Post-Tier 2
Environmental Technical Memorandum

Prepared for
RPCGB
REGIONAL PLANNING COMMISSION OF GREATER BIRMINGHAM

Prepared by the
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Project Team

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Post-Tier 2
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# Table of Contents

1.0 Need for and Description of the Proposed Action .........................1

1.1 Purpose of this Document in the Study Process ..........................1

1.2 Description of the Study Corridor .........................................2

1.3 Purpose of the Project .....................................................4

1.4 Planning Context ............................................................8

1.5 Legislative Context ..........................................................10

1.6 Summary ...........................................................................10

2.0 Alternatives to the Proposed Action .........................................12

2.1 Tier 1 Alternatives ................................................................12

2.1.1 I-65 Multimodal Alternatives ...........................................12

2.1.2 Arterial Transit Alternatives .............................................16

2.1.3 I-65 Interchange Improvements .......................................18

2.1.4 I-65 Operational Improvements .......................................19

2.1.5 Tier 1 Recommendations for I-65 Multimodal Alternatives ....19

2.1.6 Tier 1 Recommendations for Arterial Transit Alternatives ....20

2.2 Tier 2 Alternatives ................................................................21

2.2.1 Refinements to I-65 Multimodal Alternatives ......................21

2.2.2 Refinements to Arterial Transit Alternatives ......................22

2.2.3 Corridor Multimodal Alternatives ....................................22

2.2.4 Tier 2 Alternatives: Highway Element ................................24

2.2.5 Tier 2 Alternatives: Transit Element ..................................26

2.2.6 Tier 2 Recommendations ..................................................27

2.3 Post-Tier 2 Alternatives .......................................................30

2.3.1 Final Corridor Multimodal Alternatives ............................30

2.3.2 Post-Tier 2 Alternatives: Highway Element ......................31

2.3.3 Post-Tier 2 Alternatives: Transit Element .........................31

2.3.4 Locally Preferred Alternative ...........................................43

3.0 Environmental Impacts ..........................................................45

3.1 Land Acquisition and Displacements .......................................45

3.2 Land Use and Zoning ...........................................................48

3.3 Air Quality ...........................................................................57

3.4 Noise ..................................................................................61

3.5 Water Quality .......................................................................63
3.6 Wetlands and Streams ................................................................. 64
3.7 Floodplains ................................................................................. 69
3.8 Navigable Waterways and Coastal Zones ................................. 70
3.9 Ecologically Sensitive Areas ....................................................... 70
3.10 Threatened and Endangered Species ........................................ 70
3.11 Traffic and Parking ................................................................. 72
3.12 Energy Requirements and Potential for Conservation ............... 74
3.13 Cultural Resources and Parklands ............................................. 74
3.14 Construction .............................................................................. 84
3.15 Aesthetics ................................................................................... 85
3.16 Community Disruption and Environmental Justice .................. 86
3.17 Safety and Security .................................................................. 96
3.18 Secondary Development .......................................................... 96
3.19 Consistency with Local Plans .................................................... 97

Appendices
Appendix A: Stations, Stops, Centers, and Park and Ride Location Maps
Appendix B: CAL3QHC Input and Output Files
Appendix C: Noise Analysis Technical Report
Appendix D: Waters of the U.S. Location Maps
Appendix E: Floodplain Crossing Location Maps
Appendix F: Level of Service Tables
Appendix G: Phase I Cultural Resources Survey
Appendix H: Examples of Transit Centers, Park and Ride Lots, Stations, and Stops
Appendix I: Community Impacts Assessment

List of Figures
Figure 1.1: Study Location Map .......................................................... 3
Figure 2.1: HOV Lane Highway Improvements .................................... 32
Figure 2.2: All Proposed MMP Transit Routes .................................... 35
Figure 2.3: BRT Route A .................................................................... 36
Figure 2.4: BRT Route B .................................................................... 37
List of Tables

Table 2.1: Tier 1 I-65 Multimodal Alternatives................................................................. 14
Table 2.2: Tier 1 Arterial Transit Alternatives ................................................................. 17
Table 2.3: Tier 2 Alternatives ......................................................................................... 23
Table 2.4: Post-Tier 2 Alternatives ................................................................................ 30
Table 3.1: I-65 MMP Projects in Birmingham’s MPO Published 2035 RTP ................... 57
Table 3.2: CO Concentrations ....................................................................................... 59
Table 3.3: Average Daily Traffic ................................................................................... 60
Table 3.4: FHWA NAC Hourly A-Weighted Sound Levels ............................................ 62
Table 3.5: Number of Buses Needed for Transit Routes ................................................. 63
Table 3.6: Stream Summary of Impacts ...................................................................... 65
Table 3.7: Wetland and Open Water Summary of Impacts .......................................... 67
Table 3.8: Possible Wetland and Stream Impacts at Proposed Transit Centers, Stops, Stations and Park and Ride Lots ................................................................. 68
Table 3.9: Federal and State Listed Species for Jefferson and Shelby Counties ............ 71
Table 3.10: Average Daily Traffic ................................................................................ 73
Table 3.11: Estimated Transit/Park and Ride Parking ................................................... 73
Table 3.12: Environmental Justice Thresholds ........................................................... 86
1.0 Need for and Description of the Proposed Action

The Regional Planning Commission of Greater Birmingham (RPCGB), in cooperation with Federal Transit Administration (FTA), the Federal Highway Administration (FHWA) and the Alabama Department of Transportation (ALDOT), propose to make transportation improvements in the I-65/US 31 corridor, extending from downtown Birmingham into the south-central portion of the Birmingham metropolitan area. The improvements are collectively referred to as the I-65/US 31 Mobility Matters Project.

The RPCGB has performed an Alternatives Analysis study in order to evaluate these proposed transportation improvements. The alternatives analysis process followed the traditional procedure, in which alternatives were identified, evaluated and compared using increasingly more detailed application of evaluation criteria. Alternatives considered include:

1. No-Build Alternative – There would be no physical improvements in the corridors.
2. Transportation Systems Management (TSM) Alternative – This alternative includes low-cost improvements designed to address identified transportation problems throughout the corridor.
3. Build Alternatives – These may include various highway and transit build alternatives including high-occupancy vehicle (HOV) lanes, bus rapid transit (BRT) or other premium transit, managed lanes, general purpose lanes, interchange improvements, as well as various improvements on adjacent and intersecting routes along the corridor.

Also, because federal approvals, permits and funding assistance are required to construct the improvements, the proposed project is subject to review under the National Environmental Policy Act (NEPA).

This chapter describes the project location, the existing and projected future transportation problems in the I-65/US 31 Mobility Matters Project corridor, the purpose for the proposed transportation improvements, and the planning and legislative context of the project.

1.1 Purpose of this Document in the Study Process

This document is a compilation of the environmental field work and analysis completed for the transit and highway elements of the locally preferred alternative (LPA) for the I-65/US 31 Mobility Matters Project. This report summarizes the need for and description of the proposed action and then presents the environmental field work and analysis completed for the LPA.
1.2 Description of the Study Corridor

The I-65/US 31 Mobility Matters Project will consider improvements in a transportation corridor that is of significant economic importance to the metropolitan Birmingham area, serving as both a primary bypass for through traffic and as a primary commuting corridor for a multitude of employers in the corridor and its travel shed. The first of the three major routes in the corridor consists of I-65 from Valleydale Road to I-20/I-59 for a distance of approximately thirteen (13) miles. The second route in the corridor consists of a combination of surface streets located parallel to I-65 including US 31, Columbiana Road, Green Springs Highway and University Boulevard from Valleydale Road to 11th Street for a distance of approximately twelve (12) miles. The third route in the corridor, the US 31 route, consists of US 31 from Valleydale Road to University Boulevard for a distance of approximately thirteen (13) miles. Please refer to Figure 1.1 for the study location map.

The project limits described above have been determined to be the project’s logical termini by FTA, FHWA and ALDOT. Logical termini are defined as rational endpoints for a transportation improvement and for a review of environmental impacts.

The study corridor is a critical north/south route located in Jefferson and Shelby Counties. The corridor serves the Birmingham city center as well as the metropolitan area, passing through numerous neighboring municipalities including Homewood, Vestavia Hills, Hoover, and Pelham. As the corridor’s congestion increases, fueled by growth and development in the study area, there is a need to provide multimodal connectivity to and between activity centers in order to meet increased travel demands.

The I-65/US 31 Mobility Matters Project study corridor is characterized by these features and attributes:

- It is essential to the economic vitality of the Birmingham region and the state of Alabama.
- It serves as a major access route to Birmingham’s downtown and financial district, the University of Alabama-Birmingham, the Birmingham Jefferson Convention Complex and Five Points South.
- It connects suburban Jefferson and Shelby Counties with the commercial and business areas in the remainder of the metropolitan area.
- It will provide a potential connection to a proposed downtown transit system, which is currently planned in the 2035 RTP.
- It provides direct access to the Birmingham freeway system (I-20, I-59, I-459, and Future I-22).
- The I-65 corridor has minimal public transit services outside of the downtown, Vestavia Hills and Hoover areas.
Figure 1.1: Study Location Map
- It has a broad base of demographic characteristics in terms of ethnic, racial, and income groups.
- It serves areas south of downtown Birmingham in Shelby County that are experiencing rapid economic and population growth.

1.3 Purpose of the Project

Multimodal transportation improvements are proposed for the I-65/US 31 Mobility Matters Project to meet the long-term regional transportation needs in the study corridor. Traffic conditions in the study corridor on I-65 and US 31 are congested and are expected to become more severe in the years to come. According to the Birmingham Metropolitan Planning Area 2035 Regional Transportation Plan (RTP), capacity deficiencies are expected to spread throughout the corridor to such an extent that by 2035 all segments of I-65 and several segments of US 31 within the I-65/US 31 Mobility Matters Project will have capacity deficiencies.

The Birmingham Regional Congestion Mitigation Process (CMP) Study, completed for the Regional Planning Commission of Greater Birmingham (RPC) in April of 2008, also identified the section of I-65 located in the Mobility Matters Project corridor as one of the most congested freeway sections in the Birmingham metropolitan area. Existing public transit service in the I-65/US 31 Mobility Matters Project corridor primarily consists of a limited number of bus routes that have lengthy headways (time between buses) and are generally on-time less than 75 percent (75%). Mobility has become increasingly difficult and time consuming for commuters using I-65 and other routes within the study corridor.

Thus, the purpose of the I-65/US 31 Mobility Matters Project is to define and examine potential transportation improvements that would address the existing and emerging transportation system issues associated with this strategic south-central corridor of metropolitan Birmingham.

Analysis of these current and projected conditions in the study area has led to the identification of four key problem areas for the I-65/US 31 Mobility Matters Project by the year 2035. Many of these problems and needs are interrelated. The I-65/US 31 Mobility Matters Project will address the following needs:

1. **Improve Regional Mobility**: Traffic demand is overwhelming the existing design capacity of the I-65 study area and related interchanges in the peak periods. The congestion on I-65 is also inconvenient and highly disruptive to residents that depend upon it for their daily travel. Currently, the morning northbound peak hour on I-65 experiences unacceptable levels of service between I-459 into the downtown area. In the afternoon southbound peak hour, unacceptable levels of service are experienced from University Boulevard as motorists leave the downtown area and continue south to the I-459 interchange. Also, several I-65 signalized ramp approaches and ramp intersections are currently experiencing unacceptable levels
of service during peak period operations which affect the freeway’s performance in terms of the ability to manage entering and exiting vehicles. By 2035, capacity deficiencies are expected to spread throughout the corridor to such an extent that all segments of I-65 within the I-65/US 31 Mobility Matters Project will have capacity deficiencies. The Birmingham Regional Congestion Mitigation Process (CMP) Study, completed for the RPC in April of 2008, also identified the segment of I-65 from downtown Birmingham to Calera as the most congested freeway in the Birmingham metropolitan area. The CMP Study also identified portions of Greensprings Highway and US 31, located within the I-65/US 31 Mobility Matters Project, as being congested and in need of improvements.

Traffic conditions in the I-65/US 31 Mobility Matters Project study corridor in Birmingham are congested and are expected to become more severe in the years to come. In 2010, I-65 between Valleydale Road and I-20/59 had average daily traffic volumes that ranged between 114,000 and 150,000 vehicles per day. By 2035, volumes on I-65 are expected to range between 147,000 and 181,000 vehicles per day. Traffic volumes on U.S. 31 vary widely throughout the study area, with the largest potential for growth occurring in Shelby County. As the volume of total traffic increases on I-65, truck traffic is also expected to increase. Trucks are a significant component of the vehicle mix on I-65. Large truck percentages range between eight to ten percent (8-11%) of the daily traffic stream along I-65 between downtown and I-459. Their impact to overall operations is influenced by Birmingham’s rolling topography with numerous sustained grades.

2. **Improve Air Quality:** A major source of air toxins is diesel particulate, which is considered to be a local source air pollutant. Jefferson and Shelby Counties and a small portion of Walker County are classified as nonattainment areas with respect to the NAAQS for the 24-hour PM$_{2.5}$ standard effective since December 14, 2009 and for the annual PM$_{2.5}$ standard since April 5, 2005. Jefferson and Shelby Counties are currently considered maintenance areas for the ground-level ozone standard. Based on the Air Quality Conformity Determination Report, the FY 2012-2015 Transportation Improvement Program (TIP) and the amended 2035 Regional Transportation Plan (RTP) for the Birmingham Metropolitan Planning Area meet the interim air quality conformity requirements for the 24-hour PM$_{2.5}$ and the annual PM$_{2.5}$ standards and the continuing air quality conformity requirements for the ground-level ozone maintenance area.

3. **Develop Quality Transportation Alternatives:** There is a need to better serve the population in the I-65 study area with transit. Existing transit services warrant solutions to improve the mobility of those who currently use public transit, as well as to make these services more competitive with the automobile so as to attract new riders to help reduce traffic congestion.
Public transit service in the I-65/US 31 Mobility Matters Project corridor is currently limited to bus service, with little or no service to the outlying suburban communities. According to the Magic 65 Study Existing Conditions Technical Memorandum (October, 2006), many of the bus routes in the study area have lengthy headways (time between buses) and are on-time less than 75 percent, based on ridership and on-time performance data that was collected for the Birmingham Jefferson County Transit Authority (BJCTA) in 2005. Transit service in the study corridor currently includes the “Highway 31 South” bus route between the Galleria Mall immediately south of I-459 continuing on US 31 into downtown Birmingham. The route deviates from the study area corridor at the intersection of US 31. Users of the route during peak hours are typically work trip related from the Hoover and Vestavia Hills areas into the downtown area or transferring to other routes at the transit transfer center (“Central Station”). Data from the Comprehensive Transit Development Plan (TDP) completed for the BJCTA (July, 2007) indicates that in 2005 the route serviced 66,209 passengers per year. Bus speed along the route averages 12.3 mph on weekdays. The other transit route in the study corridor utilizes a portion of Green Springs Highway in the Homewood area. The “Homewood 39” route traverses an area of Green Springs Highway which includes lower income transit dependent users for both employment and residential and shopping trip purposes. Data from the Comprehensive Transit Development Plan (TDP) completed for the BJCTA (July, 2007) also indicates that in 2005 the route serviced 72,004 passengers per year. Bus speed along the route averages 14.0 mph on weekdays.

Currently, drivers in the greater Birmingham area are heavily dependent on single-occupant automobile travel. Current year vehicle occupancy data collected for the purposes of the Mobility Matters Project in August 2008 at I-65 and Alford Avenue during peak hour commuting times showed that eighty-eight percent (88%) are single occupant; eleven percent (11%) are two occupant vehicles; and one percent (1%) are vehicles with three plus occupants. As roadway capacity becomes more constrained, alternatives to single-occupant travel are needed to keep pace with personal travel demand.

4. **Develop Cost Effective Solutions:** There are limited financial resources over the next 25 plus years. Proposed transportation improvements should be realistic and achievable, based on known physical, operational, social, and institutional parameters. The Birmingham MPO 2030 and 2035 Regional Transportation Plans (RTP) include transit options for which funding or existing congressional earmarks have been identified. These include funding for the Birmingham Jefferson County Transit Authority (BJCTA), the continued funding of Central Alabama Specialized Transit (ClasTran) and the continued work on refining the Alternatives Analysis New Starts Program (that include the Mobility Matters Project and the In-town Transit Partnership Project) through preliminary engineering and environmental documents. However, the Visionary Element of the 2030 and 2035 RTPs, which include the
The proposed general transit improvements in the Mobility Matters Project Study area, is not fiscally constrained and, therefore, does not have funding identified for capital improvements in the I-65/US 31 corridor. The Mobility Matters Project will help identify cost effective improvements that can be included in the Core Element of the 2040 RTP which will be fiscally constrained.

Project goals for the previous Magic 65 Study were developed based on the transportation needs of the study area and from the guidance of the Technical Advisory Sub-Committee, Project Steering Committee and public meeting input from the Magic 65 Study, the precursor to this I-65/US 31 Mobility Matters Project. The original Magic 65 Study goals are stated as follows:

- Provide transportation improvements that create innovative alternatives to single-occupant vehicle travel and enhance existing alternatives.
- Coordinate transportation planning with economic development efforts and surrounding land use, either to maximize land use potential or to protect existing land uses along the corridor.
- Incorporate enforcement strategies that maximize the effectiveness of alternatives that include HOV lanes.
- Share the benefit and burden equitably, paying particular attention to environmental justice communities.
- Be feasible, in terms of purpose and need, funding, and practical implementation.
- Rely on high-quality data to educate elected officials, residents, and other users of transportation facilities on the benefits and impacts of transportation facilities.

These goals were refined to establish updated goals and objectives, as well as criteria to measure effectiveness, for use in the analysis, comparison, and screening of alternatives to be formulated and analyzed in the I-65/US 31 Mobility Matters Project. The goals and objectives for the I-65/US 31 Mobility Matters Project are as follows:

**Goal 1**: Improve transportation mobility and reduce congestion through and within the study corridor.

- **Objective 1A**: Enhance corridor trip capacity and service quality.
- **Objective 1B**: Enhance corridor non-SOV mobility choices.
- **Objective 1C**: Address identified corridor transportation needs.

**Goal 2**: Minimize adverse impacts to the human/built and natural environments, and foster positive environmental impacts.

- **Objective 2A**: Minimize environmental impacts.
- **Objective 2B**: Minimize air quality degradation.
- **Objective 2C**: Minimize impacts to the human built environment.

**Goal 3**: Support local and regional land use and transportation vision and plans.

- **Objective 3A**: Maintain compatibility with adjacent land uses.
Objective 3B: Maintain consistency with local and regional land use and transportation plans.

Goal 4: Provide a cost effective and efficient transportation investment strategy.
   Objective 4A: Minimize capital and operating cost requirement (effectiveness).
   Objective 4B: Minimize investment cost per project benefits (efficiency).

The I-65/US 31 Mobility Matters Project will use a number of measures of effectiveness to evaluate how well the alternatives considered meet these project goals and objectives. Because I-65 is the critical piece to the Mobility Matters Project, the alternatives analysis first evaluated the effectiveness of multimodal improvements on I-65 itself. Then, based on the effectiveness of the multimodal improvements on I-65, the study evaluated transit improvements on I-65 and on the surface street network located parallel to I-65.

For environmental reporting purposes, the I-65/US 31 Mobility Matters Project was initially identified as an Environmental Assessment (EA) class of action. The Early Coordination process was initiated and solicited the views of public officials and agencies concerning the feasibility and practicality of the proposed transportation improvements. A comprehensive public involvement process was also initiated which actively sought the input and opinions of the public concerning the purpose and need of the proposed improvements. However, an EA document was not completed for this study. Rather, all environmental field work and analysis that has been completed for the transit and highway elements of the LPA is documented in this report.

1.4 Planning Context

Over the past few years, several public transportation studies have been conducted in the Birmingham region that analyzed the I-65 corridor and other high priority corridors in the greater Birmingham area. Below is a list of major planning milestones leading up to the I-65/US 31 Mobility Matters Project.

- In December 1999, the Birmingham MPO completed the Strategic Regional Multi-Modal Mobility Plan (SRMMP). The SRMMP recommended completion of a feasibility determination of regional transportation and transit improvements for the Birmingham Metropolitan Planning Area of Jefferson and Shelby Counties.

- In June 2004, the RPC completed the Birmingham Regional Transportation Alternatives Analysis, which produced a collective vision for the long-term development of a regional transit system and included I-65 as a key transit transportation corridor. High-occupancy vehicle (HOV) lanes and express bus were recommended for the I-65 corridor south of downtown and express bus was recommended for US 31 and Green Springs Highway.
Also in 2004, the vision articulated in the Birmingham Regional Transportation Alternatives Analysis for the I-65 corridor was communicated to the public through the Regional Transit Implementation Strategy (RTIS). Proposed transit improvements in the RTIS included: express bus service in the I-65 north and south corridors; HOV lanes along I-65 in the south corridor; enhanced bus service along US 31 as well as Green Springs Highway/Columbiana Road in the south corridor; and park-and-ride lots along I-65 and/or US 31 in Gardendale, Fultondale, Calera, Hoover and Pelham.

In July of 2007, the Comprehensive Transit Development Plan for the Birmingham-Jefferson County Transit Authority (BJCTA) was completed. The purpose of this study was to present a long-term plan to restructure the existing BJCTA transit system into a decentralized multi-destination transit system serving multipurpose travel. This study detailed recommendations that impact the I-65/US 31/Columbiana Road/Green Springs Highway corridor such as express bus service from park and ride lots and implementation of ITS applications to allow for technology such as automatic vehicle location (AVL), automated fare collection (AFC), automated passenger counting (APC), automated vehicle annunciation systems (AVAS), user information and notification, and transit signal priority.

The In-Town Transit Partnership Project conducted an Alternatives Analysis and prepared the appropriate environmental documentation for potential transit service improvements in the Downtown Birmingham and University of Alabama-Birmingham activity centers. Potential transit service includes enhanced bus services and bus rapid transit (BRT) alternatives.

In February 2007, the RPC completed the I-65 Feasibility Study, the Magic 65 Study, which analyzed the feasibility of multimodal improvements in the I-65/US 31 corridor in the Birmingham area. The Magic 65 Study showed that HOV lanes, bus rapid transit (BRT) and express bus are physically feasible in the 13-mile segment of I-65 between Valleydale Road and I-20/I-59 and its parallel surface street corridor (i.e., US 31/Columbiana Road/Green Springs Highway and University Boulevard).

In April 2007, RPC met with FTA, FHWA, ALDOT and BJCTA at the FTA Region IV office in Atlanta to discuss the preliminary scope of the Alternatives Analysis and environmental documentation for the I-65/US 31 corridor.

In April 2008, RPC completed the Birmingham Regional Congestion Mitigation Process (CMP) Study. In this study, the section of I-65 from downtown Birmingham to Calera was identified as the most congested freeway in the Birmingham metropolitan area. The CMP Study also identified portions of Green Springs Highway and US 31 located within the I-65/US 31 Mobility Matters Project as being congested and in need of improvements, including enhanced bus service.
• In June 2008, the RPC initiated the I-65/US 31 Mobility Matters Project.

• The concept to develop routes within the I-65/US 31 Mobility Matters study area as a key transit transportation corridor with HOV lanes and enhanced and express bus service is also articulated in the Birmingham MPO 2030 and 2035 Regional Transportation Plans (RTP).

Also, there is one widening project recently constructed and another widening project currently under construction totaling approximately nine miles on I-65 located just south of the I-65/US 31 Mobility Matters Project that have the potential to provide HOV lanes for this section of I-65 in the future. These projects, the northern portion having recently finished construction, call for widening of I-65 from four to eight lanes between Valleydale Road south to US 31 in Alabaster with the fifth and sixth lanes being designated as general purpose lanes and the seventh and eighth lanes being striped out until a future date when they may be opened as HOV lanes.

1.5 Legislative Context

The I-65/US 31 Mobility Matters Project also has potential funding support as stated in legislation that has authorized funds for transportation improvements in the I-65 corridor. Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the I-65 corridor has authorization for $100 million in the FTA Section 5309 Program for bus rapid transit (BRT) improvements in the I-65 south corridor, which includes the I-65/US 31 Mobility Matters Project corridor. This authorization is understood to mean that funds could not be used for HOV lanes (with or without BRT vehicles allowed), but could be used for improvements with a rational nexus to BRT such as, but not limited to, BRT stations and parking lots, BRT vehicles, BRT only ramps, and BRT segments on independent BRT only roadways. Below is the specific authorization found in the SAFETEA-LU legislation for the I-65 corridor.

Title III—Public Transportation, Section 3043 Project Authorizations for New Fixed Guideway Capital Projects (d) Project Authorizations - Subject to the requirements of sections 5309(d) and 5309(e) of title 49, United States Code, the following projects are authorized for the following amounts: (4) Birmingham-Jefferson Transit Authority--I-65 South BRT, $100,000,000. (Public Law 109–59—AUG. 10, 2005)

1.6 Summary

The I-65/US 31 Mobility Matters Project has been undertaken to define and examine potential transportation improvements that would address the existing and emerging transportation system issues associated with this strategic south-central corridor of metropolitan Birmingham. Potential solution concepts have been identified in a series
of planning studies for the region, including the current Regional Transportation Plan (RTP). The need for short-term and long-term transportation improvements has been clearly demonstrated in the series of prior planning and study documents. It is the intent of the I-65/US 31 Mobility Matters Project to identify a range of possible options, screen those options, and formulate a cost-feasible and cost-effective program of improvements that will advance the quality of transportation service in this strategic regional transportation corridor.
2.0 Alternatives to the Proposed Action

Multimodal transportation planning is a multi-faceted approach which considers all modal options and is characterized by input and participation from stakeholders and the public. This concept recognizes the fact that efficient movement of goods and people is accomplished through a system of transportation resources and that the concerns and needs of all users of the system should be considered.

The Mobility Matters Project is considered a multimodal transportation study in that it examined a universe of transportation alternatives to address the I-65/US 31 Corridor mobility needs. A comparative evaluation methodology was used to assess the performance of proposed corridor alternatives in supporting the stated purpose and need for the project and addressing the goals and objectives for the corridor study. The alternatives developed for consideration in the study area were evaluated using a two-step evaluation process.

The Tier 1 evaluation focused on identifying the best conceptual options and optimal corridor length for each of the alternatives being considered. The Tier 1 evaluation also provided an opportunity to identify any major physical or environmental impacts of the alternatives and possible modifications to the alternatives to avoid or mitigate these impacts. These modifications were then incorporated into the reconfigured alternatives to be considered in the Tier 2 evaluation. Those alternatives which were not determined to be sufficiently supportive were not advanced to the Tier 2 evaluation. The Tier 2 evaluation compared the performance of the optimal configurations and alignments for each of the modes and formed the basis for selecting a Locally Preferred Alternative (LPA). Both Tier 1 and Tier 2 evaluations considered a series of measures based on the goals and objectives established for the project. A final post-Tier 2 evaluation was performed in order to isolate the transit improvements in the corridor and to determine the most feasible transit alternative.

2.1 Tier 1 Alternatives

For the Tier 1 evaluation phase of the study, nine corridor alternatives along I-65 were formulated comprising mainline roadway options combined in various ways with a premium transit service component, and five surface arterial transit alternatives complementing the mainline I-65 corridor in consideration of corridor travel needs and prior long range transportation planning findings.

2.1.1 I-65 Multimodal Alternatives

The set of alternatives for the I-65 mainline is summarized as follows:

Alternative 1: No-Build Alternative
Alternative 2: Transportation Systems Management (TSM) Alternative
Alternative 3: General Purpose Lanes Only
Alternative 4: Premium Transit Service Only  
Alternative 5: HOV Lanes Only  
Alternative 6: Managed Lanes Only  
Alternative 7: HOV Lanes and Premium Transit  
Alternative 8: General Purpose Lanes and Premium Transit  
Alternative 9: Managed Lanes and Premium Transit  

Each of these alternatives has additional complementary support components which may include interchange improvements, freeway operational improvements, park-and-ride lots, transit stations, Intelligent Transportation System (ITS) applications, and Transportation Management Actions involving Transportation System Management (TSM) and Transportation Demand Management (TDM) elements. Each of the I-65 mainline alternatives is summarized in Table 2.1 and described below.

**Alternative 1 - No-Build**  
A No-Build alternative is used for comparison purposes and would not provide any improvements to the I-65 corridor. The No-Build option consists of the continuation of existing conditions, and is used to determine future corridor travel demand if no improvements were made and provides a basis for comparing how the other alternatives improve travel conditions in the corridor.

**Alternative 2 - Transportation System Management**  
A transportation system management (TSM) alternative is used to evaluate lower cost improvements that may maximize roadway and transit service efficiency by eliminating roadway deficiencies or modifying existing transit service. The TSM improvements are based on field surveys and planned improvements included in the Regional Transportation Plan (RTP). The I-65 TSM improvements would include between Valleydale Road to Downtown Birmingham the implementation of express bus service on I-65 for the length of corridor in mixed traffic flow conditions in the existing general purpose lanes. Service would begin at a new park-and-ride lot at Valleydale Road and terminate downtown at the bus transfer center; there would be no intermediate transit stops or stations. Other supporting intersection and related improvements would also be part of this alternative.
<table>
<thead>
<tr>
<th>Mode Element Added to the I-65 Corridor</th>
<th>Tier 1 Alternatives</th>
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<tbody>
<tr>
<td></td>
<td>No-Build</td>
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<td>General Purpose Lane</td>
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<td>HOV Lane</td>
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<td>Managed Lanes</td>
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<td>Local Bus Service</td>
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<td>Premium Transit Service</td>
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<td>Interchange Improvements</td>
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<td>Park-and-Ride Lots</td>
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<td>Transit Stations</td>
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<td>ITS Applications</td>
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<tr>
<td>Transportation Management Actions (TSM, TDM, pedestrian and bicycle access)</td>
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Alternative 3 – General Purpose Lanes
This alternative would include the addition of one general purpose lane in both directions on I-65 from Valleydale Road to University Boulevard. The recommended TSM improvements in Alternative 2 are included in this alternative. It is noted that various overpass and interchange improvements would be required for general purpose lanes along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 4 – Premium Transit Service
This alternative would provide premium transit service on the existing I-65 corridor without the addition of any new travel lanes. The premium transit service would operate in mixed traffic and be subject to the same conditions as other vehicles. Operational plans would differentiate the service characteristics when the alternatives are further refined in Tier 2. The service may vary during peak hour and non-peak hour and every bus may not stop at every location. The potential station locations are:

- Valleydale Road – Park-and-ride Lot
- I-65/US 31/Columbiana Road – Enhanced Bus Transfer Center
- Lakeshore Parkway – Enhanced bus stop located off of I-65
- Oxmoor Road – Bus stop located to serve both I-65 and US 31
- Green Springs Avenue – Bus stop located to serve both I-65 and US 31
- Downtown – Enhanced bus route will interface with existing downtown station locations

Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 5 – High-Occupancy Vehicle Lanes
This alternative would provide for one HOV lane on each side of I-65 from Valleydale Road to University Boulevard. To implement the concurrent flow HOV lanes on I-65, it is noted that various overpass and interchange improvements would be required along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 6 – Managed Lanes Only
This alternative would add one barrier-separated managed lane in each direction from Valleydale Road to University Boulevard. The managed lane would be open to HOVs and local bus service. The lane would be managed based on available capacity and occupancy requirements for HOV may be variable. It is noted that as part of the managed lane improvements, various overpass and interchange improvements would be required along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.
Alternative 7 – HOV Lanes with Premium Transit Service
This alternative would operate premium transit service in the HOV lane. It is noted that as part of the HOV lane improvements, various overpass and interchange improvements would be required along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 8 – General Purpose Lanes with Premium Transit Service
This alternative would add one general purpose lane in each direction serving premium transit service as well as general traffic. It is noted that as part of the general purpose lane improvements, various overpass and interchange improvements would be required along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 9 – Managed Lanes with Premium Transit Service
This alternative would add one barrier-separated managed lane in each direction from Valleydale Road to University Boulevard. The managed lane would be open to HOVs and premium transit. The lane would be managed based on available capacity and occupancy requirements for HOV may be variable. This option would include premium transit service that would always be able to operate in the lane. It is noted that as part of the managed lane improvements, various overpass and interchange improvements would be required along the corridor and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

2.1.2 Arterial Transit Alternatives
The set of surface arterial transit service alternatives is summarized as follows:

Alternative 1: No-Build Alternative
Alternative 2: Transportation Systems Management (TSM) Alternative
Alternative 3: Premium Transit Service on US 31/Columbiana/Green Springs Highway
Alternative 4: Premium Transit Service on US 31
Alternative 5: Premium Transit Service on Both Alternative 3 and Alternative 4

This premium service at this stage of development was considered to be what is described as arterial bus rapid transit service, which would operate in mixed traffic flow, but would have distinctive, branded low-floor transit vehicles, limited stop/station locations with various passenger amenities, and traffic signal priority/preemption. The fewer stops, low-floor vehicles, and traffic signal treatments allow for improved transit operating speed which makes the service more attractive to transit users.
### Table 2.2: Tier 1 Arterial Transit Alternatives

<table>
<thead>
<tr>
<th>Mode Element Added to the Surface Arterial Transit Alternatives</th>
<th>Alternative</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Build</td>
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<td>Premium Transit B</td>
<td>Premium Transit A + B</td>
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</tr>
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<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Park-and-Ride Lots</td>
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<td>✓</td>
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<td></td>
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<tr>
<td>ITS Applications</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Transportation Management Actions (TSM, TDM, pedestrian and bicycle access)</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

#### Alternative 1 – No-Build

A No-Build alternative is used for comparison purposes and would not provide any improvements to the US 31 corridor. The No-Build option consists of the continuation of existing conditions, and is used to determine future corridor travel demand if no improvements were made and provides a basis for comparing how the other alternatives improve travel conditions in the corridor.

#### Alternative 2 – Transportation System Management Alternative

A transportation system management (TSM) alternative is used to evaluate lower cost improvements that may maximize roadway and transit service efficiency by eliminating roadway deficiencies or modifying existing transit service. TSM improvements include the following actions on both the US 31/Columbiana Road/Green Springs Highway and US 31 (Valleydale Road to Downtown Birmingham) alignments:

- Increasing the frequency of local bus service.
- Adding limited intelligent transportation system (ITS) components to improve traffic flow for vehicles and buses (signal timing).
- Improving existing transit stops and adding bus stopping areas at stops.
Alternative 3 – US 31/Columbiana Road/Green Springs Highway Transit Alternative
The US 31/Columbiana Road/Green Springs Highway alignment begins on Valleydale Road in Shelby County and runs north on US 31 until the intersection with Columbiana Road. The alignment then follows Columbiana Road north until Lakeshore Drive where it shifts to Green Springs Highway. The alignment follows Green Springs Highway north until University Boulevard terminating in downtown Birmingham in Jefferson County. The US 31/Columbiana Road/Green Springs Highway universe of alternatives includes the addition of single modes of transportation.

Alternative 4 – US 31 Transit Alternative
This alternative would implement premium transit service along the US 31 corridor from Valleydale Road to University Boulevard.

Alternative 5 – Alternative 3 and Alternative 4 Combined
This alternative would implement premium transit service along the alignments of both Alternative 3 and Alternative 4 between Valleydale Road and Downtown Birmingham.

2.1.3 I-65 Interchange Improvements
This category of corridor improvement relates to interchange improvement actions along the I-65 corridor to address various geometric, design standard and traffic capacity deficiencies which contribute to reduced safety and traffic congestion. These actions could include additional through or turning lanes on ramps, ramp realignment, modification of ramp gore locations, more substantial modification of the interchange configuration, and adjustments to acceleration, deceleration, and auxiliary lanes. It is expected that a final package of interchange improvements would consist of specific actions at individual interchanges, with consideration of different improvements at each where appropriate.

A preliminary analysis of the prevailing traffic conditions and geometric features of the I-65 freeway corridor has identified potential improvements at a number of locations, which are noted below:

- Valleydale Road interchange modification
- US 31 interchange modification
- Alford Avenue interchange modification
- Lakeshore Parkway interchange modification
- Oxmoor Road interchange modification
- Green Springs Avenue interchange modification
- University Boulevard and 6th Avenue S. interchange modification
- 3rd Avenue S and 4th Avenue S. interchange modifications
These potential actions will undergo further refinement to select a preferred option at locations where there are choices to be made, and generally refining the concepts, as the alternatives review process proceeds. The final package of interchange and freeway operational improvements will be included in each of the proposed Build alternatives.

### 2.1.4 I-65 Operational Improvements

This category of corridor improvement relates to freeway operations improvement actions along the I-65 corridor to address various geometric, design standard and traffic capacity deficiencies which contribute to reduced safety and traffic congestion. These actions could include additional auxiliary lanes between interchanges, truck climbing lanes, and other similar improvements. It is expected that a final package of freeway operations improvements would consist of actions between interchanges, with consideration of different improvements at each where appropriate.

A preliminary analysis of the prevailing traffic conditions and geometric features of the I-65 freeway corridor has identified potential operational improvements at several locations, which are noted below:

- Add auxiliary lanes between Valleydale Road and I-459
- Add auxiliary lanes between US 31 and Alford Avenue
- Add auxiliary lanes between Alford Avenue and Lakeshore Parkway
- Add auxiliary lanes between Lakeshore Parkway and Oxmoor Road
- Add auxiliary lanes between Oxmoor Road and Green Springs Avenue
- Add auxiliary lanes between Green Springs Avenue and University Boulevard
- Add truck-only lanes northbound between US 31 and Alford Avenue
- Add truck-only lanes southbound between Lakeshore Parkway and Alford Avenue

These potential actions will undergo further refinement to select a preferred option at locations where there are choices to be made, and generally refining the concepts, as the alternatives review process proceeds. The final package of freeway operational improvements will be included in each of the proposed Build alternatives.

### 2.1.5 Tier 1 Recommendations for I-65 Multimodal Alternatives

The following points summarize the recommendations that were reached for the I-65 alternatives, based on the Tier 1 analysis results.

- The No-Build Alternative and the TSM Alternative should be carried forward to provide a frame of reference for further evaluation of surviving Build Alternatives.
• Alternative 3: General Purpose Lanes Only should be carried forward due to its positive impact on mobility and its lower cost, even though it does not sufficiently address key corridor objectives for travel choices.

• Alternative 4: Premium Transit Service Only does not have sufficient impact on corridor capacity and does not offer sufficient quality of transit service to attract a larger pool of users, and should not be carried forward.

• Alternative 5: HOV Lanes Only is not proposed to be carried forward because Alternative 7 incorporates the HOV lane features while incorporating transit services, which can be introduced on a phased basis.

• Alternative 6: Managed Lanes Only is not proposed to be carried forward because Alternative 9 incorporates the managed lane features while incorporating transit services, which can be introduced on a phased basis.

• Alternative 7: HOV Lanes and Premium Transit is recommended for advancement into Tier 2 as it offers the opportunity of flexibility in the physical configuration of the alternative and in accommodating some form of premium transit.

• Alternative 8: General Purpose Lanes and Premium Transit is not recommended for advancement into Tier 2 because like Alternative 4, the transit service will not be able to offer sufficient quality of service within the mixed flow traffic environment.

• Alternative 9: Managed Lanes and Premium Transit is recommended for advancement into Tier 2 as it offers the opportunity of flexibility in the physical configuration of the alternative, in demand management, in revenue generation (to help offset capital and operating costs) and in accommodating some form of premium transit.

In conclusion, it was recommended that the following I-65 alternatives be advanced to the Tier 2 analysis:

• Alternative 1: No Build Alternative
• Alternative 2: Transportation Systems Management (TSM) Alternative
• Alternative 3: General Purpose Lanes Only
• Alternative 7: HOV Lanes and Premium Transit
• Alternative 9: Managed Lanes and Premium Transit

2.1.6 Tier 1 Recommendations for Arterial Transit Alternatives

The following points summarize the recommendations that were reached for the arterial alternatives, based on the Tier 1 analysis results.

• The No-Build Alternative and the TSM Alternative should be carried forward to provide a frame of reference for further evaluation of surviving Build Alternatives.
• Alternative 3: Premium Transit Service on US 31/Columbiana Road/Green Springs Highway should be carried forward because it further permits continued examination of the corridor and it permits phased implementation of any services found warranted in further Tier 2 analysis.

• Alternative 4: Premium Transit Service on US 31 should also be carried forward because it further permits continued examination of the US 31 corridor and it permits phased implementation of any services found warranted in further Tier 2 analysis.

• Alternative 5: Premium Transit Service on both Alternatives 3 and 4 should not be carried forward because its service coverage is sufficiently addressed under Alternatives 3 and 4.

In conclusion, it was recommended that the following arterial alternatives be advanced to the Tier 2 analysis:

• Alternative 1: No Build Alternative
• Alternative 2: Transportation Systems Management (TSM) Alternative
• Alternative 3: Premium Transit Service on US 31/Columbiana Road/Green Springs Highway
• Alternative 4: Premium Transit Service on US 31

2.2 Tier 2 Alternatives

The shortlisted Tier 1 alternatives were further refined in order to provide additional definition of their basic features, and to enable more detailed comparative evaluation of alternatives based on refined definition and performance analysis of alternatives.

2.2.1 Refinements to I-65 Multimodal Alternatives

The following set of points summarizes the nature of the refinements that were undertaken for the I-65 multimodal alternatives:

• Developed additional highway volume forecasts and transit service forecasts to confirm features and elements of alternatives. For highways, this includes number of lanes, and typical section elements as noted above. For transit, this includes transit service strategies, operating plans, and supporting features (such as park-and-ride lots, transit circulator services), potentially by corridor segment.

• Summarized traffic volumes, traffic service, and transit ridership performance of alternatives, by corridor segment, to reflect final definition of the alternatives and updated travel demand modeling forecasts.

• Evaluated typical section options and preferred treatment for existing and future lanes (general purpose and special), including options for buffer/barrier separation, contra/concurrent/reversible flow, potentially by corridor segment.
• Investigated and tested transit service strategies and operational plans to improve transit ridership performance. Identified significant work-commute patterns and high trip-end zones. Tailored transit service elements to better capture trip patterns.

• Developed conceptual schematics of alternatives to reflect location/relocation of existing and planned lanes and special lanes, key features for highway components (special lane access/egress points and geometry, tolling locations, enforcement accommodations, special ramps, etc.), and key features for transit components (special lane access/egress points and geometry, transit stations, park-and-ride lots, intermodal transfer accommodations, etc.).

• Evaluated access and egress points for special lanes (HOV and managed).

2.2.2 Refinements to Arterial Transit Alternatives

The following set of points summarizes the nature of the refinements that were undertaken for the arterial transit alternatives:

• Developed additional highway volume forecasts and transit service forecasts to confirm features and elements of alternatives. For transit, this includes transit service strategies, operating plans, and supporting features (such as park-and-ride lots, transit circulator services), potentially by corridor segment.

• Summarized traffic volumes, traffic service, and transit ridership performance of alternatives, potentially by corridor segment, to reflect final definition of the alternatives and updated travel demand modeling forecasts.

• Investigated and test transit service strategies and operational plans to improve transit ridership performance. Identified significant work-commute patterns and high trip-end zones. Tailored transit service elements to better capture trip patterns.

• Developed conceptual schematics of alternatives, to reflect location/relocation of existing and planned lanes and special lanes, key features for arterial components, and key features for transit components (transit stations, park-and-ride lots, intermodal transfer accommodations, etc.).

2.2.3 Corridor Multimodal Alternatives

For the Tier 2 alternatives evaluation phase of the study, five multimodal corridor alternatives along the I-65 mainline roadway and parallel surface arterials were formulated in consideration of corridor travel needs and prior long range transportation planning findings. The set of alternatives is summarized as follows:

Alternative 1: No-Build Alternative
Alternative 2: Transportation Systems Management (TSM)
Alternative 3: General Purpose Lanes and Bus Rapid Transit (BRT)
Alternative 4: HOV Lanes and BRT
Alternative 5: Managed Lanes and BRT
Table 2.3 presents a summary of the key features of the refined alternatives that were evaluated in the Tier 2 phase of the study with regard to engineering elements, travel demand, traffic engineering, and operational elements.

Table 2.3: Tier 2 Alternatives

<table>
<thead>
<tr>
<th>Mode Element Added to the MMP Corridor</th>
<th>Alternative</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
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<td>HOV Lanes on I-65</td>
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<td>x</td>
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<td>x</td>
<td>✔</td>
</tr>
<tr>
<td>Managed Lanes on I-65</td>
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<td>x</td>
<td>x</td>
<td>x</td>
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<td>✔</td>
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<tr>
<td>(TSM, TDM, pedestrian and bicycle access)</td>
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</table>

As mentioned before, the further development of the shortlisted Tier 1 alternatives has yielded a more clarified definition of the proposed alternatives, their key features, and operational characteristics. Prior to the Tier 2 alternatives evaluation, the alternatives were further detailed in the following ways:

- Highway elements:
  - Determination of final conceptual right-of-way requirements
  - Finalization of proposed interchange configurations
  - Need for and configuration of proposed HOV/Managed Lane special interchanges
- Transit elements:
  - Location of park-and-ride lots
  - Location of transit stations/stops and transit centers, based on results of travel demand modeling
  - Transit operations plans
  - Minor refinements to proposed transit routings

The Tier 2 alternatives included in this report reflect these refinements. It is also important to note that due to travel markets identified south of Valleydale Road, transit routes were proposed that extended south of the defined study area of the MMP project. However, only new transit stations and park-and-ride lots were proposed outside of the MMP study area and no new highway improvements were proposed. It is assumed that the proposed transit stations and park-and-ride lots can be constructed within publicly owned right-of-way.

2.2.4 Tier 2 Alternatives: Highway Element

Alternative 1: No-Build
The No-Build alternative is used for comparison purposes and would not provide any improvements to the I-65 corridor. The No-Build alternative consists of the continuation of existing conditions and also includes projects currently under construction. The No-Build alternative is used to determine future corridor travel demand if no improvements were made and provides a basis for comparing how the other alternatives improve travel conditions in the corridor.

Alternative 2: Transportation System Management (TSM) Alternative
The Transportation System Management (TSM) alternative is used to evaluate lower cost improvements that may maximize roadway efficiency by eliminating roadway deficiencies. The TSM improvements are based on the planned improvements included in the 2035 Regional Transportation Plan (RTP). Various interchange and freeway operational improvements would also be part of this alternative.

Alternative 3: General Purpose Lanes
This alternative would include the addition of one general purpose lane in both directions on I-65 from Valleydale Road north to University Boulevard. Refer to Appendix B to review the proposed typical section (i.e., number, width and arrangement of lanes) for the General Purpose Lane alternative. The recommended TSM improvements in Alternative 2 are included in this alternative. It is noted that as part of the general purpose lane improvements, various overpass and interchange improvements would be required along the corridor to accommodate the general purpose lanes and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.
Alternative 4: High-Occupancy Vehicle (HOV) Lanes
This alternative would add one concurrent HOV lane in each direction from Valleydale Road to University Boulevard. The recommended TSM improvements in Alternative 2 are also included in this alternative. The HOV lanes would only be permissible for HOVs with two (2) or more occupants. It is noted that as part of the HOV lane improvements, various overpass and interchange improvements would be required along the corridor to accommodate the HOV lanes and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.

In addition, it is proposed to include for the HOV alternative special crossover ramps to connect the special median lanes with the surface streets downtown. These crossover ramps have a reverse-curve alignment as they fly over the mainline roadway. These ramps would provide a safe and immediate connection between the special lanes and traffic entering or leaving the downtown surface streets. This location is described as follows:

- 3rd and 4th Avenue South – HOV Exclusive Ramps. The proposed project consists of constructing a pair of flyover “wishbone” ramps connecting I-65 HOV lanes northbound exit and southbound entrance to 3rd and 4th Avenues South.

Also, new interchanges are proposed that will provide exclusive access to and from the HOV lanes at three locations:

- Valley Avenue – HOV Lanes Exclusive Ramps
- North of I-459 (near Rocky Ridge Road) – HOV Lanes Exclusive Ramps to and from the north, only
- North of Valleydale Road (near Riverchase Parkway) - HOV Lanes Exclusive Ramps to and from the north, only

Alternative 5: Managed Lanes
This alternative would add one barrier-separated managed lane in each direction from Valleydale Road to University Boulevard. The recommended TSM improvements in Alternative 2 are included in this alternative. The managed lane would be free to HOVs with three (3) or more occupants and BRT/Express transit but would require a fee for single-occupant vehicles and HOVs with only two (2) occupants. The lane would be managed based on available capacity and the occupancy requirements for HOV are assumed to be three (3) or more occupants. It is noted that as part of the managed lane improvements, various overpass and interchange improvements would be required along the corridor to accommodate the managed lanes and are included in this alternative. Various interchange and freeway operational improvements would also be part of this alternative.
It is also proposed for Alternative 5 to include special crossover ramps to connect the special median lanes with the downtown surface streets. This location is described as follows:

- **3rd and 4th Avenue South – Managed Lanes Exclusive Ramps**
  The proposed project consists of constructing a pair of flyover “wishbone” ramps connecting I-65 managed lanes northbound exit and southbound entrance to 3rd and 4th Avenues South.

Also, new interchanges are proposed that will provide exclusive access to and from the managed lanes at three locations:

- **Valley Avenue – Managed Lanes Exclusive Ramps**
- **North of I-459 (near Rocky Ridge Road) – Managed Lanes Exclusive Ramps to and from the north, only**
- **North of Valleydale Road (near Riverchase Parkway) - Managed Lanes Exclusive Ramps to and from the north, only**

### 2.2.5 Tier 2 Alternatives: Transit Element

It is proposed that the future transit services for the I-65 Mobility Matters Project will consist of these transit service categories:

- **Local Transit service:**
  - Defined to be standard urban bus service
  - Will occur on existing routes, existing routes modified, and local service segments of proposed new routes

- **Enhanced Local service:**
  - Defined as standard urban bus service but with BRT type headways
  - Will occur on segments of West Valley Avenue and Oxmoor Road in western Homewood

- **BRT – Arterial service:**
  - Defined as expedited transit service on arterial streets utilizing transit signal priority (TSP) and queue jump lanes
  - Will occur on segments of US 31, Columbiana Road/Green Springs Highway, and connections to Galleria Mall
  - Proposed downtown ITP BRT service would be similar in characteristics except it will traverse a mostly dedicated lane pathway

- **BRT – Standard and Express service:**
  - Defined as full-fledged bus rapid transit service with required features, operating on I-65 mainline in HOV or managed lanes
  - Will occur only on segments of I-65

A package of seven proposed transit routes were developed for Tier 2 involving the services defined above. Each of the seven routes are included the TSM, General
Purpose Lane, HOV Lane and Managed Lane alternatives. The No-Build alternative only includes the existing BJCTA local transit service routes as well as the planned ITP routes in downtown Birmingham. The TSM alternative includes all seven proposed routes which will operate with BRT headways but the service provided along the routes will only be standard urban bus service. The General Purpose Lane alternative includes all seven proposed alternatives but the proposed transit service on I-65 will operate in mixed flow conditions. The HOV Lane and Managed Lane alternatives include all seven of the proposed transit routes with the full benefits of each.

The following Tier 2 transit routes are proposed for the MMP corridor:

- **Route A:** BRT service along US 31 from Valleydale Road to downtown Birmingham
- **Route B:** BRT service along US 31 and Columbiana Road/Green Springs Highway from the Galleria Mall to downtown Birmingham
- **Route C:** BRT service along US 31 south of I-459 and along I-65 north of I-459 from Alabaster to downtown Birmingham
- **Route E:** BRT service on I-65 from Alabaster to downtown
- **Route G:** Enhanced Local service along West Valley Road and Oxmoor Road in western Homewood
- **Route H:** Express service on I-65 from Calera to the Galleria Mall
- **Route I:** Express service on I-65 from Calera to downtown Birmingham

### 2.2.6 Tier 2 Recommendations

The Tier 2 evaluation combined highway and transit improvements within several alternatives. Because of this, it was not discernable how much of the transit benefits were attributable to the highway improvements and how much of the transit benefits were attributable to the transit improvements. However, the Tier 2 evaluation did provide a conclusive assessment of the proposed highway improvements. A recommendation for the highway element is made below. Once a locally preferred alternative (LPA) is selected for the highway element, this same highway element will be used for the No-Build, TSM and Build alternatives in a Post-Tier 2 evaluation while the transit improvements will vary between the alternatives. This will allow any measured benefits of the alternatives to be attributable to just to the transit improvements.

#### 2.2.6.1 Tier 2 Findings and Recommendations: Highway Element

The following discussion summarizes the results of the Tier 2 evaluation of alternatives with respect to the highway element and identifies the highway improvements which are proposed for the LPA.
The paramount consideration of the alternatives with respect to the highway element is judged to be the results from the Goals 1 and 4 evaluations, and viewing the results of Goals 2 and 3 as not materially discriminating between the options.

Under Goal 1, the ranked order of alternatives was found to be Alternative 4, followed by Alternative 5 and Alternative 3, with Alternative 2 ranked lowest.

In Goal 1, Alternative 4 consistently ranked the best in terms of providing a better peak hour level of service and reduced travel time per person trip while also attracting the most new HOV person miles traveled.

Under Goal 4, the ranked order of alternatives was found to be Alternative 4, followed by Alternative 5 and Alternative 3 (tie), with Alternative 2 ranked lowest.

In Goal 4, Alternative 4 was in the middle of the pack in terms of capital and operating costs but was consistently ranked the best in terms of providing the lowest cost per new person miles traveled and lowest cost per new HOV person miles traveled.

In terms of minimizing impacts to the built and natural environment in Goal 2, Alternative 2 ranked the highest with all the build alternatives following in correlation with their proposed “foot print” on I-65.

In terms of supporting and being consistent with land use and transportation plans, Alternative 4 had a slight edge over the other alternatives due to the proposed HOV lanes on I-65 being consistent with the regional long range transportation plan.

In conclusion, it is recommended that HOV Lanes (Alternative 4) be considered for the LPA due to its superior performance in Goals 1, 3 and 4 and its acceptable performance in Goal 2.

2.2.6.2 Tier 2 Findings and Recommendations: Transit Element

The following discussion summarizes the results of the Tier 2 evaluation of alternatives with respect to the transit element and identifies those transit improvements which are proposed for further analysis once a highway element is selected for the LPA.

As with the highway element, the paramount consideration of the alternatives with respect to the transit element is judged to be the results from the Goals 1 and 4 evaluations, and viewing the results of Goals 2 and 3 as not materially discriminating between the options.

Under Goal 1, the ranked order of alternatives was found to be Alternative 4, followed by Alternative 5 and Alternative 3, with Alternative 2 ranked lowest.

In Goal 1, Alternatives 4 and 5 were consistently ranked the best in terms of providing better transit travel times and also attracting the most new transit trips to the study corridor and region.
• Under Goal 4, the ranked order of alternatives was found to be Alternative 4, followed by Alternative 5 and Alternative 3 (tie), with Alternative 2 ranked lowest.

• In Goal 4, Alternatives 4 and 5 were consistently ranked the best in terms of providing a lower transit system operating cost and in providing the lowest cost per new transit rider, the lowest cost per hour of transit user benefit, and the lowest operating cost per new transit passenger mile.

• For Goals 2 and 3, the measures do not provide any significant discrimination between Alternatives 2, 3, 4, and 5 since the transit element is identical between these alternatives, with the exception of the TSM alternative (Alternative 2) which includes the exact same routes and stations but operates with standard bus service (i.e. slower speeds than BRT).

• For Goal 3, the transit element in Alternatives 4 and 5 received a higher rank since they provide BRT service on special lanes, such as HOV lanes or managed lanes, along I-65 as opposed to mixed flow operations included in Alternatives 2 and 3.

The transit element associated with the No-Build alternative and the TSM alternative should be carried forward to provide a frame of reference for further evaluation of the transit element of the HOV Lanes (Alternative 4) in the Post-Tier 2 evaluation.

The transit element of the HOV lanes Build alternative should be carried forward due to its superior performance in Goals 1, 3 and 4 and its acceptable performance in Goal 2.

In conclusion, it is recommended that the following transit alternatives be advanced to a Post-Tier 2 evaluation using an identical LPA highway element for each alternative:

• Tier 2 No-Build Transit Element with LPA for Highway Element
• Tier 2 TSM Transit Element with LPA for Highway Element
• Tier 2 Build Transit Element with LPA for Highway Element

2.2.6.3 Project Steering Committee Comments

The results of the Tier 2 analysis were presented to the MMP Project Steering Committee (PSC) on November 30, 2010 and comments were solicited from the PSC members concerning their preference for the LPA for the highway element. Based on comments received from the PSC during and after the November 30th meeting, the consensus from the PSC was that HOV Lanes (Alternative 4) should be the LPA for the highway element of the MMP. Therefore, the next step for the MMP will be to perform a post-Tier 2 evaluation of the transit alternatives (i.e., No-Build, TSM and Build) using the HOV Lanes as the identical highway element in each.
2.3 Post-Tier 2 Alternatives

For the Post-Tier 2 alternatives evaluation phase of the study, three transit alternatives along the I-65 mainline roadway and parallel surface arterials were formulated based on the Tier 2 study. For the purpose of determining the merit of the proposed transit improvements, each of the alternatives includes the identical highway improvements, namely the HOV lanes on I-65. The set of alternatives is summarized as follows:

- No-Build with HOV Lanes on I-65
- Transportation Systems Management (TSM) with HOV Lanes on I-65
- Build with HOV Lanes on I-65

For the purpose of reference, the Build alternative consists of several Bus Rapid Transit (BRT) routes as described later. All of the Post-Tier 2 alternatives are also assumed to interface with the Downtown In-Town Partnership (ITP) project, and to traverse the routes of that BRT system in the downtown district.

2.3.1 Final Corridor Multimodal Alternatives

Table 2.1 presents a summary of the key features of the alternatives that were evaluated in the Post-Tier 2 phase of the study.

<table>
<thead>
<tr>
<th>Primary Mode Elements Added to the MMP Corridor</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No-Build</td>
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<tr>
<td>HOV Lanes on I-65</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Enhanced Local Service</td>
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</tr>
<tr>
<td>BRT Service</td>
<td>✓</td>
</tr>
<tr>
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<td>Interchange Improvements</td>
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</tr>
<tr>
<td>Operational Improvements</td>
<td>✓</td>
</tr>
<tr>
<td>Park-and-Ride Lots</td>
<td>✓</td>
</tr>
<tr>
<td>Transit Stations and Stops</td>
<td>✓</td>
</tr>
</tbody>
</table>

It is also important to note that due to travel markets identified south of Valleydale Road prior to the Tier 2 evaluation, transit routes were proposed that extended south of the
defined study area of the MMP. However, construction of only new transit stations and
park-and-ride lots was proposed outside of the MMP study area and no new highway
improvements were proposed. It is assumed that the proposed transit stations and
park-and-ride lots can be constructed within publicly owned right-of-way.

2.3.2 Post-Tier 2 Alternatives: Highway Element

For the purposes of the Post-Tier 2 analysis, it was assumed that all the alternatives
would consist of identical highway elements in order to provide a level playing field for
the analysis of the transit alternatives. The preferred alternative for the highway
element was Tier 2’s Alternative 4 that included high-occupancy vehicle (HOV) lanes as
well as other improvements on I-65. The highway improvements included in the HOV
alternative are described in the following paragraphs.

The HOV alternative would add one concurrent HOV lane in each direction from
Valleydale Road to University Boulevard. The HOV lanes would only be permissible for
HOVs with two (2) or more occupants. It is noted that as part of the HOV lane
improvements, various overpass and interchange improvements would be required
along the corridor to accommodate the HOV lanes and are included in this alternative.
Various interchange and freeway operational improvements would also be part of this
alternative. The HOV lanes are proposed to terminate in the vicinity of the University
Boulevard interchange and interface with surface streets adjacent to University
Boulevard. The detailed plans for this interface have not yet been determined but will
be part of a future study to be performed by the University of Alabama-Birmingham
(UAB) and the Alabama Department of Transportation (ALDOT). Refer to Figure 2.1 for
a depiction of the highway improvements included in the HOV lane highway alternative.

2.3.3 Post-Tier 2 Alternatives: Transit Element

It is proposed that the future transit services for the I-65 Mobility Matters Project will
consist of these transit service categories:

- Local Transit service:
  - Defined to be standard urban bus service
  - Will occur on existing routes, existing routes modified, and local service
    segments of proposed new routes

- Enhanced Local service:
  - Defined as standard urban bus service (i.e., slower speeds) but with BRT-type
    headways
  - Will occur on all arterial segments of proposed routes for the TSM
    alternative
  - Will occur on segments of West Valley Avenue and Oxmoor Road in
    western Homewood for the Build alternative
Figure 2.1: HOV Lane Highway Improvements
A package of seven proposed transit routes were developed for Tier 2 involving the services defined above. For the Post-Tier 2 evaluation, each of the seven routes is still included in the TSM and Build alternatives. Below is a description of the alternatives analyzed in the Post-Tier 2 evaluation.

- **No-Build alternative:** only includes the existing BJCTA local transit service routes as well as the planned ITP routes in downtown Birmingham.

- **TSM alternative:** includes the transit elements from the No-Build alternative plus all seven proposed routes which will operate with BRT headways but the service provided along the routes will only be standard urban bus service (i.e., enhanced local service on arterials and I-65). The TSM alternative will have fewer amenities at the route stops, will not have the benefit of transit signal priority (TSP) or queue jump lanes along the routes resulting in slower speeds between stops, and will use standard buses.

- **Build alternative:** includes the transit elements from the No-Build alternative plus all seven of the proposed transit routes with the full features of each (i.e., BRT on arterials and I-65). The Build alternative will have full BRT amenities at the route stops, will have the time savings benefit of transit signal priority (TSP) and queue jump lanes along the routes, and will use BRT buses equipped with enhanced amenities and features.

Please refer to Figure 2.2 to see the full extent of coverage provided by the proposed seven transit routes in the greater Birmingham area.
For the Post-Tier 2 evaluation, the following transit routes are proposed for the MMP corridor:

- **Route A:** BRT service along US 31 from Valleydale Road to downtown Birmingham (refer to Figure 2.3)
- **Route B:** BRT service along US 31 and Columbiana Road/Green Springs Highway from the Galleria Mall to downtown Birmingham (refer to Figure 2.4)
- **Route C:** BRT service along US 31 south of I-459 and along I-65 north of I-459 from Alabaster to downtown Birmingham (refer to Figure 2.5)
- **Route E:** BRT service on I-65 from Alabaster to downtown (refer to Figure 2.6)
- **Route G:** Enhanced Local service along West Valley Road and Oxmoor Road in western Homewood (refer to Figure 2.7)
- **Route H:** Express service on I-65 from Calera to the Galleria Mall (refer to Figure 2.8)
- **Route I:** Express service on I-65 from Calera to downtown Birmingham (refer to Figure 2.9)

Please refer to the Post-Tier 2 Alternatives Evaluation to review the detailed service features and operating plans assumed for the seven proposed transit routes within the TSM and Build alternatives.
Figure 2.2: All Proposed MMP Transit Routes
Figure 2.3: BRT Route A
Figure 2.4: BRT Route B
Figure 2.7: Enhanced Local Service Route G
Figure 2.8: Express Route H
2.3.4 Locally Preferred Alternative

2.3.4.1 Highway Element
The Tier 2 alternative evaluation combined highway and transit improvements within several alternatives. Because of this, it was not discernable which transit alternative was the most feasible because the proposed highway improvements were different for each proposed transit improvement. However, the Tier 2 alternatives evaluation did serve to provide a conclusive assessment of the proposed highway improvements. The Tier 2 evaluation recommended that HOV Lanes (Alternative 4) be considered for the LPA due to its superior performance in Goals 1, 3 and 4 and its acceptable performance in Goal 2.

For the Post-Tier 2 evaluation, the HOV Lanes alternative was used as the highway element in each of the three transit alternatives in order to provide a clear comparison of proposed transit improvements. The Post-Tier 2 analysis resulted in a recommendation of a LPA for the transit element, as presented below.

2.3.4.2 Transit Element
The following discussion summarizes the results of the Post-Tier 2 evaluation of alternatives with respect to the transit element and identifies those transit improvements which are recommended as the LPA.

- As with the highway element, the paramount consideration of the alternatives with respect to the transit element is judged to be the results from the Goals 1 and 4 evaluations, which is why the Post-Tier 2 evaluation focused on select measures within these two goals.
- Under Goal 1, the Build alternative consistently ranked better than the TSM alternative in each of the selected measures.
- In Goal 1, the Build alternative ranked the best in terms of providing better transit travel times and also attracting the most new transit trips to the study corridor and region.
- Under Goal 4, the Build alternative consistently ranked better than the TSM alternative in all but one (i.e., capital costs) of the selected measures.
- In Goal 4, the Build alternative consistently ranked the best in terms of providing a lower transit system operating cost and in providing the lowest cost per new transit rider, the lowest cost per hour of transit user benefit, and the lowest operating cost per new transit passenger mile.

In conclusion, it is recommended that the Build alternative be considered for the LPA for the transit element of the MMP due to its superior performance in Goals 1 and 4. To summarize, the Build alternative includes all seven of the proposed transit routes with the full features of each (i.e., BRT on arterials and I-65). The Build alternative will have full BRT amenities at the route stops, will have the time savings benefit of transit signal
priority (TSP) and queue jump lanes along the routes, and will use BRT buses equipped with enhanced amenities and features.
3.0  Environmental Impacts

3.1  Land Acquisition and Displacements

Property acquisitions would be required for the development of the highway element of the proposed project. Approximately 37.05 acres of land would be converted to right-of-way in order to construct the highway element of the proposed project. For the transit element, property acquisition due to the construction of BRT stations would be minimal as the vast majority of the proposed stations are located within existing ROW. The proposed BRT station at Valley Avenue would require the demolition of one commercial structure; however, at this time the structure is vacant. Due to the number of residences and commercial structures to be relocated, the acquisition and relocations required is anticipated to be generally significant.

Highway Element
A total of 26 residential structures, 21 commercial structures, a fire station, and three buildings housing educational facilities would be displaced as a result of the highway element of the proposed project. In addition, several satellite structures associated with a local radio station would also be displaced.

Residential
A total of 26 residential structures would be displaced as a result of the highway element of the proposed project. Of these 26 displacements, one consists of an apartment building (number of units are unknown) located in the Lakeshore Garden Apartment complex in Homewood and four are attached townhomes located off Columbiana Road. Prior to completion of the EA, the availability of replacement housing should be analyzed.

When purchasing right-of-way, families or individuals would be assisted in finding and relocating to decent, safe and sanitary housing which is adequate to meet their needs and is within their financial means. Assistance is also given to businesses in relocation to other locations. This assistance is provided to families and businesses in the form of moving expenses for their relocation. In addition, owner or tenant occupants of residential housing being displaced may be provided financial assistance for increased costs they may encounter in buying or renting. Owner occupants may also be provided assistance for other incidental expenses such as closing costs and increased interest payments required in their purchase of a replacement home.

The relocatees would receive the appraised fair-market value for their property. Relocatees would also be offered decent, safe and sanitary housing within their financial means. Within a reasonable period of time prior to displacement, a comparable replacement dwelling would be made available for displaced individuals and families. Adequate replacement housing is available in Jefferson and Shelby Counties; however,
the cost of replacement housing may not be within the financial means of some of the displacees. Therefore, the use of Last Resort Housing may be required.

_Last Resort Housing_
Whenever a program or project cannot proceed on a timely basis because comparable replacement dwellings are not available within the monetary limits for owners or tenants, additional or alternative assistance under the provisions of 49 CFR 24.404 shall be provided as appropriate. Any decision to provide last resort housing assistance must be adequately justified either:

(1) On a case-by-case basis, for good cause, which means that appropriate consideration has been given to:
   (i) The availability of comparable replacement housing in the program or project area;
   (ii) The resources available to provide comparable replacement housing;
   (iii) The individual circumstances of the displaced person, or

(2) By determination that:
   (i) there is little, if any, comparable replacement housing available to displaced persons within an entire project area; and, therefore, last resort housing assistance is necessary for the area as a whole;
   (ii) A project cannot be advanced to completion in a timely manner without last resort housing assistance; and
   (iii) The method selected for providing last resort housing assistance is cost effective, considering all elements, which contribute to total program or project costs.

No person shall be required to move from a displacement dwelling unless comparable replacement housing is available. No person may be deprived of any rights the person may have under this Uniform Act. No displaced person shall be required to accept a dwelling unit (unless a contract has been entered into) in lieu of any acquisition payment or any relocation payment for which the person may otherwise be eligible.

_Commercial/Institutional_
A total of 21 commercial units would be relocated as a result of the construction of the highway element of the project. The types of businesses to be relocated include a car lot, a fast food restaurant, a dry cleaner, multiple offices and retail buildings, a motel, a gas station and a parcel associated with the Hardy Corporation. Of the buildings to be relocated as part of the highway element, one was noted to be vacant. Several units are located within three office buildings that are located in the Century Park Office Complex.
Two of the commercial relocations are buildings associated with the HRC Medical Center and one building associated with the Bradford Health Services company. HRC Medical is a hormone replacement therapy center. The removal of this center would require current and future patients to access these services from another provider. There is such a center located less than five miles from HRC Medical. Bradford Health Services is an addiction recovery and treatment center. The removal of this treatment facility would require current and future patients to access these services from another provider. A treatment center offering similar services is located within one and a half miles from Bradford Health Services.

In addition to the 30 businesses to be relocated, the University of Alabama (UAB) fire station, a structure associated with UAB, a structure housing Brown-Mackie College Birmingham and a structure housing Virginia College would also be relocated.

With the exception of the medical services discussed previously, none of the businesses to be relocated are unique to the area. Clientele do not primarily come from the area in which they are located nor are the relocations of the businesses anticipated to have a negative impact on the community as other businesses of a similar nature exist in the area. Commercial retail property is located throughout the project area; however, it is unknown if any of these properties are for sale or lease at this time.

In the event there are no replacement sites available for the commercial structures at the time of acquisition, or if relocation is not within their financial means, the owners may qualify for “in lieu of” payments. An “in lieu of” payment is defined as a payment made to a business that, (1) cannot be relocated without a substantial loss of its existing patronage, and (2) is not part of a commercial enterprise having at least one other establishment not being acquired by ALDOT which is engaged in the same or similar business. “Existing patronage” is the average net annual dollar volume of business during the taxable year in which the business is being displaced. Any such payment determined would not be less than $1,000.00 or more than $20,000.00.

**Transit Element**

Property acquisition due to the construction of BRT stations would be minimal as the vast majority of the proposed stations are located within existing ROW. The proposed BRT station at Valley Avenue would require the demolition of one commercial structure; however, at this time the structure is vacant. The same procedures outlined above would also be followed for the relocation of this structure.

It should be noted that in some cases, transit facilities would be located in privately owned parking lots that serve multiple retail outlets. In these cases, the area needed for the facility would be converted to ROW; however, the amount of ROW needed for each location is unknown at this time.
3.2 Land Use and Zoning

Implementation of the proposed project is compatible with the existing and future land uses surrounding the corridors. The land use plans of Shelby County, Jefferson County and the city of Birmingham are shown in Figures 3.1 – 3.6. The future land use plan for the city of Homewood is shown in Figure 3.7. Vestavia Hills also has a future land use plan included in their Comprehensive Master Plan 2004 – 2025; however, the map was not available for download.

The proposed bus shelters and stations are mostly located within existing ROW. In the areas where the shelters and stations are not located within existing ROW, the placement of the shelters and stations appears to be compatible with existing zoning. Coordination with the appropriate local agency regarding conformity with zoning requirements should be conducted prior to approval of the EA. Based on this information, impacts on land use and zoning are anticipated to be generally not significant.

**Highway Element**

Existing land use along I-65 within the project limits is a mixture of commercial, residential, institutional and some light industrial. Beginning at the project’s southern terminus, Valleydale Road in Shelby County, to the Jefferson County line, zoning adjacent to I-65 consists of Office/Institutional (O-I), Single Family Residential (R-1), Single Family Estate District (E-2), and Multi-Family Special District (R-5). Zoning adjacent to I-65 within unincorporated Jefferson County includes Commercial (C-1), Light Industrial (I-3), Neighborhood Commercial (C-N), Planned Unit Development (R-7), Agriculture (A-1), Institutional (I-1), Multi-family (R-4), 2 Family (R-3), Package Store (C-4), Preferred Commercial (C-P), and Single Family (R-1). Within the city limits of Birmingham, adjacent to I-65, zoning consists of General Business District (B2), Light Industrial (M1 and M1A), Single Family District – Class 3 (R3), Community Business District (B3), Multiple Family District (R5), and Neighborhood Business District (B1).

**Transit Element - Routes**

Proposed BRT Route A would be located along US 31 from Valleydale Road to downtown Birmingham (refer back to Figure 2.3). Existing land use along US 31, adjacent to Transit Route A, consists of single and multi-family residential, office, institutional, and commercial. In Shelby County, adjacent to US 31, zoning consists of Office and Institutional District (O-I) and Multi-Family District (R-4). In unincorporated Jefferson County, zoning adjacent to US 31 along Route A includes Single Family (R-1), Institutional (INST-1), Agricultural (A-1), Commercial (C-1), Estate 2 (E-2), Preferred Commercial (C-P), and Multi-Family (R-4). Within the Birmingham city limits, zoning along US 31 consists of General Business District (B2), Health and Institutional (B6), Office and Institutional (O&I), Community Business District (B3), Single Family District – Class I and Class III (R1 and R3), Multiple Dwelling District (R4A), and Multiple Family District (R5, R6 and R7).
Figure 3.1: Jefferson County Existing Land Use Map

Source: Jefferson County Comprehensive Plan, 2008
The Jefferson County Land Use Plan breaks up the county into areas based on US Census Tracts. The proposed project lies within areas E, K and J with areas K and J being covered by the City of Birmingham mapping.
Figure 3.4: City of Birmingham Future Land Use Plan

Source: City of Birmingham Comprehensive Plan (draft), 2012
Figure 3.5: Shelby County Existing Land Use Plan

EXISTING LAND USE

- Residential
- Commercial
- Industrial
- Utilities/Transportation
- Agriculture
- Recreational
- Institutional
- Mining/Extraction
- Vacant

Source: Shelby County Comprehensive Plan, 2004
Figure 3.6: Shelby County Strategic Development Plan

Source: Shelby County Comprehensive Plan, 2004
Figure 3.7: Homewood Future Land Use Plan

Source: Homewood Master Plan, 2007
Proposed BRT Route B would be located along Columbiana Road/Green Springs Highway from Galleria Mall to downtown Birmingham (refer back to Figure 2.4). Existing land use along Columbiana Road and Green Springs Highway consists of multi- and single family residential, institutional, office, retail, recreational, commercial, and some light industrial. Zoning along these two roadways within the Birmingham city limits includes General Business District (B2), Light Industrial District (M1), Single Family District – Class III (R3), and Multiple Family District (R5 and R6). Zoning within unincorporated Jefferson County consists of Commercial (C-1), Single Family (R-1), Preferred Commercial (C-P), Multi-Family (R-4) and Institutional (INST-1).

Proposed BRT Route C would be located along US 31 south of I-459 and along I-65 north of I-459 from Alabaster to downtown Birmingham (refer back to Figure 2.5). The land use and zoning would be the same as discussed previously for these roadways.

Proposed BRT Route E would be located along I-65 from Alabaster to downtown Birmingham (refer back to Figure 2.6). Land use and zoning would be the same as discussed previously for I-65.

Proposed Route G consists of enhanced local service along West Valley Road and Oxmoor Road (refer back to Figure 2.7). Existing land use along West Valley Road consists of mostly retail, commercial and multi-family residential with some single family residential. Homewood Middle School is also located on this route. Existing land use along Oxmoor Road includes retail, commercial, and multi-family residential with some single family residential. Palisades Church of Christ is also located along this route. Zoning consists of General Business District (B2), Light Industrial District (M1), Multiple Family District (R6) and Single Family District – Class II (R2).

Proposed Route H consists of express service along I-65 from Calera to the Galleria Mall and Proposed Route I consists of express service along I-65 from Calera to downtown Birmingham (refer back to Figures 2.8 and 2.9). The land use and zoning along I-65 would be the same as previously discussed for I-65.

Transit Element – Centers, Stations and Park and Ride Lots
The proposed centers, stations and park and ride lots (see Appendix A for locations) would be located mostly within existing ROW in areas comprised of mostly residential and/or commercial land use. The areas where private property would be needed are noted below.

- The center proposed at Galleria Mall (Routes A, B, C and H) would be located in a private parking lot between the Aveda Institute and a strip mall. This area is zoned for commercial use.
• The center proposed at Valley Avenue (Routes B, C, E and G) would require the removal of a vacant building. The area consists of commercial uses and is zoned as such.
• The center and park and ride lot proposed at CR 52 would require additional ROW. This area is comprised of commercial structures and is zoned accordingly.
• The center and park and ride lot proposed at SR 119 (Routes C and E) would require additional ROW. The area is comprised of commercial uses and is zoned accordingly.

3.3 Air Quality

The proposed project would increase pollutant levels but would not exceed local, state or federal standards for mobile source pollutants. The project is located in an EPA designated nonattainment area for PM 2.5 and would increase auto and/or bus traffic at specific locations. Therefore, the proposed project’s impact on air quality is expected to be possibly significant.

Ozone

Jefferson and Shelby Counties are maintenance areas for the 1997 8-hour ozone standard. Table 3.1 provides the I-65 MMP projects that are included in the current fiscally constrained 2035 RTP. These projects have been determined to conform to air quality standards for ozone. However, the I-65 HOV lanes, truck lanes and transit routes are not in the conforming 2035 RTP. During the preparation of the EA, additional studies for impacts to ozone may be required if these project’s have not been added to the current RTP.

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<th>Project Description</th>
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<th>Visionary</th>
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<th>ALDOT Project ID</th>
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**Carbon Monoxide**

Jefferson and Shelby Counties are in attainment for carbon monoxide (CO); therefore, the following analysis was completed for NEPA purposes. The microscale model used to assess CO levels in the project corridor was CAL3QHC (refer to Appendix B for the CAL3QHC input and output files). This model is accepted by the EPA and the FHWA as a technique for assessing the air quality impact resulting from the operation of highways. The interchange of I-65 and US 31 was chosen for analysis because it is signalized, has a high traffic volume and is located within a populated area.

Inputs to the model were such that would provide a “worst case” analysis achieved by modeling the intersection with the highest traffic volume and then setting the meteorological variables to their least favorable conditions. Concentrations of CO predicted by this model can then be compared to the NAAQS. The receptors modeled were located at points along the right-of-way.

Concentrations of CO were calculated for the existing and the design year (2035) conditions. The peak one-hour concentrations are presented in Table 3.2.
Table 3.2: CO Concentrations

<table>
<thead>
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<th>YEAR</th>
<th>Receptor Number</th>
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<tbody>
<tr>
<td></td>
<td>R1</td>
</tr>
<tr>
<td>Existing</td>
<td>4.2</td>
</tr>
<tr>
<td>(2010)</td>
<td></td>
</tr>
<tr>
<td>No Build</td>
<td>3.8</td>
</tr>
<tr>
<td>(2035)</td>
<td></td>
</tr>
<tr>
<td>Build</td>
<td>3.8</td>
</tr>
<tr>
<td>(2010)</td>
<td></td>
</tr>
</tbody>
</table>

The State of Alabama and the EPA have set the maximum acceptable average CO concentrations at 9 ppm for a continuous eight-hour period or 35 ppm for a maximum one-hour averaging time. Eight-hour concentrations are determined by using a mathematical equation that converts the one hour modeled results to the expected eight hour results. Along the proposed project, the predicted one-hour CO concentrations for the project were less than the NAAQS for the continuous eight-hour period (9 ppm); therefore, eight-hour concentrations were not calculated.

Sensitive receptors, defined as hospitals, nursing homes, schools, and institutional facilities were identified as part of this study. There are no facilities of these types located within the distance considered in the microscale analysis. The receptors analyzed are expected to receive the highest concentrations of CO from the operations of the roadways and intersection. These receptors were placed at the project right-of-way. Analysis demonstrated that pollutant concentration would not exceed state and federal air quality standards beyond the right-of-way limits.

It should be noted that EPA is in the process of implementing a new CO modeling system. The new system, Motor Vehicle Emission Simulator (MOVES), will be required for all projects after March 2013. Therefore, the proposed project would need to be updated to comply with MOVES during the EA process.

**Particulate Matter**

Jefferson and Shelby Counties are classified as nonattainment for the 24-hour and annual standards with respect to particulate matter smaller than 2.5 microns in diameter (PM$_{2.5}$). According to 40 CFR 93.123(b)(2) and (4), a quantitative analysis for applicable projects is not required until EPA releases modeling guidance in the Federal Register. However, a qualitative hot-spot analysis would likely be required in order to assess whether the project will cause or contribute to any new localized PM$_{2.5}$ violations, increase the frequency or severity of any existing violations, or delay timely attainment of the PM$_{2.5}$ NAAQS. The qualitative analysis would likely be required because the project is adding new bus terminals and transfer points that may have a significant number of diesel vehicles congregating at a single location. This analysis would be conducted during the EA process.
**Mobile Source Air Toxics**

Mobile Source Air Toxics (MSATs) assessments are required statewide for most federal transportation projects. Based on the example projects defined in the FHWA guidance “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents” dated September 30, 2009, the proposed project would be classified as a **project with higher potential MSAT effects**. The proposed project would add capacity to an interstate where the ADT is projected to be in the range of 200,000 by the design year (refer to Table 3.3). Furthermore, the project would be located in close proximity to populated areas.

### Table 3.3: Average Daily Traffic

<table>
<thead>
<tr>
<th>Roadway Sections</th>
<th>Approximate Length</th>
<th>2010 Existing</th>
<th>2035 No Build</th>
<th>2035 Build</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-65 between Valleydale and I-459</td>
<td>2.8 miles</td>
<td>114,482</td>
<td>175,238</td>
<td>196,056</td>
</tr>
<tr>
<td>I-65 between I-459 and US-31</td>
<td>1.9 miles</td>
<td>129,897</td>
<td>155,238</td>
<td>196,308</td>
</tr>
<tr>
<td>I-65 between US-31 and Alford Ave</td>
<td>1.8 miles</td>
<td>128,899</td>
<td>146,810</td>
<td>204,246</td>
</tr>
<tr>
<td>I-65 between Alford Ave and Lakeshore Pkwy</td>
<td>1.4 miles</td>
<td>131,313</td>
<td>146,810</td>
<td>209,206</td>
</tr>
<tr>
<td>I-65 between Lakeshore Pkwy and Oxmoor Rd</td>
<td>1.0 mile</td>
<td>136,111</td>
<td>155,278</td>
<td>207,528</td>
</tr>
<tr>
<td>I-65 between Oxmoor Rd and Green Springs Ave</td>
<td>1.4 miles</td>
<td>137,527</td>
<td>153,770</td>
<td>209,652</td>
</tr>
<tr>
<td>I-65 between Green Springs Ave and University Blvd</td>
<td>1.3 miles</td>
<td>138,914</td>
<td>156,866</td>
<td>210,194</td>
</tr>
</tbody>
</table>

Projects with higher potential MSAT effects must be further assessed for impacts. Coordination with FTA and FHWA should occur to develop a specific approach for assessing impacts. If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions, mitigation options would be identified and considered.

**Global Climate Change**

The issue of global climate change has become an important national and global concern that is being addressed in several ways by the federal government. The transportation sector is the second largest source of total GHG emissions in the U.S. and the largest source of carbon dioxide (CO\(_2\)) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO\(_2\) emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which accounts for approximately 80 percent of anthropogenic emissions of carbon worldwide. Consumption of petroleum products, such as motor gasoline, diesel fuel, jet fuel, and residual fuel, account for almost all (98 percent) transportation-sector emissions.

To date, no national standards have been established regarding GHGs, nor has the U.S. Environmental Protection Agency (EPA) established criteria or thresholds for GHG emissions. On April 2, 2007, the Supreme Court issued a decision in *Massachusetts, et*
al. v. Environmental Protection Agency, et al., that the EPA does have authority under the Clean Air Act to establish motor vehicle emissions standards for CO₂ emissions. The EPA is currently determining the implications to national policies and programs as a result of the Supreme Court decision. However, the Court’s decision did not have any direct implications on requirements for developing transportation projects.

Recognizing these concerns, the FHWA is working with other modal administrations through the Department of Transportation Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation’s contribution to GHGs – particularly CO₂ emissions – and to assess the risks to transportation systems and services from climate changes.

The FHWA does not consider it useful to analyze GHG emissions in a project level NEPA document. Because climate change is a global issue and the emission changes due to a project are very small compared to global totals, GHG emissions will not be calculated at the project level. Further, due to the interactions between elements of the transportation system as a whole, emissions analyses would be less informative than ones conducted at regional, state, or national levels. Because of these concerns, CO₂ emissions cannot be usefully calculated in this document in the same way that other vehicle emissions are addressed. As more information emerges and as policies and legal requirements evolve, approaches to climate change at both the project and policy level will be reviewed and updated.

3.4 Noise

Highway Element

The FHWA Traffic Noise Model (TNM), version 2.5, was used to calculate existing noise levels and predict future build noise levels (2035). Two methods are used for identifying a noise impact:

1. A comparison of predicted noise levels with FHWA’s Noise Abatement Criteria (NAC), as seen in Table 3.4. Any predicted noise level that approaches or exceeds the applicable NAC is considered an impact. Noise levels within one decibel of the NAC are considered approaching criteria.

2. A comparison of predicted build traffic noise levels with existing noise levels. A site is considered to be impacted if there is a substantial increase from existing levels. A substantial increase from existing occurs when the future predicted noise levels increase by at least 15 dBA or more over existing levels.
Table 3.4: FHWA NAC Hourly A-Weighted Sound Levels (decibels)

<table>
<thead>
<tr>
<th>Activity Category</th>
<th>Leq(h)</th>
<th>Description of Activity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>57 (Exterior)</td>
<td>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.</td>
</tr>
<tr>
<td>B</td>
<td>67 (Exterior)</td>
<td>Residential</td>
</tr>
<tr>
<td>C</td>
<td>67 (Exterior)</td>
<td>Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnics areas, places of worship, playgrounds, institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.</td>
</tr>
<tr>
<td>D</td>
<td>52 (Interior)</td>
<td>Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio stations, recording studios, schools, and television studios.</td>
</tr>
<tr>
<td>E</td>
<td>72 (Exterior)</td>
<td>Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A – D or F.</td>
</tr>
<tr>
<td>F</td>
<td>-</td>
<td>Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.</td>
</tr>
<tr>
<td>G</td>
<td>-</td>
<td>Undeveloped lands that are not permitted.</td>
</tr>
</tbody>
</table>

Source: (Federal Highways Administration) (23 CFR Part 772)
Note: These sound levels are only to be used to determine impact. These are the absolute levels above which abatement must be considered. Noise abatement is designed to achieve a substantial noise reduction. Noise abatement is not designed to achieve the noise abatement criteria.

A total of 392 receptors (representing 1,379 units) were modeled in the project area. For the existing year (2010), modeled noise levels yielded 251 noise impacts (representing 864 units). For the build year (2035) condition, there were 299 impacted receptors (representing 1,032 units). Of the 299 impacts, all were the result of approaching or exceeding the applicable NAC, and none were a result of a substantial increase in noise from the existing year. Refer to the Noise Analysis Technical Report in Appendix C for existing and build sound levels as well as the locations of the impacted receptors.

Impacted receptor locations were evaluated for possible noise abatement using FHWA's guidelines as promulgated by 23 CFR 772. The abatement measures evaluated included traffic management measures, alteration of horizontal and vertical alignments, acquisition of property rights, construction of noise barriers, acquisition of real property or interests therein, and noise insulation (refer to technical report in Appendix C). No abatement was determined feasible and reasonable for the proposed project at this time. However, the proposed project should be analyzed for noise impacts again once more detailed design information is available.
Transit Element
FTA guidelines require that a detailed noise analysis be carried out for all projects that would result in an increase of 12 buses or more per hour passing a noise-sensitive land use. Proposed transit routes A and C would result in 12 buses per hour and both routes include noise-sensitive land uses. Therefore, during the EA process, a noise analysis should be carried out for these routes. Routes B, E, G, H and I would carry less than 12 buses per hour; therefore, a detailed analysis would not be required.

Table 3.5: Number of Buses Needed for Transit Routes

<table>
<thead>
<tr>
<th>Transit Route</th>
<th># Buses Per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
</tr>
<tr>
<td>B</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>12</td>
</tr>
<tr>
<td>E</td>
<td>8</td>
</tr>
<tr>
<td>G</td>
<td>6</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
</tr>
<tr>
<td>I</td>
<td>5</td>
</tr>
</tbody>
</table>

3.5 Water Quality
Because a USACE Section 404 permit will be required and because increased runoff could occur, the proposed project’s impacts on water quality are anticipated to be possibly significant. Additional consultation with the appropriate local agencies regarding the potential impact on water quality may be required as part of the EA.

A total of 42 streams and eight wetlands were identified within the construction limits of the highway element of the project. Refer to Appendix D for the locations of the identified streams and wetlands. All but two of the streams were classified as having an existing condition of either somewhat impaired or fully impaired. The remaining two streams were classified as fully functional. In the area of I-65, the Cahaba River has been listed on the Draft 2012 303d list as not supporting its designated use due to siltation caused by urban runoff/storm sewers.

Based on information from the Alabama State Water Program, most point source water pollution is successfully controlled through the National Pollutant Discharge Elimination System (NPDES); however, this program has not been successful in controlling non-point source (NPS) pollution, which comes primarily through storm water runoff. Further, the Jefferson County Department of Health Watershed Protection Division administers the Storm Water Management Program which protects and enhances the water quality of its members. Members served by the program include Adamsville,
Center Point, Gardendale, Irondale, Maytown, Mountain Brook, Tarrant, Brighton, Clay, Homewood, Leeds, Midfield, Pinson, Trussville, Brookside, Fairfield, Hueytown, Lipscomb, Mulga, Pleasant Grove and Vestavia Hills. The program protects waterways through monitoring, inspection of industrial sources, and formulating progressing strategies to stop pollution from reaching streams. Further, the program uses inspections and plan reviews to limit the likelihood of sediment and other pollutants leaving construction sites, and is in the process of developing a comprehensive plan to improve impaired waterways and to protect other valuable resources.

Quality and quantity of storm water runoff would be altered by the proposed project. During construction, effects to water quality resulting from erosion, sedimentation, as well as those from pollutants such as chemicals, fuels, lubricants, bitumins, raw sewage and other harmful waste, would be strictly controlled. To minimize impacts to water quality during construction, the project will utilize both temporary and permanent erosion control measures. These BMPs will be in place prior to and during the construction period and would be maintained throughout the construction of the proposed project. The BMPs identified in the erosion control plans for the project may include, but are not limited to, the use of silt fence, inlet protection barriers, hay bales, sediment traps and/or basins, and seeding or sodding of excavated soil. Exposure of the soil surface would be minimized during any clearing and grading activities. Permanent structures may be utilized in areas for stream crossings while other crossings may have temporary pipes, diversion channels, fords, or work bridges depending on factors such as staging, stream flow, topography, and contractor discretion.

A Clean Water Act (CWA), Section 404 permit will be required by the USACE, and the Alabama Department of Environmental Management (ADEM) will review the USACE permit applications under Section 401 of the CWA in order to determine if the project would cause or contribute to a violation of Alabama water quality standards. Construction of the proposed project will also require a NPDES permit.

### 3.6 Wetlands and Streams

The proposed study corridor was reviewed for the presence of waters of the US in accordance with the provisions of Executive Order 11990, Clean Water Act, and subsequent federal regulations. For jurisdictional purposes, waters of the United States are defined in 33 CFR 328.3(a). Waters include intermittent and perennial streams, rivers, lakes, natural ponds, and wet meadows that contain evidence of ordinary high water. The term “ordinary high water” is defined as “that line on the shore established by the fluctuations of water indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328.3(e)). The areas in the study corridor that displayed one or more of the above waters of the United States characteristics were reviewed to determine USACE jurisdiction. Also for jurisdictional
purposes, wetlands have been defined by the USACE 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. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 328.3(b) and 40 CFR 230.3 (t)). The areas in the study corridor that displayed one or more wetland characteristics were reviewed to determine the presence of USACE jurisdiction. Wetland characteristics included: 1) prevalence of hydrophytic vegetation, 2) permanent or periodic inundation or saturation, and 3) presence of hydric soils.

A total of 42 streams and eight wetlands were identified within the construction limits of the highway element of the project (refer to Appendix D for the locations of the identified streams and wetlands). The stream crossings include the Cahaba River, Shades Creek and Branch Creek. In the area of I-65, the Cahaba River has been listed on the Draft 2012 303d list as not supporting its designated use due to siltation caused by urban runoff/storm sewers. Further, this portion of the Cahaba River is designated as critical habitat for multiple federal and state protected species (refer to Sections 3.9 and 3.10 for more information).

**Highway Element**

Based on the construction limits, the proposed project would impact approximately 15,617 linear feet of stream and approximately 1.67 acres of wetland and open waters. Refer to Tables 3.6 and 3.7 for a summary of stream and wetland characteristics and to Figures 1-8 in Appendix D for the stream and wetland locations.

<table>
<thead>
<tr>
<th>Resource #</th>
<th>Resource Type/ Classification</th>
<th>HUC</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Existing Condition</th>
<th>Total Approximate Area Within Construction Limits (Linear Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream 1</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.358382°</td>
<td>-86.778950°</td>
<td>Somewhat impaired</td>
<td>488</td>
</tr>
<tr>
<td>Stream 2</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.357990°</td>
<td>-86.782826°</td>
<td>Somewhat impaired</td>
<td>0</td>
</tr>
<tr>
<td>Stream 3</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.361030°</td>
<td>-86.783580°</td>
<td>Somewhat impaired</td>
<td>0</td>
</tr>
<tr>
<td>Stream 4</td>
<td>Ephemeral</td>
<td>0315020202</td>
<td>33.359562°</td>
<td>-86.778675°</td>
<td>N/A</td>
<td>170</td>
</tr>
<tr>
<td>Stream 5</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.362858°</td>
<td>-86.775849°</td>
<td>Somewhat impaired</td>
<td>499</td>
</tr>
<tr>
<td>Stream 6</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.366579°</td>
<td>-86.776073°</td>
<td>Fully impaired</td>
<td>94</td>
</tr>
<tr>
<td>Stream 7</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.370486°</td>
<td>-86.778201°</td>
<td>Fully functional</td>
<td>681</td>
</tr>
<tr>
<td>Stream 8</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.371400°</td>
<td>-86.777630°</td>
<td>Fully Impaired</td>
<td>489</td>
</tr>
<tr>
<td>Resource #</td>
<td>Resource Type/ Classification</td>
<td>HUC</td>
<td>Latitude</td>
<td>Longitude</td>
<td>Existing Condition</td>
<td>Total Approximate Area Within Construction Limits (Linear Feet)</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Stream 12</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.362898°</td>
<td>-86.777553°</td>
<td>Somewhat impaired</td>
<td>356</td>
</tr>
<tr>
<td>Stream 13</td>
<td>Ephemeral</td>
<td>0315020202</td>
<td>33.382787°</td>
<td>-86.781492°</td>
<td>N/A</td>
<td>329</td>
</tr>
<tr>
<td>Stream 15</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.382398°</td>
<td>-86.782689°</td>
<td>Somewhat impaired</td>
<td>209</td>
</tr>
<tr>
<td>Stream 17</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.383624°</td>
<td>-86.783073°</td>
<td>Somewhat impaired</td>
<td>69</td>
</tr>
<tr>
<td>Stream 18</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.384674°</td>
<td>-86.783576°</td>
<td>Fully impaired</td>
<td>106</td>
</tr>
<tr>
<td>Stream 19</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.385702°</td>
<td>-86.783490°</td>
<td>Fully impaired</td>
<td>586</td>
</tr>
<tr>
<td>Stream 20</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.386334°</td>
<td>-86.783643°</td>
<td>Fully impaired</td>
<td>1,491</td>
</tr>
<tr>
<td>Stream 21</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.392905°</td>
<td>-86.785291°</td>
<td>Fully impaired</td>
<td>106</td>
</tr>
<tr>
<td>Stream 22</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.394568°</td>
<td>-86.784303°</td>
<td>Fully impaired</td>
<td>757</td>
</tr>
<tr>
<td>Stream 23</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.396178°</td>
<td>-86.785029°</td>
<td>Fully impaired</td>
<td>904</td>
</tr>
<tr>
<td>Stream 24</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.396966°</td>
<td>-86.784615°</td>
<td>Fully impaired</td>
<td>0</td>
</tr>
<tr>
<td>Stream 26</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.404852°</td>
<td>-86.791579°</td>
<td>Fully impaired</td>
<td>408</td>
</tr>
<tr>
<td>Stream 27</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.406367°</td>
<td>-86.793611°</td>
<td>Somewhat impaired</td>
<td>129</td>
</tr>
<tr>
<td>Stream 28</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.406915°</td>
<td>33.406915°</td>
<td>Somewhat impaired</td>
<td>103</td>
</tr>
<tr>
<td>Stream 29</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.407517°</td>
<td>-86.794795°</td>
<td>Somewhat impaired</td>
<td>106</td>
</tr>
<tr>
<td>Stream 30</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.407782°</td>
<td>-86.795051°</td>
<td>Fully impaired</td>
<td>99</td>
</tr>
<tr>
<td>Stream 31</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.406984°</td>
<td>-86.795464°</td>
<td>Fully impaired</td>
<td>103</td>
</tr>
<tr>
<td>Stream 32</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.410554°</td>
<td>-86.803000°</td>
<td>Fully impaired</td>
<td>1,006</td>
</tr>
<tr>
<td>Stream 34</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.411845°</td>
<td>-86.808593°</td>
<td>Somewhat impaired</td>
<td>254</td>
</tr>
<tr>
<td>Stream 36</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.415432°</td>
<td>-86.807012°</td>
<td>Somewhat impaired</td>
<td>0</td>
</tr>
<tr>
<td>Stream 37</td>
<td>Ephemeral</td>
<td>0315020202</td>
<td>33.412479°</td>
<td>-86.809144°</td>
<td>N/A</td>
<td>465</td>
</tr>
<tr>
<td>Stream 38</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.414177°</td>
<td>-86.812022°</td>
<td>Fully functional</td>
<td>608</td>
</tr>
<tr>
<td>Stream 39</td>
<td>Perennial</td>
<td>0315020202</td>
<td>33.424248°</td>
<td>-86.815993°</td>
<td>Fully functional to fully impaired</td>
<td>2,673</td>
</tr>
<tr>
<td>Stream 40</td>
<td>Intermittent</td>
<td>0315020202</td>
<td>33.427225°</td>
<td>-86.821161°</td>
<td>Fully impaired</td>
<td>0</td>
</tr>
<tr>
<td>Stream 41</td>
<td>Ephemeral</td>
<td>0315020203</td>
<td>33.441949°</td>
<td>-86.822187°</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Stream 42</td>
<td>Intermittent</td>
<td>0315020203</td>
<td>33.443177°</td>
<td>-86.820816°</td>
<td>Somewhat impaired</td>
<td>214</td>
</tr>
</tbody>
</table>

1 Stream 39 is fully functional where undisturbed in the median and fully impaired where located in concrete channel approximately 100 feet both sides of I-65 adjacent to culvert crossing.
<table>
<thead>
<tr>
<th>Resource #</th>
<th>Resource Type/Classification</th>
<th>HUC</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Existing Condition</th>
<th>Total Approximate Area Within Construction Limits (Linear Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream 43</td>
<td>Intermittent</td>
<td>0315020203</td>
<td>33.444231°</td>
<td>-86.819976°</td>
<td>Somewhat impaired</td>
<td>237</td>
</tr>
<tr>
<td>Stream 44</td>
<td>Perennial</td>
<td>0315020203</td>
<td>33.446439°</td>
<td>-86.817948°</td>
<td>Fully functional</td>
<td>520</td>
</tr>
<tr>
<td>Stream 45</td>
<td>Perennial</td>
<td>0315020203</td>
<td>33.445520°</td>
<td>-86.817536°</td>
<td>Somewhat impaired to fully impaired</td>
<td>450</td>
</tr>
<tr>
<td>Stream 46</td>
<td>Perennial</td>
<td>0315020203</td>
<td>33.454406°</td>
<td>-86.818131°</td>
<td>Somewhat impaired</td>
<td>133</td>
</tr>
<tr>
<td>Stream 47</td>
<td>Intermittent</td>
<td>0315020203</td>
<td>33.463235°</td>
<td>-86.823021°</td>
<td>Fully impaired</td>
<td>421</td>
</tr>
<tr>
<td>Stream 48</td>
<td>Intermittent</td>
<td>0315020203</td>
<td>33.463900°</td>
<td>-86.823160°</td>
<td>Fully impaired</td>
<td>41</td>
</tr>
<tr>
<td>Stream 49</td>
<td>Perennial</td>
<td>0316011201</td>
<td>33.491477°</td>
<td>-86.821587°</td>
<td>Fully impaired</td>
<td>234</td>
</tr>
<tr>
<td>Stream 50</td>
<td>Perennial</td>
<td>0316011201</td>
<td>33.493791°</td>
<td>-86.819117°</td>
<td>Fully impaired</td>
<td>79</td>
</tr>
</tbody>
</table>

Total Linear Feet of Impact: 15,617 lf

**Table 3.7: Wetland and Open Water Summary of Impacts**

<table>
<thead>
<tr>
<th>Resource #</th>
<th>Resource Type/Classification</th>
<th>HUC</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Existing Condition</th>
<th>Total Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/L 05</td>
<td>PFO</td>
<td>0315020202</td>
<td>33.362026°</td>
<td>-86.776297°</td>
<td>Moderate</td>
<td>0</td>
</tr>
<tr>
<td>W/L 07</td>
<td>PFO</td>
<td>0315020202</td>
<td>33.364557°</td>
<td>-86.775875°</td>
<td>Moderate</td>
<td>0.071</td>
</tr>
<tr>
<td>W/L 08</td>
<td>PEM</td>
<td>0315020202</td>
<td>33.365537°</td>
<td>-86.775813°</td>
<td>Low</td>
<td>0.164</td>
</tr>
<tr>
<td>W/L 14</td>
<td>PFO/PEM</td>
<td>0315020202</td>
<td>33.382523°</td>
<td>-86.782778°</td>
<td>Moderate</td>
<td>0.478</td>
</tr>
<tr>
<td>W/L 16</td>
<td>PFO/PEM</td>
<td>0315020202</td>
<td>33.383991°</td>
<td>-86.783001°</td>
<td>Moderate</td>
<td>0</td>
</tr>
<tr>
<td>W/L 25</td>
<td>PEM</td>
<td>0315020202</td>
<td>33.404203°</td>
<td>-86.790699°</td>
<td>Moderate</td>
<td>0.574</td>
</tr>
<tr>
<td>W/L 33</td>
<td>PFO/PEM</td>
<td>0315020202</td>
<td>33.411742°</td>
<td>-86.808673°</td>
<td>Moderate</td>
<td>0</td>
</tr>
<tr>
<td>W/L 35</td>
<td>PEM</td>
<td>0315020202</td>
<td>33.413042°</td>
<td>-86.806900°</td>
<td>Low</td>
<td>0.382</td>
</tr>
</tbody>
</table>

Total acreage of wetland and open water impact: 1.67 acres

---

2 Fully functional outside of interstate ROW, which flows into a concrete channel parallel to I-65 and is fully impaired.
Transit Element
The proposed centers, stations and park and ride lots were also field reviewed for the presence of streams and wetlands. Table 3.8 provides a summary of this review as well as the potential for wetland and/or stream impacts.

Table 3.8: Possible Wetland and Stream Impacts at Proposed Transit Centers, Stops, Stations and Park and Ride Lots

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Potential for Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station A-6</td>
<td>Northwest corner of Massey Road/US 31 intersection</td>
<td>Possible impact to stream located north of proposed station</td>
</tr>
<tr>
<td>Station A-3</td>
<td>East and west sides of Brookwood Boulevard</td>
<td>Large stream located just north of proposed stop. No impact anticipated.</td>
</tr>
<tr>
<td>Station H-8 &amp; I-2, Park and Ride Lot at Shelby County Airport</td>
<td>Shelby West Parkway</td>
<td>A drainage ditch is located west of the proposed park and ride lot. Implementation could result in a possible impact; however, at this time, it is not known if the drainage feature would be considered jurisdictional.</td>
</tr>
<tr>
<td>Station B-1</td>
<td>East and west sides of Green Springs Highway</td>
<td>A stream and drainage ditch is located adjacent to the western side and a stream is located adjacent to the eastern side of Green Springs Highway. The station on the west side of the highway may impact the drainage feature. At this time, it is not known if the drainage feature would be considered jurisdictional.</td>
</tr>
<tr>
<td>Center and Park and Ride Lot at SR 119 (C-5 and E-2)</td>
<td>Southeast corner of SR 119 and State Park Road</td>
<td>Storm ditches (carrying water at the time of the survey) are located in the area of the shelter, pedestrian staging area and median/buffer. At this time, it is not known if these features would be considered jurisdictional.</td>
</tr>
</tbody>
</table>

Avoidance and Minimization
For the streams and wetlands crossed by the project in a perpendicular fashion, shifts to avoid or minimize impacts would not be feasible as these shifts would result in similar (if not additional) impacts. For those streams and wetlands located adjacent to proposed improvements, shifts to avoid longitudinal encroachments would result in potential additional impacts to other streams or wetlands as well as additional displacements.

Construction Measures to Minimize Impacts
Increased sedimentation and siltation is expected to occur through construction of roadways in close proximity to waterways and wetlands. The additional jurisdictional area impacts can be reduced by the implementation of erosion and sedimentation. Other measures to protect wetlands, water, wildlife, and fish and game habitat include:
1. Preservation of roadside vegetation beyond the minimized construction limits;
2. Early stabilization and revegetation of disturbed areas to reduce erosion;
3. The use of slope drains, detention/retention structures, surface, subsurface and cross drains, designed as appropriate or needed, so that discharge would occur in locations and in such a manner that surface and subsurface water quality would not be affected (the outlets may require aprons, bank protection, silt basins, and energy dissipators);
4. Inclusion of construction features for the control of predicted erosion and water pollution in the plans, specifications, and contract pay items; and
5. Prohibit the dumping of chemicals, fuels, lubricants, bitumens, and other harmful waste into or alongside of streams or impoundments, or natural or manmade channels.

Mitigation
Mitigation would be performed in accordance with Section 404 of the Clean Water Act and the appropriate guidelines. This mitigation may be performed on-site or in close proximity to the project to restore, enhance, and preserve streams and wetlands. If on-site or nearby mitigation cannot be achieved, the losses may be offset through use of a suitable mitigation bank. The restoration, creation, and/or enhancement of the wetlands and streams surrounding the project area would be favorable, but according to the current design of the project, this option does not seem feasible to obtain required credits. The potential for mitigation was assessed based on the feasibility of acquiring additional right-of-way, the cost of designing and constructing the mitigation in relationship to the potential credits generated, and the quality of the adjacent waters of the U.S. The USACE has determined that on-site mitigation creates fragmented areas that are difficult to manage and monitor; therefore, impacts associated with the proposed project would likely be mitigated by the purchase of credits from an approved mitigation bank.

Based on the information provided, the proposed project could have a possibly significant impact on wetlands and streams.

3.7 Floodplains
In accordance with Executive Order 11988 (Floodplain Management) and DOT Order 5650.3 (Floodplain Management and Protection), the proposed project was evaluated for encroachments on existing 100-year floodplain. The highway element of the project would encroach upon the Federal Emergency Management Agency (FEMA) mapped floodplains associated with the Cahaba River (three encroachments), Branch Creek (three encroachments) and Shades Creek (one encroachment) (refer to Figures 1-8 in Appendix E for the locations of the floodplain crossings).
The proposed project would increase impervious surface within these designated floodplains and could possibly modify the existing drainage system. However, it is not anticipated to result in a significant encroachment as defined in the DOT order, nor is it expected to aggravate local flooding conditions. Therefore, the project would have possibly significant impacts on floodplains.

3.8 Navigable Waterways and Costal Zones

The proposed project is not located in a coastal zone area, and it does not cross any navigable waterways. Therefore, the proposed project would have no impact on navigable waterways or coastal zones.

3.9 Ecologically Sensitive Areas

Ecologically sensitive areas contain natural features that require protection. Such areas include woodlands, prairies, marshes, bogs, lakes, streams, scenic areas, landforms and geological formations, and pristine natural areas. The highway element of the proposed project crosses the Cahaba River in an area where there is designated critical habitat for eight freshwater mussel species: orangenacre mucket, ovate clubshell, southern clubshell, southern acornshell, triangular kidneyshell, upland combshell, finelined picketbook, and Alabama moccasinshell. This area of designated critical habitat is occupied by some of these species and is historic and suitable habitat for the others.

Because additional lanes will be added, increased runoff is likely. Therefore, the project is anticipated that the project may have a possibly significant impact on ecologically sensitive areas. Coordination with the U.S. Fish and Wildlife Service regarding the impact the project might have on this habitat will be required during the preparation of the EA.

3.10 Threatened and Endangered Species

The Endangered Species Act of 1973 requires all federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS) and other appropriate state and local agencies, review the list of threatened and endangered species that may occur in the project area.

Through early coordination with the USFWS and the Alabama Department of Conservation and Natural Resources (DCNR), and through review of the USFWS Internet web page of federally protected species, a list of protected species that may occur in Jefferson and Shelby Counties was obtained. This list and the federal (or state) protection status of each species can be found in Table 3.9. The species demarcated in red bolded text are those that are known to occur within three miles of the project area based on coordination with USFWS and DCNR. It should be noted that while not listed on the table below, cylindrical lioplax (Lioplax cyclostomaformis), a
federally listed endangered species, was also noted by the USFWS and DCNR to occur within three miles of the project area.

Table 3.9: Federal and State Listed Species for Jefferson and Shelby Counties

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Habitat Present</th>
<th>Survey Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necturus alabamensis</td>
<td>Black warrior waterdog</td>
<td>C</td>
<td>No</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Etheostoma phytophilum</td>
<td>Rush darter</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Notropis cahabae</td>
<td>Cahaba shiner</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Dalea foliosa</td>
<td>Leafy prairie clover</td>
<td>E</td>
<td>No</td>
<td>July-Sept.</td>
<td></td>
</tr>
<tr>
<td>Aster georgianus</td>
<td>Georgia aster</td>
<td>C</td>
<td>Yes</td>
<td>Oct.-Nov.</td>
<td></td>
</tr>
<tr>
<td>Leptoxis plicata</td>
<td>Plicated rocksnail</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Picoctes borealis</td>
<td>Red-cockaded woodpecker</td>
<td>E</td>
<td>No</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Pleurobema decisum</td>
<td>Southern clubshell</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Ptychobranchus greeni</td>
<td>Triangular kidneyshell</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Epioblasma metastriata</td>
<td>Upland combshell</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Etheostoma chermocki</td>
<td>Vermilion darter</td>
<td>E</td>
<td>No</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Etheostoma nuchale</td>
<td>Watercress darter</td>
<td>E</td>
<td>No</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Mycteria americana</td>
<td>Wood stork</td>
<td>E</td>
<td>No</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Graptemys pulchra</td>
<td>Alabama map turtle</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Haliaeetus leucocephalus</td>
<td>Bald eagle</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Aquila chrysaetos</td>
<td>Golden eagle</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Graptemys nigrinoda</td>
<td>Black-knobbed map turtle</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Aneides aeneus</td>
<td>Green salamander</td>
<td>SP</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Corynorhinus rafinesquii</td>
<td>Rafinesque’s big-eared bat</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Myotis australiriparius</td>
<td>Southeastern bat</td>
<td>SP</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Cyprinella caerulea</td>
<td>Blue shiner</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Pleurobema perovatum</td>
<td>Ovate clubshell</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Medionidus parvulus</td>
<td>Coosa moccasinshell</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Pleurobema furvum</td>
<td>Dark pigtoe</td>
<td>E</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Hamiota altillis</td>
<td>Finelined pocketbook</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Medionidus acutissimus</td>
<td>Alabama moccasinshell</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Sternotherus depressus</td>
<td>Flattened musk turtle</td>
<td>T</td>
<td>Yes</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Percina aurolineata</td>
<td>Goldline darter</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Lampsilis perovalis</td>
<td>Orangeacre mucket</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td>Federal Status</td>
<td>State Status</td>
<td>Habitat Present</td>
<td>Survey Season</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Leptoxis taeniata</td>
<td>Painted rocksnail</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
<tr>
<td>Leptoxis ampla</td>
<td>Round rocksnail</td>
<td>T</td>
<td>Yes</td>
<td>April-Oct.</td>
<td></td>
</tr>
</tbody>
</table>

Based on a survey of the I-65 corridor within the project limits, suitable habitat was identified for several of the species included in Table 3.9. Further, as indicated in Section 3.9, the Cahaba River is designated critical habitat for eight freshwater mussel species: orangenacre mucket, ovate clubshell, southern clubshell, southern acornshell, triangular kidneyshell, upland combshell, finelined pocketbook, and Alabama moccasinsshell. This area of designated critical habitat is occupied by some of these species and is historic and suitable habitat for the others.

During the preparation of the EA, a presence/absence survey should be conducted for each of the species during the appropriate survey season. The findings of these surveys should be coordinated with the USFWS and the DCNR in order to determine the project’s potential effect on these species and their habitat.

Further, updated coordination with both the USFWS and the DCNR should take place during the preparation of the EA in order to determine if any species have been added to the list. Coordination with the National Marine Fisheries Service (NMFS) is not required as the project is not located in an area where marine species might occur.

Based on the project type, it is anticipated that the proposed project will have a possibly significant effect on endangered species. If species are found, the project should be designed to conserve the species and to avoid destruction or modification of its critical habitat (if so designated).

### 3.11 Traffic and Parking

**Traffic**

Impacts on traffic can occur as a result of the generation of traffic by the proposed action or a change in traffic patterns caused by the proposed improvements. Traffic volumes are expected to increase as a result of the proposed project. Table 3.10 provides the ADT along I-65 within the project limits for existing (2010), future No-Build (2035) and future Build (2035) conditions. As can be seen in Table 3.10, under the build condition, volumes are expected to increase between approximately 12 percent and 43 percent from the No-Build condition. Implementation of the proposed project is not expected to divert traffic to sensitive areas such as residential neighborhoods, historic districts, or hospital zones.
In order to determine the magnitude of the project’s potential impact on traffic, a level of service (LOS) analysis was undertaken. Appendix F provides peak hour LOS for the I-65 NB and SB mainline for the existing, No-Build and Build conditions.

The proposed project would provide a significantly better peak hour LOS in the new HOV lanes on I-65 compared to the general purpose lanes. It also will provide a significantly better peak hour travel time. The selected alternative out-performed the other alternatives in attracting the most HOV trips on I-65 and therefore ranked highest in its ability to address the needs of the I-65 corridor.

**Parking**

Transit impacts can have an impact on the use and supply of parking. The proposed action could generate a demand for parking spaces and may eliminate existing parking spaces. Table 3.11 provides estimated transit/park and ride parking for the proposed action. Where parking spaces may be eliminated due to the placement of transit centers or park and ride lots, it is not anticipated that the project would eliminate more than fifty spaces per station/center. No additional analysis for parking impacts should be required as the areas proposed for stations/centers appear to be located in areas of underutilized parking.

**Table 3.10: Average Daily Traffic**

<table>
<thead>
<tr>
<th>Location</th>
<th>2010 Existing</th>
<th>2035 No-Build</th>
<th>2035 Build</th>
<th>% Change from No Build to Build</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-65 between Valleydale and I-459</td>
<td>114,482</td>
<td>175,238</td>
<td>196,056</td>
<td>11.9%</td>
</tr>
<tr>
<td>I-65 between I-459 and US-31</td>
<td>129,897</td>
<td>155,238</td>
<td>196,308</td>
<td>26.5%</td>
</tr>
<tr>
<td>I-65 between US-31 and Alford Ave</td>
<td>128,899</td>
<td>146,810</td>
<td>204,246</td>
<td>39.1%</td>
</tr>
<tr>
<td>I-65 between Alford Ave and Lakeshore Pkwy</td>
<td>131,313</td>
<td>146,810</td>
<td>209,206</td>
<td>42.5%</td>
</tr>
<tr>
<td>I-65 between Lakeshore Pkwy and OX Moor Rd</td>
<td>136,111</td>
<td>155,278</td>
<td>207,528</td>
<td>33.6%</td>
</tr>
<tr>
<td>I-65 between OX Moor Rd and Green Springs Ave</td>
<td>137,527</td>
<td>153,770</td>
<td>209,652</td>
<td>36.3%</td>
</tr>
<tr>
<td>I-65 between Green Springs Ave and University Blvd</td>
<td>138,914</td>
<td>156,866</td>
<td>210,194</td>
<td>34.0%</td>
</tr>
</tbody>
</table>

**Table 3.11: Estimated Transit/Park and Ride Parking**

<table>
<thead>
<tr>
<th>Location</th>
<th>Transit Center</th>
<th>Park &amp; Ride</th>
<th>Parking Riders Only</th>
<th>Shared Parking</th>
<th>Estimated # Parking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galleria Mall</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Riverchase Parkway</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>152</td>
</tr>
<tr>
<td>Valley Avenue</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>State Route 119</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>113</td>
</tr>
<tr>
<td>County Road 52</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>47</td>
</tr>
<tr>
<td>Alabaster Shopping Center</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>130</td>
</tr>
</tbody>
</table>
In addition, parking impacts are anticipated for the Berney Points Baptist Church parking lot, as project construction would require ROW from this property. This required area contains approximately 20 parking spaces for the church. The overall circulation of traffic on the church property may also be impacted during construction, requiring it to be re-routed through the parking lot at the rear of the church. Circulation can be restored after construction is completed.

Based on the information provided, the proposed project is anticipated to have a possibly significant impact on traffic and parking.

3.12 Energy Requirements and Potential for Conservation

Impacts on energy are expected to be possibly significant in that the new transit facilities (stations, stops, centers, park and ride lots) would increase the overall operational energy requirements. However, the proposed project has potential for conservation which may offset these increased requirements. The project’s potential conservation opportunities include:

- Improvement in energy efficiency through the use of existing facilities;
- Improvement in pattern of usage through BRT, express and enhanced routes;
- Reduction in the demand for vehicular travel through offering increased transit routes; and
- Increase in load factors by making more efficient use of the existing bus fleet.

3.13 Cultural Resources and Parklands

In compliance with Section 106 of the National Historic Preservation Act of 1966 and amendments thereto, the highway element of the selected alternative has been surveyed for archaeological and historic resources, especially those listed in or eligible for inclusion in the National Register of Historic Places (NRHP). The purpose of the survey was to locate, identify and evaluate the significance of any historic and archaeological resources within the project corridor. It should be noted that the transit element of the project has not been evaluated for the presence of archaeological or historic resources. This additional work would occur during the preparation of the EA.

**Background Research**

Background research regarding previously recorded cultural resources was conducted. Several sources were referenced during the research, including the Alabama Online Cultural Resources Database (AOCRD) maintained by the University of Alabama’s Office of Archaeological Research, which contains the Alabama State Site File (ASSF), a GIS Archaeological web site; the National Register of Historic Places (NRHP), and the...
National Historic Landmarks (NHL). The Alabama Register of Landmarks and Heritage (ARLH) was also consulted for this project, although this background research is limited to previously recorded archaeological sites, previous archaeological surveys, the NRHP, and the NHL. Once an historic architectural resource is identified in the field, more in-depth background research may be appropriate including the use of historical aerial photography in an attempt to date a resource. A brief summary of the background research is provided below (refer to the Cultural Resources Report in Appendix G for more information on the results of the background research).

**Alabama State Site File:** The ASSF was referenced for previously recorded archaeological sites within the general study area. Twenty-five previously recorded archaeological sites are located within approximately one mile of the study corridor.

**Previous Surveys:** Several archaeological surveys have been conducted in the surrounding area, and along the interstate corridor. Most notable being an archaeological study associated with the I-65 corridor. Twelve smaller reports were also noted as occurring in the I-65 study area.

**National Historic Landmarks:** Three NHL properties are listed for Birmingham, none of which are located near the general study area.

**National Register of Historic Places:** The NRHP was referenced for historic properties within the I-65 study area. One NRHP-listed church is located to the west of I-65 on 6th Avenue South in the vicinity of UAB. The New Pilgrim Baptist Church was listed on the NRHP in 2007 as part of a multiple church listing for its significance during the Civil Rights Movement in Birmingham. The historic church was a mass meeting place during the late 1950s and early 1960s for the Alabama Christian Movement for Human Rights (ACMHR), a civil rights organization that coordinated boycotts and federal lawsuits during the fight for equal rights. Numerous additional NRHP properties and historic districts are identified for the greater Birmingham area. A concentration of NRHP properties is found within the downtown Birmingham area including several historic districts, however, these properties are located a sufficient distance from the proposed project corridor.

**Early Maps:** The 1885 perspective map of Birmingham, Alabama illustrates a realistic scene of 19th Century Birmingham (Figure 4, Appendix G). The northern extend of the survey corridor is shown at 1st Avenue North. The I-65 corridor would be located between 10th and 11th streets. Industrial buildings and wood frame houses are shown on the historic drawing at the northern end of the project corridor. The industrial buildings are likely those shown on fire insurance maps from the same time period.
Fire Insurance Maps: The A&P Tea Company is shown on the 1902 map indicating they rented warehouse space. This building still stands outside of the ROW and is discussed further later in this section.

Field Investigations
The cultural resources field investigations followed standard archaeological techniques in order to locate, identify, and document any archaeological sites, cemeteries, and historic standing structures. Because I-65 is heavily traveled, timing of the field investigations was strategic. However, because the study corridor is mostly contained within a disturbed right-of-way, a pedestrian review of disturbed zones was limited and not warranted in many incidences. Therefore, the field review is selective in determining what areas required a pedestrian review. Photo documentation serves as the primary investigatory procedure for most of the survey corridor. Where warranted, standard archaeological techniques were employed including a thorough visual observation of the ground surface and subsurface shovel testing. Shovel testing was limited throughout the study corridor because of disturbed contexts that are most often within the existing I-65 ROW and/or covered in pavement. Twelve shovel tests, measuring approximately 30 cm in diameter, were excavated within the study corridor to a depth of at least 30 cm or until sterile subsoil was encountered. Areas within the survey corridor to receive special attention during the field investigations include stream crossings, floodplains, and elevated terraces above streams. Few of these exist that have not been disturbed by highway construction, commercial development or other impacts. Shades Creek was once an archaeologically rich area with numerous archaeological sites recorded on terrace and floodplain landforms. Unfortunately, the area has succumbed to modern development that followed the construction of Lakeshore Drive. There is no likelihood for cultural resources to exist within these urban areas. The terraces and landforms above the Cahaba River hold the best probability for prehistoric cultural resources to exist. Detailed maps with field data are provided in the full Cultural Resources report located in Appendix G.

In regard to historic buildings within the Area of Potential Effect (APE), the adjacent streets and properties were assessed for age and NRHP eligibility. Representative photographs were taken of any historic standing structures in or adjacent to the APE and locational data were collected. In those areas of residential concentrations with multiple structures dating to 50 years, representative photographs of select resources were taken. The only neighborhood with multiple buildings 50 years old is to the south of Greensprings Highway and in the vicinity of Oak Grove Estates, where the built environment consists of mid 20th century massed plan houses and minimal traditional cottages. Commercial and industrial buildings that are at least 50 years old are noted in the northern portion of the survey corridor. Additionally, the historic Ullman School, located on UAB campus, is within the APE for the interchange improvement to University Boulevard. One NRHP property, the New Pilgrim Baptist Church, is located in the APE on 6th Avenue South. Special attention was given to any properties considered...
to have NRHP potential and whether or not the proposed improvements constitute an adverse effect. The resources mentioned above are discussed below.

**Archaeological Resources**
MRS Consultants, LLC conducted a cultural resources survey for proposed HOV and auxiliary lanes along I-65 with associated improvements to existing interchanges. Most of the proposed improvements are confined to the existing ROW for I-65. The width of the proposed ROW is a minimum of 265 ft with a maximum width of 800 ft at the expanded improvement areas. The most significant impact would be in the redesign of the University Boulevard access and improvements at US Highway 31.

As a result of the archaeological investigations, no new sites were added to the Alabama Online Cultural Resources Database (AOCRD). The environmental conditions along the corridor mostly consist of paved road ways and the disturbed interstate ROW. The interstate ROW includes grass covered slopes, concrete drainage ditches, culverts, and concrete. Moreover, it passes through Red and Shades mountains between the urban downtown Birmingham area and the I-459 interchange at Hoover. The steep mountain road cuts offer no opportunity for cultural resources in this area. Offices and commercial development are scattered along the interstate, at the prominent interchanges, and along the main thoroughfares in the area. Forest covers parts of the survey corridor between the developments. Shovel testing was limited throughout the study area because of disturbed contexts that most often lie within the existing I-65 ROW and/or covered in pavement.

The most likely location for the occurrence of prehistoric cultural resources is at the Cahaba River. One previously recorded site, 1Sh261, was revisited during the field investigations. Recorded in the Alabama State Site File, a description of the site follows including recent field studies by MRS and recommendations regarding further investigations.

**Site 1Sh261**
Site 1Sh261 was recorded in 1990. The AOCRD states that 23 clay tempered sherds, one Benton point and a greenstone celt were found within the erosion gullies below the bridge. It is suggested that there may be preserved cultural deposits to the west of the bridge. The AOCRD shows that the site is considered potentially eligible for the NRHP based on the diagnostic artifacts discovered. MRS visited 1Sh261 during March 2012 and found abundant trash accumulations, deep alluvium deposits, and possible construction fill. Shovel testing at the site area was attempted, however, hand dug shovel tests were unable to penetrate the deep alluvium and gravel deposits. Shovel testing was not conducted immediately beneath the bridge as the excavation and construction activities for the bridge piers would have destroyed any cultural deposits that might have once existed. Instead, shovel testing was focused on the west and east sides of the bridge piers in an attempt to locate undisturbed deposits. Two shovel tests
on the west side of the bridge revealed approximately 30 cm of yellowish brown fine sandy loam underlain by reddish brown mottled silty clay with gravel inclusions to a depth of at least 60 cm below the surface. The silty alluvial deposits are deep in this area and it is uncertain whether or not cultural deposits lie below the maximum depth of a hang-dug shovel test. The hand excavated shovel tests were unable to penetrate the deep alluvial deposits and possible construction fill at the I-65 Cahaba River bridge area. Mechanical excavation with large equipment would be required to remove the recently accumulated silt to reveal any prehistoric cultural deposits.

One shovel test excavated on the east side of the bridge revealed approximately 40 cm of yellowish brown sandy loam underlain by mottled brown gray clay loam to a depth exceeding 50 cm. This side of the bridge is poorly drained with evidence of frequent flooding and debris accumulations.

Other than modern trash, no cultural material was found during the surface investigations or subsurface testing at 1Sh261, however, there is the potential that cultural deposits lie deeply buried beneath the alluvium beyond the reach of a standard Phase I hand-dug shovel test.

NRHP Status: Site 1Sh261 is noted as potentially eligible for the NRHP in the AOCRD.

Potential Impacts/Recommendations: The construction of the interstate has likely destroyed the site within the I-65 bridge footprint. However, it is possible that intact cultural deposits associated with 1Sh261 lie to the west of the bridge. As long as the proposed interstate improvement project is confined to the existing bridge and piers, no impact should occur to intact cultural deposits. Should the project entail an expansion of the existing bridge with additional piers built to the west, further archaeological investigations are warranted. Mechanical equipment would be required to reach the depth where cultural deposits would be expected.

Historic (Architectural) Resources
During the cultural resources survey for the proposed I-65 improvement project, eight individual historic buildings are documented. Additional residences are noted within the area of the APE that are at least 50 years old, however, none were identified as potential candidates for the NRHP. These include massed plan and minimal traditional cottages and ranch style houses. Neighborhoods adjacent to the interstate ROW with a concentration of such 20th century residences are addressed collectively with representative photographs provided. Of the eight individual resources identified during the architectural assessment, one is NRHP listed and three additional resources are considered potentially eligible for the NRHP. These include the NRHP listed New Pilgrim Baptist Church, the historic Ullman Building on UAB campus; the UAB Facilities Building, and the St. Elias Meronite Church on 8th Street South. Refer to Figure 3.8 for the locations of these resources.
Figure 3.8: Historic Resource Location Map

USGS 7.5' TOPOGRAPHIC QUADRANGLE
Birmingham South, AL

Interstate-65
Jefferson County, AL

Existing I-65 ROW
Additional ROW
Photo Location
Historic Resource

NRHP Listed
**Resource 1: Merchants & Manufactures Terminal Warehouse, 12th Street South, ca. 1910s, 12th St. S.**

*Description*: The identified resource consists of a two story, brick warehouse building with trucking space and skylights. The south and east facades of the building feature casement windows. The building appears to be in use but to what extent is unknown. The warehouse building faces 12th Street South at the intersection of 1st Avenue South adjacent to the railroad. This area has supported industry for the entire history of Birmingham. The 1911 Sanborn Fire Insurance Map shows that the identified warehouse building belonged to the Merchants & Manufactures Terminal Warehouse with A& P Tea Company Grocery Warehouse using the space.

*NRHP Status*: The NRHP status of the identified resource is undetermined. However, the identified warehouse should be considered potentially eligible for the NRHP without further investigations into its history.

*Potential Impacts*: The proposed improvements to I-65 do not encroach upon the identified warehouse property. Therefore, the proposed project would have no effect upon the historic building.

**Resource 2: Ullman Building, 7th Avenue South, ca. 1901**

*Description*: The Ullman Building (formerly the Samuel Ullman School and Samuel Ullman High School) is a historic Birmingham City Schools building on 7th Avenue South at 12th Street. Originally part of Birmingham City Schools system, it was sold to UAB in 1970. The identified resource consists of an original two story, four classroom school building with a pedimented front entry and a cross hip. In 1909, a rear addition included 11 classrooms. The high school was enlarged with a new three-story classroom wing in 1957, which obscures the original front facade of the school. The historic building is presently part of the UAB athletic complex with practice fields to the west between it and I-65.

*NRHP Status*: Although architecturally altered with a 1950s classroom addition and is surrounded by modern buildings, the historic Ullman Building is considered a potential candidate for the NRHP based on Criterion A for education and African American heritage.

*Potential Impacts*: The proposed improvements to the University Boulevard and I-65 interchange places the historic Ullman Building within the APE. However, no ROW would be required and the proposed improvements do not encroach upon the historic property. Therefore, the proposed project would have no effect upon the historic resource.
Resource 3: Alagasco Building, 10th Avenue South, ca. 1940s

Description: The identified resource consists of a two story, brick commercial building with a flat roof and modern window replacements. The rear bay doors on the rear open up to a loading and refill area for Alagasco gas cylinders. The identified building faces 10th Street South at the intersection of 15th Avenue South. The I-65 and 6th Avenue South interchange is one block to the south of the identified resource. Not shown on the 1911 Sanborn Fire Insurance Map, aerial photograph were reviewed to estimate the date of construction. The building appears on the 1951 aerial photograph, thus, suggesting a late 1940s construction date.

NRHP Status: The NRHP potential of the identified resource is unlikely as it lacks several of the aspects of integrity including nonhistoric alterations and modern window replacements.

Potential Impacts: The proposed improvements to I-65 do not encroach upon the identified property and are confined to the existing ROW between 10th Street and I-65. The proposed project would have no effect upon the historic building.

Resource 4: Goodyear Building, 10th Avenue South, ca. 1950s

Description: The identified resource consists of a one story, brick commercial building with a flat roof and concrete block front facade (Figures 63-64). The identified building faces 10th Street South at the intersection of 15th Avenue South. The I-65 and 6th Avenue South interchange is just south of the identified resource. Not shown on the 1911 Sanborn Fire Insurance Map, aerial photograph were reviewed to estimate the date of construction. The building, shown on the 1956 aerial photograph is not located on the 1951 photograph. Thus, indicating that is was built during the early 1950s.

NRHP Status: The NRHP potential of the identified resource is unlikely as it lacks several of the aspects of integrity including nonhistoric alterations and lack of workmanship.

Potential Impacts: The proposed improvements to I-65 are confined to the existing ROW of the I-65 and 6th Avenue South ramp. The proposed project would have no effect upon the historic building.

Resource 5: NRHP listed New Pilgrim Baptist Church, 903 6th Avenue South, ca. 1945

Description: The identified resource consists of a one story, Gothic Revival church sanctuary with associated wings and additions. Located on 6th Avenue South, it faces the busy I-65 ramp on the west side of the interstate. The expanded its facilities in 1958-
1959 by adding an International style portico across the front, an administrative wing, a
dining area, kitchen, and bathrooms. An expansion of the day care area dates to 1961.
Today, the complex serves as the church day care center.

The New Pilgrim Baptist Church played a major role during the Birmingham Civil Rights
Movement from 1956 to 1963 for its leadership during the era and as a mass meeting
place sponsored by the Alabama Christian Movement for Human Rights (ACMHR). Of
the 45 Birmingham church active during the Movement, only seven churches had
auditoriums large enough to accommodate the large crowds of 600 to 900 people who
attended the meetings during the time that segregation laws were being challenged.
During the time that the ACMHR were holding mass meetings, only St. James Baptist
Church hosted more meetings than New Pilgrim. New Pilgrim is one of two mass
meeting place churches that remains intact and it hosted more meetings than any other
standing church as St. James and Sixth Avenue Baptist Church no longer exist at their
Movement-era sites.

NRHP Status: The Birmingham Historical Society sponsored the nomination of the New
Pilgrim Church to the NRHP. Marjorie White and Linda Nelson prepared the
documentation and the New Pilgrim Baptist Church was added to the NRHP in 2007
based on Criterion A because of its significance to Birmingham’s Civil Rights Movement
and the ACMHR.

Potential Impacts: Although the proposed improvements to I-65 extend to the west
along the 6th Avenue South interchange, the project will not require ROW from the New
Pilgrim Baptist Church. The setting of the NRHP property is presently dominated by the
interstate and the off ramp, therefore, the proposed improvement project would not
create an adverse effect upon the historic building.

Resource 6: UAB Facilities Building, 822 University Boulevard, ca. 1940s

Description: The identified resource consists of a one story, brick commercial building
with a flat roof and a Art Deco front façade featuring block glass windows The identified
building faces University Boulevard to the west of I-65 and south of 9th Street South.
Not shown on the 1911 Sanborn Fire Insurance Map, aerial photographs were reviewed
to estimate the date of construction. The building appears on the 1951 aerial
photograph, thus, indicating that is was built during the 1940s. The building presently
serves as an administrative building for UAB and is surrounded by modern commercial
development. A Chevron gas station lies between it and the I-65 corridor.

NRHP Status: The resource is considered a potential candidate for the NRHP based on
Criterion C for architecture as it retains architectural integrity displaying workmanship
and materials.
**Potential Impacts**: The proposed improvements to I-65 would not require any ROW from the identified resource. Moreover, the historic setting is already compromised and the proposed I-65 improvements would not create an adverse effect upon the 1940s structure.

**Resource 7: St. Elias Meronite Catholic Church, 8th Street South, ca. 1945-1950**

**Description**: The identified resource consists of a mid 20th century brick religious building with a central tower over the entry that features a large six-pointed star window over the entry, topped by a bell chamber with a clock, and a steep pyramidal roof and cross. The altar area is semicircular with 19 arched stained glass windows surrounding the nave and altar. The vestibule windows depict St Maron, the father saint of the Maronite Church in Syria and St. John Maron, the first Patriarch, both facing toward the front of the church.

**NRHP Status**: The St. Elias Maronite Church is considered a potential candidate for NRHP nomination based on Criterion C for architecture and Criterion A for ethnic history and religion.

**Potential Impacts**: The proposed I-65 project will not infringe on the historic church property as the improvements are confined to the existing ROW in the vicinity of the St. Elias Maronite Church. The addition of HOV lanes does not constitute an adverse effect upon the historic resource.

**Resource 8: Greensprings Baptist Church, 1820 Greensprings Highway, ca. 1910s**

**Description**: The identified resource is a wood frame, one story, religious building with front gable roof, central entry, synthetic siding, flanking 4/4 double hung windows, rear addition. The historic Greensprings Baptist Church no longer serves as a church but houses the King Cotton Decorator Fabrics. The church building is surrounded to the south by additional warehouses and the historic setting is compromised.

**NRHP Status**: The Greensprings Baptist Church – King Cotton Decorator Fabrics Building is not considered NRHP eligible due to nonhistoric materials, alterations, and compromised setting.

**Potential Impacts**: The proposed I-65 project will not acquire any property from the Greensprings Baptist Church building. The addition of HOV and auxiliary lanes will have no effect on the historic building.
Mid-20th Century Residences: Vicinity of Greensprings Highway and in Oak Grove Estates, Homewood, ca. 1940s to 1960s

Description: The project corridor passes through residential areas in the vicinity of I-65 and Greensprings Highway as well as to the south of Red Mountain in the Homewood neighborhood of Oak Grove Estates. The residences noted in these areas are addressed collectively. The typical residence consists of a wood frame, one story, massed plan and minimal traditional, and ranch style houses. The residences noted have been subject to various degrees of alteration and materials including modern infill.

NRHP Status: None of the residences noted within these areas of the APE were identified as potential candidates for the NRHP. Architectural integrity is lacking in these areas and the historic setting is compromised due to modern infill and an absence of historic feeling.

Potential Impacts: The proposed I-65 project should not impact these 20th century residences found in neighborhood to the south of Greensprings Highway and in Homewood in the Oak Grove Estates. In these areas, the proposed improvements are confined to the existing ROW and will have no effect on any of these residences. Moreover, none of the residences noted within the APE are considered NRHP candidates and therefore, any impacts are irrelevant.

3.14 Construction

The HOV lanes are not currently included in the Regional Transportation Plan (RTP) and construction of these improvements would not occur in the near future. However, construction is anticipated to take 36 - 48 months and would occur in multiple phases.

The auxiliary lanes and other interchange improvements are included in the current RTP. These improvements would be constructed at various times over the next 20 years. Time frames for construction would vary by project.

The BRT routes, including stations, bus bays, queue jumps, traffic signal improvements, signing, transit centers, park and ride lots, etc. would take approximately 12 months to construct, install and test.

As project design progresses and construction phasing and timing is determined, an assessment of the potential for construction related impacts to noise; utilities; debris and spoil disposal; water quality and runoff; access and distribution of traffic; air quality and dust control; safety and security; and disruption of businesses should be conducted. A detailed analysis of these impacts due to construction and the development of appropriate mitigation measures would be necessary if one or more of the following impacts is possible:
1. Noise – The construction site is located: within 1,200 feet of a noise sensitive land use with no intervening buildings; within 400 feet of a noise sensitive land use with intervening buildings; within 300 feet of a commercial area with no intervening buildings; or within 100 feet of a commercial area with intervening buildings.

2. Disruption of utilities – The proposed project would cause a utility to a commercial or industrial facility to be disrupted during business hours or a utility to a residential facility for more than 24 hours.

3. Disposal of debris or spoil – Construction would involve the demolition of buildings and pavements, disposal of large quantities of excavated material, and the establishment of haul routes on roads other than designated truck routes.

4. Water quality and runoff – Construction would result in excessive erosion and/or the introduction of sediment, wastewater, or chemicals into adjacent bodies of water.

5. Access and distribution of traffic – The proposed project would require that any street be closed; that any major traffic carrying street be disrupted by closing of a lane(s) or other major interference with the traffic flow; that traffic be diverted through a residential area; or that access to any land use be disrupted.

6. Air quality and dust control – Construction would result in an increased discharge of dust or other particulates into the atmosphere, either through demolition or the exposure of soils.

7. Safety and security – Safety and security during construction are not assured by local ordinances or specifications in the construction documents.

8. Disruption of businesses – One or more nearby business would be disrupted during construction due to restriction of access or the creation of inconveniences to patrons.

3.15 Aesthetics

As part of the transit element of the proposed project, bus centers, stations, stops and park and ride lots would be constructed. Examples of these structures as well as their dimensions are included in Appendix H. As part of the highway element, an HOV lane would be added to I-65 north and southbound.

Potential visual impacts to historic resources have also been considered. Three NRHP listed or eligible historic resources were identified adjacent to the highway element of the project. The setting of these resources has already been compromised by modern development and I-65. No proposed transit structures are located in the area of these resources.

It should be noted that historic resources along the proposed transit routes and in the areas of the stops, centers, stations and park and ride lots were not identified as part of this study. Visual impacts related to the construction of these structures on NRHP eligible historic resources should be determined during preparation of the EA.
It is not anticipated that the transit structures or the HOV lanes would cause an adverse visual effect on the surrounding land use. Because construction could include new structures that have a different scale, color, location and/or orientation from surrounding structures, it is anticipated that the proposed project would have a possibly significant visual impact.

3.16 Community Disruption and Environmental Justice

A Community Impacts Assessment (CIA, see Appendix I) was completed for the I-65 MMP project. The CIA included the study area demographics, environmental justice characteristics, and the criteria established regarding environmental justice (EJ) communities. Information regarding the EJ area’s housing, transportation, educational attainment, and employment was also provided.

Environmental Justice

According to year 2000 U.S. Census data, the study area is home to over 131,000 individuals. Since 2000, the population in Jefferson County has decreased by approximately 10 percent while the Shelby County census tracts population has increased by approximately 20 percent. The majority of study area residents are white (approximately 57 percent in Jefferson County; 87 percent in Shelby County). African Americans make up the largest minority groups in both counties followed by the Hispanic ethnic group.

The CIA established thresholds for race and ethnicity and income for both Jefferson and Shelby Counties with respect to EJ populations. These thresholds are provided in Table 3.12 and are used to help determine when and where environmental justice populations may exist within the study area. The populations along the alignments are characterized by three sections: the downtown Birmingham area; the area outside of downtown located between Valley Avenue and the Jefferson County line; and Shelby County. It should be noted that impacts to the senior population will be assessed as an added measure. Seniors are identified as individuals age 65 and older.

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<td>Hispanic (%)</td>
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</tr>
<tr>
<td>Age, Over 65 (%)</td>
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</tr>
</tbody>
</table>
**Downtown Birmingham**

Most EJ census tracts in Jefferson County are concentrated in the downtown Birmingham area. In this geographic area, there are seven total census tracts; of the seven census tracts, one exceeds thresholds on all EJ variables. There are three census tracts where EJ thresholds are exceeded on any combination of three variables. Two census tracts exceed EJ thresholds on two variables. One census tract exceeds EJ thresholds on just one variable.

Environmental justice census tracts with African American and low-income populations are primarily located in the downtown area. Approximately 42 percent of Jefferson County residents are African American. In the downtown area, African Americans greatly out-number the Jefferson County average with most exceeding 50 percent and one census tract over 95 percent African American (see Figure 3.9).

Likewise, median household incomes in this EJ area are significantly lower than Jefferson County’s $29,494 threshold for low-income populations. In fact, all census tracts but one located in this area are below the threshold. Incomes here are two-thirds to a half of median household incomes throughout the rest of Jefferson County. Census tract 45.00 has the lowest median household income in the entire study area, just above $12,200 (see Figure 3.10).

Regarding senior or elderly populations, 14 percent of Jefferson County residents are over the age of 65 (see Figure 3.11). Senior populations that exceed this 14 percent threshold are evenly spread along the study corridor with three of the census tracts exceeding the EJ threshold for seniors located in the downtown Birmingham area. These tracts also have high concentrations of low-income, African American residents.

**Valley Avenue to Jefferson County Line**

Still within Jefferson County but outside of the downtown area, there are no census tracts with exceedingly high African American or low income EJ populations. However, of the 18 census tracts that make up this area, eight contain significant Hispanic populations (greater than 1.6 percent) and two of those are nearly nine times the threshold. In this same area, nine census tracts contain significant elderly populations (greater than 14 percent). Overall, Hispanic and senior populations are scattered throughout the length of the alignments in both Jefferson and Shelby counties. Hispanic populations that are shown continuously throughout the study area have an almost even distribution to the east and west of the alignments. It should be noted that the overall percentage of Hispanic residents for all of Jefferson County is considerably low. Seniors located in the area between downtown and the Jefferson/Shelby County line overlap with areas of high Hispanic populations.
Figure 3.9: African American Population
Figure 3.10: Median Household Income
Figure 3.11: Population Age 65+
Shelby County

In Shelby County, which includes 11 census tracts within the study area, there are two census tracts with African American populations and one census tract with income populations above the environmental justice thresholds for each variable. Other EJ populations are more prevalent here, where Hispanic tracts number four of 11 total census tracts. In this area, one of the 11 total tracts in the study area has a Hispanic population of 10.4 percent, which is over five times as high as the County’s 2 percent threshold (see Figure 3.12).

With regard to elderly populations, five of 11 impacted tracts exceed EJ thresholds (8 percent). While four of these tracts are close to the County average (ranging between 9 – 10 percent), one tract in Shelby County is more than double the threshold at almost 22 percent elderly.

Impacts to EJ Populations

Of the 26 residential displacements anticipated to occur as a result of the proposed project, 25 would occur in census tracts that exceed the threshold for minority populations. Near the Greensprings Avenue and Greensprings Highway intersection, there is the potential for displacements to the east and west of the highway. On the east side of I-65, nine single family homes on 1st Place South in a small neighborhood will be acquired for right-of-way. The removal of these homes would also require the removal of 1st Place South, which circles the neighborhood therefore, altering the circulation. Also on the east side of I-65 and farther south on 24th Avenue, two homes will be acquired. All 11 of these single family homes are located in an environmental justice census tract that exceeds the thresholds for low income and Hispanic populations.

Also in the Greensprings Highway area but on the west, three single family residences located near 24th Avenue South and 1st Street South will be acquired for right-of-way. These three homes are located within census tract that exceeds the thresholds for all environmental justice indicators.

In Homewood, the Lakeshore Garden Apartments are located on Lakeshore Drive to the east of the I-65 corridor. Right-of-way acquisition would result in the displacement of one, two-story building in the apartment complex. The Lakeshore Garden Apartments are located in a census tract that exceeds the threshold for Hispanic populations. Therefore, there are some potential environmental justice impacts.

In Vestavia Hills, the southernmost residential displacements are a combination of detached single family homes and attached townhomes located off Columbiana Road on the east side of the I-65 corridor. Six detached, single family homes and four attached townhomes will be acquired for right-of-way. These displacements would not
Figure 3.12: Hispanic Population
impact the overall cohesion of the community. However, they are located in a census tract that exceeds the threshold for Hispanic populations.

At this time, it is unknown if the structures to be relocated are occupied by minority and/or low-income individuals. Therefore, the information presented above are potential impacts on EJ individuals/populations.

**Benefits to EJ Populations**

The Tier 2 analysis shows that the proposed project will have a positive impact on transit users in the I-65 and US 31 corridors. The BRT element of the project will operate within designated, managed lanes along I-65 and in conjunction with and addition to many of the existing surface routes on the US 31 corridor. On the I-65 corridor, it is anticipated that the proposed project will provide better transit travel times while attracting new transit trips to the study corridor and region. Transit system operating costs will be among the lowest with the selected alternative and these cost savings are passed on to the transit users as lower costs per hour. Additionally, the increase in service to areas not currently served by existing transit service is a benefit, especially to current and potential transit users in the downtown Birmingham area where many households do not own or have access to a vehicle for their commute to and from work. Lastly, the implementation of an alternative to the automobile for commuters may appeal to many first time transit users. Though they may own or have reliable access to a vehicle for their commute, the existence of a new BRT system may appeal to commuters who choose to use a more affordable and sustainable commuting option.

**Social Resources and Community Facilities**

Below is a list of schools, hospitals, religious facilities, community centers, and governmental offices and facilities located within or adjacent to the proposed right-of-way of the LPA.

**Schools**

The University of Alabama at Birmingham (UAB) is located in downtown Birmingham. Implementation of the project would displace the Center for Nuclear Imaging and Research (CNIR) building associated with the University. The project may temporarily impact rear access to the UAB practice soccer fields; however the formal entrance to the fields is located on 11th Street South. Brown Mackie College is located adjacent to the I-65 project area and would also be displaced.

**Assisted Living Facilities**

There is one assisted living facility located directly adjacent to the project corridor. The facility is Country Cottages Assisted Living and is located on the southwest quadrant of the I-65 and I-459 interchange.
Religious Facilities

Five religious facilities are located adjacent to the project study corridors. They are:

- Hoover Crescent Islamic Center located at 2524 Hackberry Lane.
- Berney Points Baptist Church located at 2250 Blue Ridge Boulevard.
- Raleigh Avenue Baptist Church located at 309 Raleigh Avenue.
- Grace and Truth Mennonite Church located at 515 University Boulevard.
- St. Elias Maronite Church located at 836 8th Street South.

In close proximity to the project area, but not within the right-of-way limits, are the following religious facilities:

- The Church of God State Executive Offices located at 130 Vulcan Road.
- Everlasting Covenant Church located at 600 Robert Jamison Road.
- St. George Melkite Greek Catholic Church located at 425 16th Avenue South.
- J.L. Miller Learning Center and Jesus is Lord Church located at 1041 5th Street North.
- The Green Springs Baptist Ministry Center located at 2230 Green Springs Highway.

Community Buildings

There is one multi-use city owned community building adjacent to the I-65 project area. The City of Hoover Multi-Use Facility is located at 2826 Columbiana Road, Birmingham, Alabama 35216 (at the previous location of Berry Middle School). Additionally, Birmingham Fire Station #2 is located at 600 11th Street South in Birmingham.

Hospitals/Medical Services

Two medical centers or hospitals are located in close proximity to the study corridor:

- Brookwood Medical Center located at 2010 Brookwood Medical Center Drive.
- Shelby Medical Center located adjacent to US 31 in Alabaster.

Parks and Open Space

During the Tier 2 analysis, parks and open space facilities, including recreational sites and cemeteries, located adjacent to the project corridor were identified. For each alternative, the parks and open spaces were evaluated to determine if right-of-way would be required for each, and then the alternatives were rated. Parks and open space within the project area include:

- Bent River Road Fields (Briarwood Soccer Park)
- Homewood Shades Creek Greenway
- George Ward Park
- Bessie Estell Park
In addition, UAB Soccer fields are used and maintained by the University of Alabama at Birmingham and are located at I-65 and the off ramp for University Boulevard near the Center for Nuclear Imaging and Research building.

**Impacts to Social Resources and Community Facilities**
The proposed project would impact the UAB Center for Nuclear Imaging and Research building, resulting in a complete displacement of the building.

As noted earlier, there are five religious facilities located adjacent to the project. Impacts are anticipated for the Berney Points Baptist Church parking lot, as project construction would require approximately 19,260 square feet of ROW from this property. This required area contains approximately 20 parking spaces for the church. The overall circulation of traffic on the church property may also be impacted during construction, requiring it to be re-routed through the parking lot at the rear of the church. Circulation can be restored after construction is completed.

The City of Hoover Multi-Use Facility is located adjacent to the I-65 project area at the previous location of Berry Middle School. The proposed project would require approximately 7,140 square feet of ROW from this property. The property in question, however is wooded, undeveloped ROW which is minimal compared to the total area of the parcel. The day-to-day operations of the facility will not be impacted due to construction of the project.

Birmingham Fire Station #2, which is located at 600 11th Street South in Birmingham, will be displaced due to the construction of the LPA. With the next closest fire station located approximately two miles away, displacement of Fire Station #2 may impact the emergency response times to the neighborhoods it serves. Impacts throughout the corridor might be experienced during construction due to traffic re-routing or other temporary impacts. However, the project would have a long-term positive impact on emergency response times. Decreased travel times within the corridor will likely quicken some response times for services, resulting in an overall benefit to the community.

The Brookwood Medical Center in Homewood and the Shelby Medical Center in Alabaster are both located adjacent to the US 31 corridor. BRT stations are planned for both medical center campuses. The LPA would include the construction of these BRT stations entirely within existing ROW. As such, no impacts are anticipated to occur however, the placement of these stations would benefit hospital employees, visitors, and patients.

Two buildings associated with the HRC Medical Center and one building associated with the Bradford Health Services company would be displaced by the proposed project. HRC Medical is a hormone replacement therapy center. The removal of this center
would require current and future patients to access these services from another provider. There is such a center located less than five miles from HRC Medical. Bradford Health Services is an addiction recovery and treatment center. The removal of this treatment facility would require current and future patients to access these services from another provider. A treatment center offering similar services is located within one and a half miles from Bradford Health Services.

The construction of the proposed project would not impact any parks or open spaces due to a retaining wall placed in the area of George Ward Park. Additionally, no ROW would be required from the UAB soccer facility. However, the project may temporarily impact rear access to the UAB practice soccer fields; the formal entrance to the fields is located on 11th Street South.

Community Cohesion
According to the anticipated displacements for the study area, most impacts occur at the edge of neighborhoods and are, therefore, less likely to have negative and substantial impacts on community cohesion and social interaction. The overall patterns of established neighborhoods are not expected to be disrupted, and residents in these neighborhoods will not be any further isolated from the overall community.

Based on the information provided, community disruption impacts are expected to be generally not significant.

3.17 Safety and Security
Implementation of the proposed project is not expected to pose unusual safety or security problems. Security measures for the transit element of the project are still conceptual. The type of in-vehicle security system on the transit buses will depend on the service provider and/or contractual requirements with a vendor service provider. Typically, the vehicle driver has communications with the dispatch center which provides for operation and security needs. The vehicles can also be equipped with cameras, provided the transit operations center can support this system. It would also be desirable to provide security cameras at park and ride lot facilities and transit transfer centers provided that systems are in place to support their deployment.

3.18 Secondary Development
Some urban mass transportation projects, such as malls and terminals, may have the potential to induce secondary development in their immediate vicinity. The project area is extremely developed; therefore, it is not likely that implementation of the proposed project would induce additional development that might conflict with existing land uses. However, the redevelopment of existing uses is likely. While the proposed project may generate a demand for redevelopment, such redevelopment would likely be desirable
and in conformance with adopted land use plans. During preparation of the EA, formal coordination with local planning officials should be conducted.

3.19 **Consistency with Local Plans**

The proposed project would conform with the existing Comprehensive Plans of Jefferson County, Shelby County and the cities of Birmingham and Vestavia Hills, the Homewood Master Plan, as well as the City of Hoover Five Year Consolidated Plan. Additional coordination with each of these entities should occur during the preparation of the EA. Upon completion of this coordination, it is anticipated that the project will have a generally not significant impact regarding consistency with local plans.