Bridge over I-20. Properly evaluating the ideas at the US 61 South and the US 61 North/SR 27 Interchanges that the MDOT wanted pursued required considerable additional work. Since the VE Study was not part of the MDOT's original contract with Neel-Schaffer for this study, a supplemental agreement had to be prepared and approved for the work required by Neel-Schaffer for the MDOT to decide whether or not to implement the ideas. The approved supplemental agreement authorized Neel-Schaffer to begin work evaluating the Draft Report's agreed upon ideas on December 2, 2011.

5.26 MDOT, FHWA and Neel-Schaffer Draft VE Study Report Evaluation Meeting on January 20, 2012

Representatives from the MDOT, FHWA and Neel-Schaffer met at the MDOT in Jackson to discuss Neel-Schaffer's evaluation of the ideas contained in the Draft VE Study Report that the MDOT wanted further study.

The agenda for the meeting consisted of the following:

- welcoming and opening comments;
- a presentation by Neel-Schaffer on the ideas evaluated and preliminary decisions by the MDOT on whether or not the Preliminary Draft EA will need revising to incorporate the accepted ideas into Build Alternatives B and C; and,
- a plan for revising the submitted Preliminary Draft EA for re-submittal and approval.

Mr. Aubrey Kopf first presented Neel-Schaffer's evaluation of Idea G-5 which would reconfigure the US 61 South Exit 1B Interchange. He discussed the advantages and disadvantages of the original concept and those of Idea G-5 as proposed in the Draft VE Study Report. For the northbound US 61 traffic entering I-20 West, the original concept has the advantage of providing more weaving distance between the US 61 South and the Washington Street/Warrenton Road Interchanges. The original concept requires a lengthy bridge and passes close to the former Vicksburg National Military Park property bordering the eastern side of Iowa Boulevard north of I-20. The advantages of Idea G-5 are: it has less right of way impacts to the north of I-20, and the bridge is approximately 200 feet shorter than the original concept. The disadvantages of Idea G-5 are: the proposed design is more non-standard and approximately 1,000 feet of weaving distance is lost for traffic entering I-20 West.

In response to the presentation and discussions, the MDOT made a preliminary decision to keep the original concept at the US 61 South Exit 1B Interchange instead of Idea G-5 as proposed in the Draft VE Study Report. The decision was based on the following.

- Between the US 61 South Exit 1B and the Washington Street/Warrenton Road Exit 1A Interchanges, the original concept provides a longer weaving distance for the northbound US 61 entry maneuver to I-20 West.

- Both concepts require traffic to negotiate curves on down grade slopes, but the original concept keeps the curves in the same direction while the VE concept contains back and forth reverse curves.
- For the northbound US 61 exit maneuver from US 61 South, the proposed Idea G-5 modified the original curve alignment to that required for a left exit and changed traffic travel direction from clockwise to counterclockwise., but the evaluation of the idea revealed a right exit was still required.

The attendees discussed Ideas T-2 and Y-1 of the Draft VE Study Report concerning the bridge at the Exit 3 Interchange on Indiana Avenue over I-20. Idea T-2 would replace and widen the entire bridge in one project in lieu of jacking the bridge in one project and then widening the raised bridge in a later project. Idea Y-1 is an alternative to Idea T-2. Idea Y-1 would raise and widen the bridge in a single construction project. As currently proposed the bridge would be raised on the first possible construction project in Year 2014 and not widened until the seventh construction project in Year 2035. It is possible that in the design phase for possible construction project seven a determination could be made that the bridge should be replaced instead of being widened. If that is the case, the MDOT could proceed with replacing the bridge and received the benefit of having a bridge with their suggested increased vertical clearance for over 20 years. The MDOT made a preliminary decision to reject both ideas and leave Indiana Avenue Bridge work as currently proposed under construction projects one and seven.

Mr. Kopf then presented his work concerning the Draft VE Study Report's two ideas at the US 61 North/SR 27 portion of the combined Clay Street/US 80/US 61 North/SR 27 Interchange. Idea C-2 shifts the westbound I-20 roadway and collector distributor road lanes to the south so that the new collector distributor lanes use the footprint of the existing westbound I-20 lanes. Idea A-12 eliminates one-lane from the five-lane on-ramp/collector distributor lane merge/weave section in the northwest quadrant of the interchange. Mr. Kopf advised that Neel-Schaffer recommended implementing the two ideas along with eliminating the loop in the northwest quadrant for the westbound I-20 exit to SR 27 South and accommodating this exit maneuver using the exit ramp in the northeast quadrant of the interchange. The MDOT made a preliminary decision to accept Mr. Kopf's recommendations.

The meeting concluded with the MDOT expressing their desire to advance this project to a public hearing as soon as possible.

5.27 MDOT Value Engineering Study Decision Memorandum dated February 7, 2012

The MDOT decision memorandum needed for the processing of the Final VE Study report supported the preliminary decisions made at the meeting on January 20, 2012. The decision memorandum also provides additional information on the MDOT reasoning for accepting or rejecting the ideas or recommendations contained in the Draft VE Study report. **Appendix K** contains a copy of decision memorandum.

5.28 Value Engineering Study Final Report Processing to MDOT dated February 17, 2012

The processing completed the VE Study performed by AMEC, formerly MACTEC. A copy of the processed correspondence is contained in **Appendix F**.

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