HUNTSVILLE AREA TRANSPORTATION STUDY

FINAL

Year 2035 Transportation Plan

This document is posted at:
http://www.huntsvillempo.org

For further information, please contact the
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This report was financed in part by the U.S. Department of Transportation, Federal Highway Administration, the Federal Transit Administration, the Alabama Department of Transportation, and the City of Huntsville in partial fulfillment of Task 3.1 of the FY 2010 Unified Planning Work Program, Task 3.1 of the FY 2011 Unified Planning Work Program, Task 3.1 of the FY 2012 Unified Planning Work Program, Task 3.1 of the FY 2013 Unified Planning Work Program, and Task 3.1 of the FY 2014 Unified Planning Work Program. This document is produced by the Planning Division of the City of Huntsville, Alabama as staff to the Metropolitan Planning Organization, in fulfillment of requirements set forth in Title 23 USC 134 and as amended by Public Law 109-59 SAFETEA-LU 2005. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Adopted by the Metropolitan Planning Organization

Amended: June 2011
June 2012
September 2012
February 2013
March 2014

HUNTSVILLE AREA TRANSPORTATION STUDY
METROPOLITAN PLANNING ORGANIZATION (MPO)

MPO and Advisory Committee Officers
Updated to Fiscal Year 2014

Huntsville Area Transportation Study, MPO

Dale Strong, Chairman	Chairman, Madison County Commission

Technical Coordinating Committee (TCC)

Shane Davis, Transportation Planning Coordinator	Director, City of Huntsville Urban Development
Anne Burkett, Vice-Chairman	Director, MadisonCounty Planning and Economic Development
Richard Grace, Secretary	Director, Madison County Public Works Department

Citizens Advisory Committee

Bill Weaver, Chairman	City of Madison

City of Huntsville Department of Urban Development - Planning Division

Serving as staff to the Huntsville Area Transportation Study (MPO)

Shane Davis	Director, Urban Development
Dennis Madsen	Manager of Urban and Long Range Planning
Connie R. Graham	Planner III
Tanjie Kling	Planner III
James Moore	Planner III
Ken Newberry	Planner III
James Vandiver	Planner II

MPO and Advisory Committee Members
Updated to Fiscal Year 2014

Huntsville Area Transportation Study, MPO

Tommy Battle	Mayor, City of Huntsville
Troy Trulock	Mayor, City of Madison
Dale Strong	Chairman, Madison County Commission
John Olshefski	Huntsville City Council
Tony Craig	Mayor, Town of Owens Cross Roads
Mary Caudle	Mayor, Town of Triana
Johnny Harris	Alabama Department of Transportation (ALDOT)
Mark D. Bartlett (non-voting)	Federal Highway Administration
Robert Jilla (non-voting)	ALDOT Bureau of Transportation Planning & Modal Programs
Nancy Robertson (non-voting)	Top of Alabama Regional Council of Governments

Technical Coordinating Committee

Shane Davis	Transportation Planning Coordinator
Amy Bell	Director of Planning, City of Madison
Richard Grace	County Engineer, Madison County
Gary Chynoweth	City Engineer, City of Madison
Emmanuel Oranika	Alabama Department of Transportation
Clint Andrews	Federal Highway Administration
Abigail Rivera	Federal Transit Administration
Kathy Martin	City Engineer, City of Huntsville
Richard Kramer	Traffic Engineer, City of Huntsville
Dennis Thompson	City of Huntsville Traffic Engineering
Tommy Brown	City of Huntsville Parking and Public Transit
Peter Joffrion	City Attorney, City of Huntsville
Kenneth Binion	Director of Community Development, City of Huntsville
Daniel Shea	Director of Natural Resources & Environmental Management, City of Huntsville
Anne Burkett	Director, Madison County Planning & Economic Development
Carlen Williams	Huntsville Housing Authority
Nick Werner, Interim Director	Huntsville Marina & Port Authority
Janet Watson	Chairman, Huntsville Planning Commission
Rick Tucker	Executive Director, Huntsville-Madison Co. Airport Authority
Les Hopson	Alabama Department of Transportation
Allen Teague	Alabama Department of Transportation
Jeff Pruitt	Top of Alabama Regional Council of Governments
Tom Richardson	Redstone Arsenal
Stacy Cantrell	Huntsville Utilities
Melvin McKinstry	Marshall Space Flight Center
Diana Standridge	U.S.Space & Rocket Center
Connie R. Graham	City of Huntsville Planning Division
Karen P. Monroe	Huntsville-Madison County Railroad Authority

Citizens Advisory Committee

Michael Holderer	City of Huntsville
Russ McDonald	City of Huntsville
Jamie Miernik	City of Huntsville
Dave Nicolas	City of Huntsville
Vacant	City of Huntsville
Vacant	City of Huntsville
Trent Griffin	City of Huntsville
Vacant	City of Huntsville
Chris Robinson	Madison County
Bob Devlin	Madison County
Curtis Potts	City of Madison
Bill Weaver	City of Madison
Scott Baker	Town of Owens Cross Roads
Larry Furlough	Town of Owens Cross Roads
Madge Griffin	Town of Triana
George Malone	Town of Triana

RESOLUTION 10-10
HUNTSVILLE AREA TRANSPORTATION STUDY
METROPOLITAN PLANNING ORGANIZATION (MPO)
ADOPTING THE YEAR 2035 TRANSPORTATION PLAN

WHEREAS, the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) is the organization designated by the Governor of the State of Alabama as being responsible, together with the State of Alabama, for implementing the applicable provisions of amended 23 USC 134 and 135 (SAFETEA-LU 6001, August 2005); 29 USC 794; 42 USC 126, 2000d-1, 4321 et seq., 7401 et seq.; 49 USC 5303, 5304; 23 CFR 450 and 500; 40 CFR 51 and 93; 49 CFR 26 and 613; and,

WHEREAS, the U. S. Department of Transportation requires all urbanized areas, as established by the U. S. Bureau of the Census, conducting area-wide urban transportation planning, to submit a 2035 Long Range Transportation Plan as a condition for meeting the provisions of 23 USC 134 and defining principles of 23 CFR 450.322; and

WHEREAS, consistent with the declaration of these provisions, the City of Huntsville Planning Division and Huntsville Area Transportation Study (MPO) Planning Staff, in cooperation with the Alabama Department of Transportation, has prepared a Final Year 2035 Transportation Plan for the Huntsville Area; now

THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the same does hereby adopt the Final Year 2035 Transportation Plan.

Adopted this 24th day of March, 2010

Chairman, Metropolitan Planning Organization

Secretary, Metropolitan Planning Organization

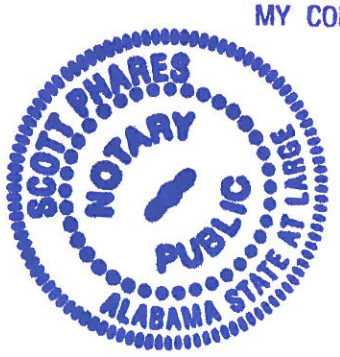
Notary Public: _____

My Commission Expires: 9-25-13

MY COMMISSION EXPIRES 9-25-2013

ATTEST:

_____ Date 3-24-10
Chairman, TCC



RESOLUTION NO. 7-11

HUNTSVILLE AREA TRANSPORTATION STUDY
METROPOLITAN PLANNING ORGANIZATION

AMENDING THE YEAR 2035 TRANSPORTATION PLAN

WHEREAS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires MPOs to update and maintain a transportation plan with at least a 20 year planning horizon; and

WHEREAS, the MPO has adopted the Year 2035 Transportation Plan in February 2010 to meet this requirement; and

WHEREAS, the City of Huntsville has requested that the Year 2035 Transportation Plan be amended; and

WHEREAS, the City of Huntsville requests that the project: Research Park Boulevard and Interchanges from I-565 to Alabama Highway 53 be modified to add improvements to the interchanges located at I-565 and Research Park Boulevard and University Drive and Research Park Boulevard; and

WHEREAS, these project changes will alter various Sections of the Year 2035 Transportation Plan;

NOW, THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the Year 2035 Transportation Plan be amended to reflect the attached changes requested by the City of Huntsville.

ADOPTED, this the 29th day of June, 2011.

Chairman, Metropolitan Planning Organization

Secretary, Metropolitan Planning Organization

ATTEST:
Date 6/29/11
Chairman, MPO TCC

Notary Public: Lisa Leddo

My Commission Expires: _____

LISA LEDDO NOTARY PUBLIC ALABAMA STATE AT LARGE

MY COMMISSION EXPIRES 4-8-2012

RESOLUTION NO. 7-12

HUNTSVILLE AREA TRANSPORTATION STUDY
METROPOLITAN PLANNING ORGANIZATION

AMENDING THE YEAR 2035 TRANSPORTATION PLAN

WHEREAS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires MPOs to update and maintain a transportation plan with at least a 20 year planning horizon; and

WHEREAS, the MPO has adopted the Year 2035 Transportation Plan in March 2010 to meet this requirement, and the document was amended in June 2011; and

WHEREAS, the City of Huntsville has requested that the Year 2035 Transportation Plan be further amended to add the following maintenance and operation project: Church Street Bridge at Big Spring Park; and

WHEREAS, this project change will alter various Sections of the Year 2035 Transportation Plan;

NOW, THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the Year 2035 Transportation Plan be amended to reflect the attached changes requested by the City of Huntsville.

ADOPTED, this the 6th day of June, 2012.

Chairman, Metropolitan Planning Organization

Secretary, Metropolitan Planning Organization

ATTEST:
Date 6-6-12
Chairman, MPO TCC

6-6-12

LORE CAMPBELL NOTARY PUBLIC ALABAMA STATE AT LARGE

RESOLUTION NO. 17-12

HUNTSVILLE AREA TRANSPORTATION STUDY
METROPOLITAN PLANNING ORGANIZATION

AMENDING THE YEAR 2035 TRANSPORTATION PLAN

WHEREAS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires MPOs to update and maintain a transportation plan with at least a 20 year planning horizon; and

WHEREAS, the MPO has adopted the Year 2035 Transportation Plan in March 2010 to meet this requirement, and the document was amended in June 2011 and June 2012; and

WHEREAS, the City of Huntsville has requested that the Year 2035 Transportation Plan be further amended to indicate funding availability for the following projects: Northern Bypass from East of Pulaski Pike to US 231, Martin Road from Zierdt Road to Rideout Road, Martin Road from Zierdt Road to Laracy Drive, and I-565 from I-65 to Wall Triana Highway; and

WHEREAS, the Year 2035 Transportation Plan is further amended to indicate that the Interchange at Research Park Boulevard and Blake Bottom Road is to be funded with STP Huntsville Urbanized Funds instead of STP Any Area funds; and

WHEREAS, these project changes will alter various Sections of the Year 2035 Transportation Plan;

NOW, THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the Year 2035 Transportation Plan be amended to reflect the attached changes.

ADOPTED, this the 12th day of September, 2012.

Chairman, Metropolitan Planning Organization

Secretary, Metropolitan Planning Organization

Notary Public: Lore Campbell

My Commission Expires: 1-14-2013

ATTEST:
Chairman, MPO TCC Date 9/12/12

LORE CAMPBELL NOTARY PUBLIC ALABAMA STATE AT LARGE

RESOLUTION NO. 1-13

HUNTSVILLE AREA TRANSPORTATION STUDY METROPOLITAN PLANNING ORGANIZATION AMENDING THE 2035 TRANSPORTATION PLAN

WHEREAS, the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) is the organization designated by the Governor of the State of Alabama as being responsible, together with the State of Alabama, for implementing the applicable provisions of amended 23 USC 134 and 135 (SAFETEA-LU 6001, August 2005); 42 USC 126, 2000d-1, 4321 et seq., 7401 et seq; 23 CFR 450 and 500; 40 CFR 51 and 93; and

WHEREAS, the U. S. Department of Transportation requires all urbanized areas, as established by the U. S. Bureau of the Census, conducting area-wide urban transportation planning, to submit a 2035 Transportation Plan as a condition for meeting the provisions of 23 USC 134 and defining principles of 23 CFR 450.322; and

WHEREAS, the MPO adopted the 2035 Long Range Plan in March 2010 to meet the above requirements, and the document was amended in June 2011, June 2012, and September 2012; and

WHEREAS, the State of Alabama has requested that the 2035 Transportation Plan be further amended to add a project and indicate the funding availability for: Maysville Road Connector from Maysville Road to Epworth Drive; and

WHEREAS, the City of Huntsville has requested that the High Mountain Road Extension project be removed from the Year 2035 Transportation Plan, as it no longer a project the City of Huntsville desires to construct; and

WHEREAS, these changes will require altering various Sections of the 2035 Transportation Plan; now

THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the 2035 Transportation Plan has been amended to reflect the attached changes requested by the State of Alabama.

ADOPTED, this the 27th day of February 2013.

Chairman, Metropolitan Planning Organization

Secretary, Metropolitan Planning Organization

ATTEST:

Date 2/27/13

Chairman, MPO TCC

LORE CAMPBELL NOTARY PUBLIC ALABAMA STATE AT LARGE

MY COMMISSION EXPIRES 1-14-2017

RESOLUTION NO. 9-14

HUNTSVILLE AREA TRANSPORTATION STUDY METROPOLITAN PLANNING ORGANIZATION AMENDING THE 2035 TRANSPORTATION PLAN

WHEREAS, the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) is the organization designated by the Governor of the State of Alabama as being responsible, together with the State of Alabama, for implementing the applicable provisions of amended 23 USC 134 and 135 (MAP-21, Sections 1201 and 1202, July 2012); 42 USC 126, 2000d-1, 4321 et seq., 7401 et seq; 23 CFR 450 and 500; 40 CFR 51 and 93; and

WHEREAS, the U. S. Department of Transportation requires all urbanized areas, as established by the U. S. Bureau of the Census, conducting area-wide urban transportation planning, to submit a 2035 Transportation Plan as a condition for meeting the provisions of 23 USC 134 and defining principles of 23 CFR 450.322; and

WHEREAS, the MPO adopted the 2035 Long Range Plan in March 2010 to meet the above requirements, and the document was amended in June 2011, June 2012, September 2012, and February 2013; and

WHEREAS, consistent with the declaration of the aforementioned provisions, the City of Huntsville Planning Division, Huntsville Area Transportation Study (MPO) Planning Staff, acting for the City of Huntsville, City of Madison and Madison County, in cooperation with the Alabama Department of Transportation, has prepared an amendment to the Year 2035 Transportation Plan for the Huntsville Area; and

WHEREAS, the City of Huntsville has agreed with the State of Alabama to fund improvements on US 231 and has requested that the following maintenance and operations project be added to the plan:

US 231 Access Management and Intersection Improvements from Hobbs Road to Weatherly Road - $7,500,000; and

WHEREAS, the City of Madison and Madison County has received funding through the Alabama Transportation and Rehabilitation Improvement Program (ATRIP) for the following project, and has requested that it be added to the plan:

Zierdt Road/Kellner Road Corridor from Kellner Road to Zierdt Road - $8,040,000; and

WHEREAS, Madison County has received ATRIP funding to improve Jeff Road from Capshaw Road to Douglass Road, and the Jeff Road project descriptions have been modified to reflect this funding commitment so that the plan may now indicate:

Jeff Road (Phase 2) from Capshaw Road to Douglass Road - $9,045,000; and

WHEREAS, the City of Madison has requested that a new maintenance and operations project at I-565 be added to the plan as an unfunded, visionary project, described as follows:

I-565 Interchange near Zierdt Road - $35,975,490; and

WHEREAS, the above changes will alter certain sections and project listings, and will require adjustment to project tables;

NOW THEREFORE, BE IT RESOLVED by the Huntsville Area Transportation Study Metropolitan Planning Organization (MPO) that the Year 2035 Transportation Plan has been amended to reflect the attached changes requested by the City of Huntsville, City of Madison, and Madison County, and the MPO does adopt the amended Year 2035 Transportation Plan.

ADOPTED, this the ___ day of _____ 2014.

_____
Chairman, Metropolitan Planning Organization

_____
Secretary, Metropolitan Planning Organization

ATTEST:
_____Date_____
Chairman, MPO TCC

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EXECUTIVE SUMMARY

ES 1.0 Introduction

The **Year 2035 Transportation Plan** is a vision of the future transportation needs of the Huntsville Metropolitan area. It will serve as a guide for decisions about major transportation improvements in the Huntsville urbanized area over the next 3-5 years. It addresses areawide transportation needs identified through forecasting future travel demand, developing and testing alternatives, and selecting those options which meet the mobility needs of the area. Additionally, it addresses future traffic volumes, roadway and intersection capacities, new transportation corridors, alternative transportation modes, pedestrian/bicycle trails, signalization needs, and funding alternatives.

The plan experienced a comprehensive and full update during 2005 under the provisions of the Transportation Equity Act for the 21st Century (TEA-21). The TEA-21 legislation was replaced by the Safe, Accountable, Flexible, and Efficient Transportation Equity Act (SAFETEA-LU) in August 2005. The plan was amended during August 2007 due to federal requirements which stipulate any amendment to the long range plan after July 1, 2007 requires compliance with SAFETEA-LU. A matrix of the changes required under SAFETEA-LU, and how the MPO is meeting these strategies is shown at the end of the Executive Summary in **Table ES-1**. SAFETEA-LU planning factors are also discussed in **Section 5 - Highway Project Evaluation**.

Among the continuing provisions of SAFETEA-LU is that the plan must maintain a 20-year planning perspective, air quality consistency, fiscal constraint, and public involvement. This 20-year plan exhibits all of these characteristics.

The**Year 2035 Transportation Plan** has been developed by the transportation planning staff with input and involvement of city and county officials and the public. Fiscal constraint has been a priority during the selection of the plans' proposed projects. Careful consideration has been given to projects which would reduce congestion and/or minimize trip distances in an effort to maintain air quality at current attainment standards.

As of July 1997, the U.S. Environmental Protection Agency (EPA) promulgated stringent National Ambient Air Quality Standards for particulate matter and ozone under the Clean Air Act. While Huntsville has always been an attainment area for all criteria pollutants under the Clean Air Act, these strict standards could put Madison County at risk for non-attainment status in the future. A designation of "non-attainment" would require transportation control measures to reduce vehicle emissions and could result in delays for transportation projects. Quality long range transportation plans are critical if communities are to balance the growth and development of the urban area with environmental concerns.

ES 2.0 Overview of Socio-Economic Projections

Household and employment projections of the year 2035 for the Huntsville urban area have been conducted and were vital for plan development. It is projected that households in the Huntsville urban area will increase by over 50,000by the year 2035. Total households for the year 2035are projected at 175,266. This growth will also impact employment. It is projected that nearly 150,000 new jobs will be added to the economy of the urban area from the year 2005, bringing total employment for the year 2035to 407,893 jobs. The reason for such staggering employment growth is based upon a diverse economy, the direct impact of the 2008 Base Realignment and Closure (BRAC) transfers, and the area's solid foundation in aerospace and defense technology.

Community leaders envision that Cummings Research Park will continue to attract high technology jobs and the other industrial parks will continue growth as well. Huntsville's downtown as a center for employment will keep in step with market demand, and the Huntsville International Airport will become a connecting hub with a thriving intermodal center.

It is also assumed that area residents will still rely primarily on their motor vehicles for most trips, but will have more opportunities to utilize transit, walking, and cycling for shorter trips. Investment in transit, bikeways, and pedestrian ways will result in a higher level of usage of these modes. The **Year 2035 Transportation Plan** calls for continued investment in these modes of transportation. Additionally, further investment is proposed for a bypass system of roadways that will ring the city, and for Memorial Parkway to be an expressway from Walker Lane to the Tennessee River.

ES 3.0 Overview of Plan Element Updates

Based upon the latest household and employment projections and the vision for the Huntsville urban area, updates were developed for the highway element, public transit system, bicycle and pedestrian plans, traffic operations and safety plans, and multi-modal facilities. A synopsis of these updates follows, categorized per major element:

ES 3.1 Highway Element

Land use projections have been developed for the year 2035for testing various highway alternatives. **Map 4.1**, located in **Section 4 - Highway Element**, summarizes the major highway projects selected for improvement through the year 2035. The proposals are general and do not represent specific alignments and locations. Additional preliminary engineering studies will be conducted for each project to determine specific location and right-of-way needs. In addition, the plan can be amended as needed.

Prior to the development of this plan, a special study was conducted in 2007 by the University of Alabama entitled: **Huntsville Area BRAC Transfers: Economic and Transportation Impact Assessment.** This study was performed to better prepare for the influx of persons into the region due to the Base Realignment and Closure decisions made in 2005. An outcome of the report was the identification of several corridors that would impact

mobility on the transportation network because of projected growth. These corridors have been included in the plan. While some project descriptions in the BRAC study indicate different terminus points, the length of some projects were extended due to further study and modeling, and were incorporated into the **Year 2035 Transportation Plan.** These projects are as follows:

- Blake Bottom Road from Jeff Rd to Research Park Blvd
- Eastview Drive from Slaughter Rd to Hughes Rd
- I-565 from I-65 to Wall Triana Highway
- Martin Rd from Zierdt Rd to Rideout Rd
- Old Madison Pike from Hughes Rd to Slaughter Rd
- Patton Rd from Aerobee Rd to Redstone Rd
- Pulaski Pike from Beaver Dam Rd to Grimwood Rd
- Research Park Blvd and Interchanges from I-565 to Ardmore Highway (AL-53)
- Wall Triana Highway from Capshaw Rd to Yarbrough Rd

ES 3.2 Transit Element

Recommendations for public transportation within the MPO Study Area include:

- Expansion of fixed route service to the following areas given financial feasibility:
    1. Eastward, serving the Chapman and Blossomwood communities
    2. Space & Rocket Center/Airport
    3. West Huntsville
    4. Redstone Arsenal/NASA
    5. Northwest Huntsville, providing access to the North Huntsville Industrial Park, as the area develops.
- Expanding Handi-Ride service as fixed route service expands
- Expanding service hours for Handi-Ride and fixed routes
- Decreasing headways on fixed service routes
- Expanding the County's demand response transit service (TRAM) as necessary

ES 3.3 Congestion Management Element

The Congestion Management Element incorporates the Congestion Management Process (CMP) into **Section 8**per SAFETEA-LU. This provides opportunities for more short-term congestion relief measures to be implemented, as well as cost effective management and operational strategies.

Various traffic operation improvements which can aid in congestion management were discussed. The staff and members of the MPO's Technical Coordinating Committee:

- Identified 9 Maintenance and Operations projects that address congestion and safety. These projects can be further defined as 2 congestion management projects, 1 safety management project, and 6 projects that address both congestion and safety.
- Selected the top current and future congested corridors for strategy evaluations.
- Recommends execution of the strategic plan for the implementation of Intelligent

Transportation Systems (ITS) technologies for the City of Huntsville and the design and construction of a fiber optic communication system throughout the Huntsville area transportation network as funding is available.
- Identified additional safety criteria and addresses safety and security as standalone planning factors per SAFETEA-LU.

ES 3.4 Multimodal Transportation Element

Much has been done recently to expand multimodal facilities and capabilities in the area. It is recommended that monitoring of recent long-term expansions continue to be conducted, and modifications be developed as required.

- Huntsville International Airport Passenger and Cargo Hubbing: Huntsville International Airport is a prime candidate for a connecting hub and supports proposed expansion plans.
- Huntsville International Airport International Intermodal Center Expansion: the MPO supports the recent International Intermodal Center expansion, which should provide effective long-term service to users.
- A river port facility feasibility study has been conducted and a prime site for development has been procured.

ES 3.5 Bicycle/Pedestrian Element

There has been a renewed interest in the expansion of bicycle and pedestrian facilities and capabilities in the area. It is recommended that monitoring of recent long-term expansions continue to be conducted, and modifications be developed as required.

- Pedestrian/Bicycle/Greenways Plans: the MPO adopts regional pedestrian and bikeway plans. These plans are published under separate cover and are included within the Long-Range Transportation Plan, **Section 7**.
- Recent guidance from the Federal Highway Administration indicates that all projects utilizing federal funds include bike and pedestrian facilities, unless the cost to do so exceeds 20% of the total project cost or if other exceptional reasons exist. A conscious effort is being made to incorporate these facilities into new and planned projects. Refer to **Section 7** for additional information.

ES 4.0 Plan Implementation

Successful implementation of the plan is dependent primarily upon the availability of financing the improvements required. This plan identifies a total of 99 capacity adding projects, requiring over $2.077 billion in federal funds to construct. Based upon the anticipated federal revenues to be received within the next 25 years, a total of $387,587,400 of projects can reasonably be funded. This may change, depending upon the availability of other sources of revenue. A list of all projects to be financed with anticipated federal revenues is shown in **Section 10**.

Additional projects requiring a total of $1,622,678,490 of federal funds have been identified, but are unfunded. Approximately $744 million of the $1,622,678,490 is required for the Memphis to

Atlanta Highway and the Southern Bypass. The remaining $878.67 million is needed to upgrade other corridors on the transportation network, with approximately 22% of those federal funds required to upgrade minor and major collectors. Approximately 6% of federal funds will be required to construct bike routes and greenways. The financing of these "unfunded" projects is essential, as the future year network indicates that a majority of congested miles traveled on the transportation system occurs on minor and major collectors. A formal list of all unfunded projects and their estimated costs can be found in **Section 10**.

ES 5.0 Conclusion

The **Year 2035 Transportation Plan** is a comprehensive review of the area transportation network and modes of urban mobility, resulting in the identification of projects and programs to be implemented. A more detailed description of selected projects and the methodology by which they were selected is presented in the document which follows.

Table ES-1: SAFETEA-LU Transportation Planning and Programming Requirements (as Amended by SAFETEA-LU Sections 3005, 3006, and 6001)

Statutory Planning and Programming Requirements	Key Changes Between ISTEA/TEA-21 and SAFETEA-LU	How the Long Range Plan Addresses the New Requirements
UPDATE CYCLES Metropolitan transportation plans [23 U.S.C. 134/49 U.S.C 5303(i)(1)]	Metropolitan transportation plans in air quality attainment areas ➢ No key change (to be updated every five years)	Not Applicable to Huntsville Area MPO.
METROPOLITAN AND STATEWIDE TRANSPORTATION PLANNING FACTORS [23 U.S.C. 134/49 U.S.C. 5303(h)(1) AND 23 U.S.C 135/49 U.S.C. 5304(d)(1)].	➢ Added a new stand-alone factor "increase the safety of the transportation system for motorized and non-motorized users."	The State of Alabama as well as local jurisdictions maintain traffic accident data which assists them in determining which safety issues to address. As a result of ongoing data collection and analysis, these projects have been identified in **Section 8**. The MPO staff has been involved with meetings of the ITS working group, which includes law enforcement and other public safety personnel, to discuss ITS implementation and strategies for utilizing technology for increasing safety of the transportation networks within the MPO jurisdiction. Refer to **Section 8**. Huntsville Public Transit is investing in an automatic vehicle locating (AVL) system for all of its fleet. This system will enhance the safety of the transit system. Refer to **Section 8**.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA/TEA-21 and SAFETEA-LU	How the Long Range Plan Addresses the New Requirements
METROPOLITAN AND STATEWIDE TRANSPORTATION PLANNING FACTORS [23 U.S.C. 134/49 U.S.C. 5303(h)(1) AND 23 U.S.C 135/49 U.S.C. 5304(d)(1)].	➢ Added a new stand-alone factor "increase the security of the transportation system for motorized and non-motorized users."	Huntsville Public Transit is investing in an automatic vehicle locating (AVL) system for all of its fleet. This system will enhance the security of the transit system. Refer to **Section 8** The Huntsville-Madison County Emergency Management Agency, which coordinates all emergency response plans with all jurisdictions represented on the MPO, has identified critical facilities and transportation system elements in its Emergency Operations Plan. Additionally, Madison County is designated as a host county for possible nuclear power plant evacuees in adjacent Morgan County. Capabilities of securing the local transportation system are exercised yearly with emergency response organizations county-wide. Refer to **Section 8**
	➢ Expanded the environmental factor by adding the phrase "promote consistency of transportation plan and transportation improvements with State and local planned growth and economic development patterns."	Environmental factors in the transportation planning process are addressed in **Section 5. Section 5** was amended to include phrasing that this activity actually occurs.
FISCAL CONSTRAINT [23 U.S.C. 134/49 U.S.C. 5303(i)(2)(C); (j)(1)(C); (j)(2)(B); and (j)(3)(D) and 23 U.S.C. 135/49 U.S.C. 5304(f)(5); (g)(4)(E); and (g)(4)(F)]	➢ No significant changes in SAFETEA-LU; however, rates of inflation must be shown for all identified projects.	Inflation rates are taken under consideration, and projects costs have been calculated for **Section 10** bearing this in mind.

Statutory Planning and Programming Requirements	Key Changes Between ISTEA/TEA-21 and SAFETEA-LU	How the Long Range Plan Addresses the New Requirements
ENVIRONMENTAL MITIGATION ACTIVITIES [U.S.C. 134/49 U.S.C. 5303(i)(2)(B) and 23 U.S.C. 135/49 U.S.C. 5304(f)(4)]	➢ Metropolitan and statewide transportation plans shall include "discussion" of environmental mitigation activities. ➢ This "discussion" shall be developed with Federal, State, and Tribal wildlife, land management, and regulatory agencies	Environmental and land use factors are considered in **Section 5**. All corridors identified for improvement are analyzed for environmental concerns so that mitigation activities can be considered during the planning phase. Transportation plans are considered and compared with other Local, State, and Federal agency generated plans, maps, and inventories. Discussions are also held with other agencies to determine any environmental concerns regarding the overall proposed future plan network. This section was updated to show that closer coordination with other agencies exists, and that potential mitigation activities and creative strategies may be developed to consider environmental protection of natural and man-made assets.
CONSULTATION AND COOPERATION Transportation Plans [23 U.S.C. 134/49 U.S.C. 5303(g) and (i)(4) and 23 U.S.C. 135/49 U.S.C. 5304(f)(2)]	➢ MPOs and State DOTs shall consult with local/State land use management, natural resource, historic and other agencies in the development of transportation plans.	Environmental and land use factors are considered in **Section 5**. Transportation plans are considered and compared with other Local, State, and Federal agency generated plans, maps, and inventories. Discussions are also held with other agencies to determine any environmental concerns regarding the overall proposed future plan network. This section was updated to show that closer coordination with other agencies exists. **Appendix B** includes a documentation spreadsheet that indicates these actions were performed.
PUBLIC TRANSIT ELEMENT	➢ Coordinated Public Transit-Human Services Transportation Plan (per 49 U.S.C. 5310, 5316, and 5317).	This has been addressed. The Huntsville Area MPO has entered into an agreement with TARCOG to include the MPO jurisdiction in its Human Services Transportation Plan. The plan has been completed and is being implemented. (See **Section 6**)

Statutory Planning and Programming Requirements	Key Changes Between ISTEA/TEA-21 and SAFETEA-LU	How the Long Range Plan Addresses the New Requirements
TRANSPORTATION FACILITIES [23 U.S.C. 134/49 U.S.C. 134/49 U.S.C. 5303(k)(3); 23 U.S.C. 135/49 U.S.C. 5304(f)(7); and 23 U.S.C. 135/49 U.S.C. 5304(i)]	➢ Operations and management strategies in metropolitan transportation plans and long-range statewide transportation plans	Performance measures for transportation system operations and management, with a focus on mobility and safety, are addressed as part of the Congestion Management Process in **Section 8**. Additionally, the Huntsville Area MPO employs Transportation System Management and Travel Demand Management strategies to not only preserve the existing network, but to increase the mobility and safety of persons and freight accessing the transportation network. All of this is addressed in **Section 8**. Capital expenditures are considered in terms of implementation of particular projects. These costs are reflected in **Section 10**.
INTERESTED PARTIES AND PARTICIPATION [23 U.S.C 134/49 U.S.C. 5303(i)(5), (i)(6), and (j)(4) and 23 U.S.C. 135/49 U.S.C. 5304 (f)(3) and (g)(3)]	➢ Definition of interested parties to be engaged in statewide and metropolitan transportation planning has been expanded. ➢ Participation Plan (required for MPOs) o Shall be developed in consultation with interested parties. o Publish or make available for public view transportation plans, STIPS, and TIPs. o Hold public meetings at convenient and accessible times and locations. ➢ Publication of statewide and metropolitan transportation plans, and TIP…to the maximum extent practicable. o Make information available in electronically accessible formats (e.g., world wide web) ➢ Use visualization techniques.	The Huntsville Area MPO updated its Public Involvement Plan during 2005 and amended it during 2007. This plan is periodically reviewed, and techniques utilized are measured for success. The plan meets all requirements of SAFETEA-LU. The updated plan is attached as **Appendix A**. The plan is currently available on the internet.

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Section 4

HIGHWAY ELEMENT

4.0 Introduction

The plan development process involved building and testing alternate street plans until an acceptable plan evolved for adoption. This process basically followed three steps:

1. Alternate Plan Development or Modification;
2. Assignment of Year 2035 Traffic; and
3. Alternate Plan Evaluation Based on Future Traffic Assignment.

This procedure was repeated for each alternate considered. The selected plan includes expansion of arterial and collector systems, upgrading some existing arterial highways to expressways, and constructing new freeways and expressways.

4.1 The Adopted Highway Plan

The Huntsville Long-Range Highway Plan is shown on **Map 4.1,** and at **Table 4.1** and **Table 4.2.** The maps are further divided into quadrants. **Maps 4.1A, 4.1B, 4.1C,** and **4.1D** provide a closer snapshot of proposed road projects. All roads, interchanges, and maintenance & operations projects that are indicated on the map in red are visionary projects. This means that no funding has been identified for the projects. All roads, interchanges, and maintenance & operations projects that are indicated on the map in blue are classified as financially constrained projects, and funding has been identified for these projects. More information concerning the financial status of the projects can be found in **Section 10**.

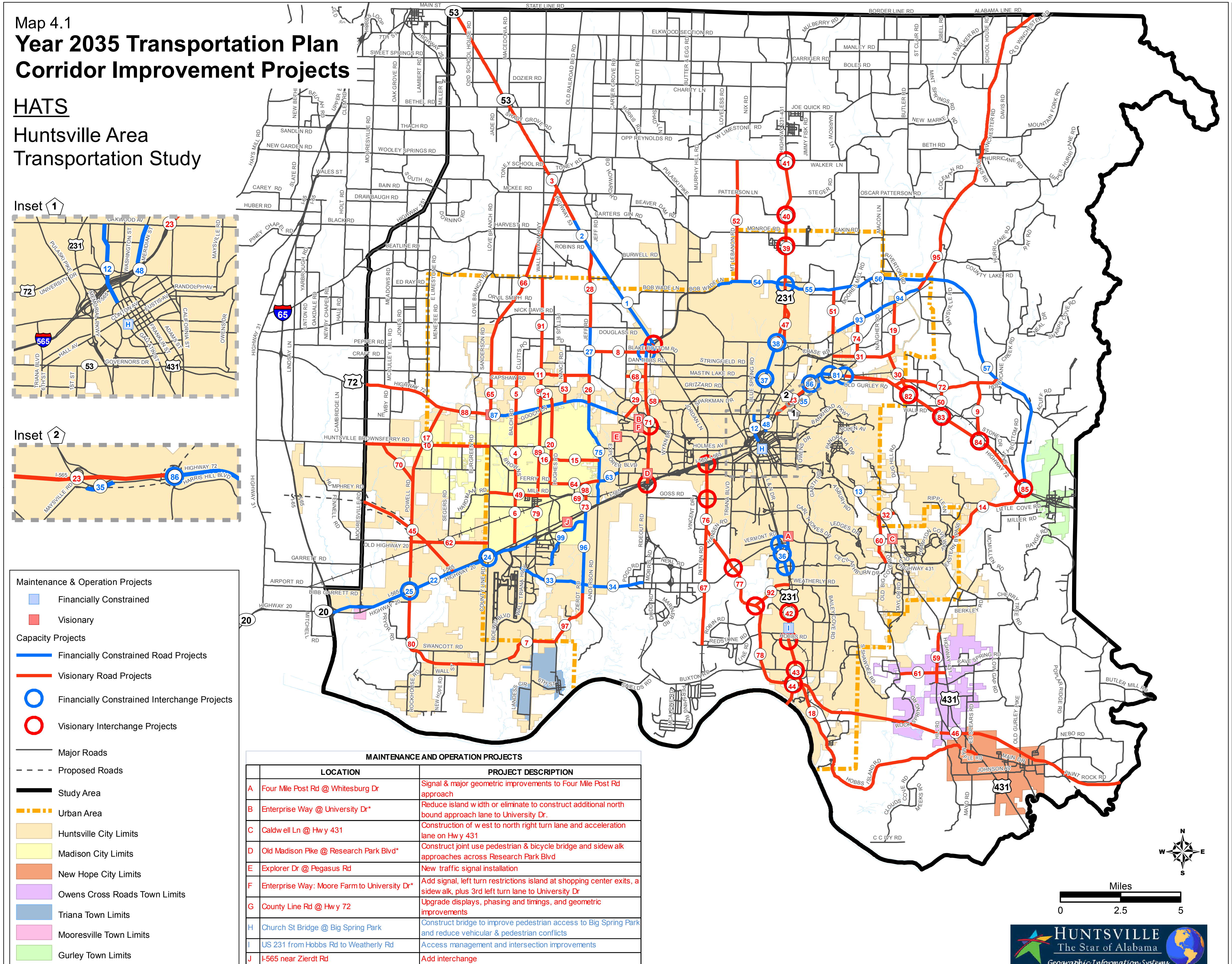
All projects have accommodations for bicycle and pedestrian facilities, except where noted in **Table 4.1.** Certain locations cannot accommodate pedestrians and/or bicycles because the corridor is a limited access or controlled access roadway, such as I-565, Memphis to Atlanta Highway, Southern Bypass, Research Park Boulevard, and the Weatherly Road Extension to the Southern Bypass. Some corridors identified for improvement, such as Memorial Parkway/U.S. 231, U.S. 72 East, and U.S. 72 West are U.S. routes and carry high volumes of traffic. The cost of constructing the *appropriate* bicycle and pedestrian facilities for these corridors is cost prohibitive at the present time. Most maintenance and operations projects do not include bike and pedestrian facilities due to the nature of the projects (i.e., new signalization, geometric improvements, etc.). All City of Huntsville capacity projects will include right of way, curbs, gutters, and sidewalks in accordance with the city's subdivision regulations. Refer to **Section 7** for additional information and policies concerning the accommodation of bicyclists and pedestrians in regard to the long range transportation plan.

Map 4.1

Year 2035 Transportation Plan Corridor Improvement Projects

HATS

Huntsville Area Transportation Study



MAINTENANCE AND OPERATION PROJECTS

	LOCATION	PROJECT DESCRIPTION
A	Four Mile Post Rd @ Whitesburg Dr	Signal & major geometric improvements to Four Mile Post Rd approach
B	Enterprise Way @ University Dr*	Reduce island w idth or eliminate to construct additional north bound approach lane to University Dr.
C	Caldw ell Ln @ Hw y 431	Construction of w est to north right turn lane and acceleration lane on Hw y 431
D	Old Madison Pike @ Research Park Blvd*	Construct joint use pedestrian & bicycle bridge and sidew alk approaches across Research Park Blvd
E	Explorer Dr @ Pegasus Rd	New traffic signal installation
F	Enterprise Way: Moore Farm to University Dr*	Add signal, left turn restrictions island at shopping center exits, a sidew alk, plus 3rd left turn lane to University Dr
G	County Line Rd @ Hw y 72	Upgrade displays, phasing and timings, and geometric improvements
H	Church St Bridge @ Big Spring Park	Construct bridge to improve pedestrian access to Big Spring Park and reduce vehicular & pedestrian conflicts
I	US 231 from Hobbs Rd to Weatherly Rd	Access management and intersection improvements
J	I-565 near Zierdt Rd	Add interchange

	ROADWAY	FROM	TO
1	Ardmore Hw y-AL 53	Research Park Blvd	Jeff Rd
2	Ardmore Hw y-AL 53	Jeff Rd	North of Harvest Rd
3	Ardmore Hw y-AL 53	North of Harvest Rd	Tennessee State Line
4	Balch Rd	Brow ns Ferry Rd	Gooch Ln
5	Balch Rd	Capshaw Rd	Gooch Ln
6	Balch Rd Extension	Brow ns Ferry Rd	Madison Blvd
7	Beadle Ln	Sw ancott Rd	Zierdt Rd
8	Blake Bottom Rd	Jeff Rd	Research Park Blvd
9	Brock Rd	U.S. 72 East	Ryland Pike
10	Brow ns Ferry Rd	Mooresville Rd	County Line Rd
11	Capshaw Rd	Jeff Rd	Old Railroad Bed Rd
12	Church St	Monroe St	Oakw ood Ave
13	Dug Hill Rd	Broad Armstrong Dr	U.S. 431
14	Eastern Bypass (PH 2)	Quarter Ln	U.S. 72 East
15	Eastview Dr	Slaughter Rd	Hughes Rd
16	Eastview Dr Extension	Hughes Rd	Sullivan St
17	Greenbrier Rd/Pow ell Rd Ext	North of I-565	U.S. 72 West
18	Hobbs Island Rd	U.S. 231	U.S. 431
19	Homer Nance Rd	Jordan Rd	Winchester Rd
20	Hughes Rd	Old Madison Pike	U.S. 72 West
21	Hughes Rd Extension	U.S 72 West	Wall Triana Hw y
22	I 565	Interstate 65	Wall Triana Hw y
23	I 565	Oakw ood Ave	High Mtn Road
24	I-565 Interchange*	County Line Rd	
25	I-565 Interchange*	Greenbrier Rd	
26	Jeff Rd (Ph 1)	University Dr	Capshaw Rd
27	Jeff Rd (Ph 2)	Capshaw Rd	Douglass Rd
28	Jeff Rd (Ph 3)	Douglass Rd	AL 53
29	Johns Road	Plummer Road	University Dr
30	Jordan Rd (Ph 1)	Homer Nance Rd	U.S. 72 East
31	Jordan Rd (Ph 2)	Moores Mill Rd	Homer Nance Rd
32	King Drake Rd - 431 Connector	King Drake Rd	US 431
33	Martin Rd	Zierdt Rd	Laracy Dr.
34	Martin Rd	Zierdt Road	Rideout Rd
35	Maysville Rd Connector	Maysville Rd	Epw orth Dr
36	Memorial Pkw y Interchange*	N. of Whitesburg-S. of Golf Rd	
37	Memorial Pkw y Interchange	Mastin Lake Rd	
38	Memorial Pkw y Interchange	Winchester Rd	
39	Memorial Pkw y Interchange	Meridianville Bottom Rd	
40	Memorial Pkw y Interchange	Patterson Ln	
41	Memorial Pkw y Interchange	Walker Ln	
42	Memorial Pkw y Interchange*	Mtn. Gap Rd/Hobbs Rd	
43	Memorial Pkw y Interchange	Green Cove Rd	
44	Memorial Pkw y Interchange	Hobbs Island Rd	
45	Memphis to Atlanta Highw ay	I-65	I-565
46	Memphis to Atlanta Highw ay	Southern Bypass	Marshall County Limits
47	Meridian St	Winchester Rd	Memorial Pkw y
48	Meridian St (PH 1)	Oakw ood Ave	Pratt Ave
49	Mill Road	County Line Rd	Hughes Rd
50	Moontow n Rd	Ryland Pike	U.S. 72 East
51	Moores Mill Rd	Winchester Rd	Northern Bypass
52	Mt Lebannon	Grimw ood Rd	Northern Bypass
53	Nance Rd	University Dr	Capshaw Rd
54	Northern Bypass (PH 2)	East of Pulaski Pike	U.S. 231
55	Northern Bypass (PH 3)	U.S. 231	Moores Mill Rd
56	Northern Bypass (PH 4)	Moores Mill Rd	Winchester Rd
57	Northern Bypass (PH 5)	Winchester Rd	U.S. 72 East
58	Oakw ood Rd	Adventist Blvd	Research Park Blvd
59	Old 431 Hw y	Highw ay 431	Wilson Mann Rd
60	Old Big Cove Rd	Hw y 431	Sutton Rd
61	Old Big Cove Rd	South Green Mountain Rd	Highw ay 431
62	Old Hw y 20	Greenbrier Rd	County Line Rd
63	Old Madison Pike	Thornton Industrial Park	Slaughter Rd
64	Old Madison Pike	Hughes Rd	Slaughter Rd
65	Old Railroad Bed Rd (PH 1)	U.S. 72 West	Capshaw Rd
66	Old Railroad Bed Rd (PH 2)	Capshaw Rd	AL Hw y 53
67	Patton Rd	Aerobee Rd	Redstone Rd
68	Plummer Rd	Research Park Blvd	Indian Creek Rd
69	Portal Ln Extension	Shelton Rd	Zierdt Rd Extension
70	Pow ell Rd	Pow ell Rd	Brow ns Ferry Rd
71	Research Park Blvd & Interchanges	I-565	Ardmore Hw y - AL 53
72	Ryland Pike	U.S. 72 East	Northern Bypass
73	Shelton Rd	Madison Blvd	1/4 mi N. of Madison Blvd
74	Shields Rd	Jordan Rd	Winchester Rd
75	Slaughter Road	Madison Blvd	U.S. 72 West
76	Southern Bypass (PH 1)	I-565	Martin Rd
77	Southern Bypass (PH 2)	Martin Rd	Weatherly Rd Extension
78	Southern Bypass (PH 3)	Weatherly Rd Extension	U.S. 231
79	Sullivan St	Royal Dr	Front St
80	Sw ancott Rd	I-565	County Line Rd
81	U.S. 72 East/ARC Corr V Interchange*	Moores Mill Rd & Shields Rd	
82	U.S. 72 East/ARC Corr V Interchange	Jordan Rd Extended	
83	U.S. 72 East/ARC Corr V Interchange	Moontow n Rd	
84	U.S. 72 East/ARC Corr V Interchange	Brock Rd	
85	U.S. 72 East/ARC Corr V Interchange	Eastern Bypass	
86	U.S. 72 East/ARC Corr V Interchange	High Mountain Rd	
87	U.S. 72/University Dr*	Providence Main Blvd	County Line Rd
88	U.S. 72/University Dr	County Line Rd	Mooresville Rd
89	Wall Triana Hw y	Mill Rd	U.S. 72 West
90	Wall Triana Hw y	U.S. 72 West	Capshaw Rd
91	Wall Triana Hw y	Capshaw Rd	Yarborough Rd
92	Weatherly Rd Extension	Memorial Pkw y	Southern Bypass
93	Winchester Rd (PH 2)	Dominion Cir	Naugher Rd
94	Winchester Rd (PH 3)	Naugher Rd	Bell Factory Rd
95	Winchester Rd (PH 4)	Bell Factory Rd	State Line
96	Zierdt Rd (PH 1)*	Madison Blvd	South of Martin Rd
97	Zierdt Rd (PH 2)	South of Martin Rd	Beadle Ln
98	Zierdt Rd Extension	1/4 mi N. of Madison Blvd	Old Madison Pike
99	Zierdt Rd/Kellner Rd Corridor	Kellner Rd	Zierdt Rd

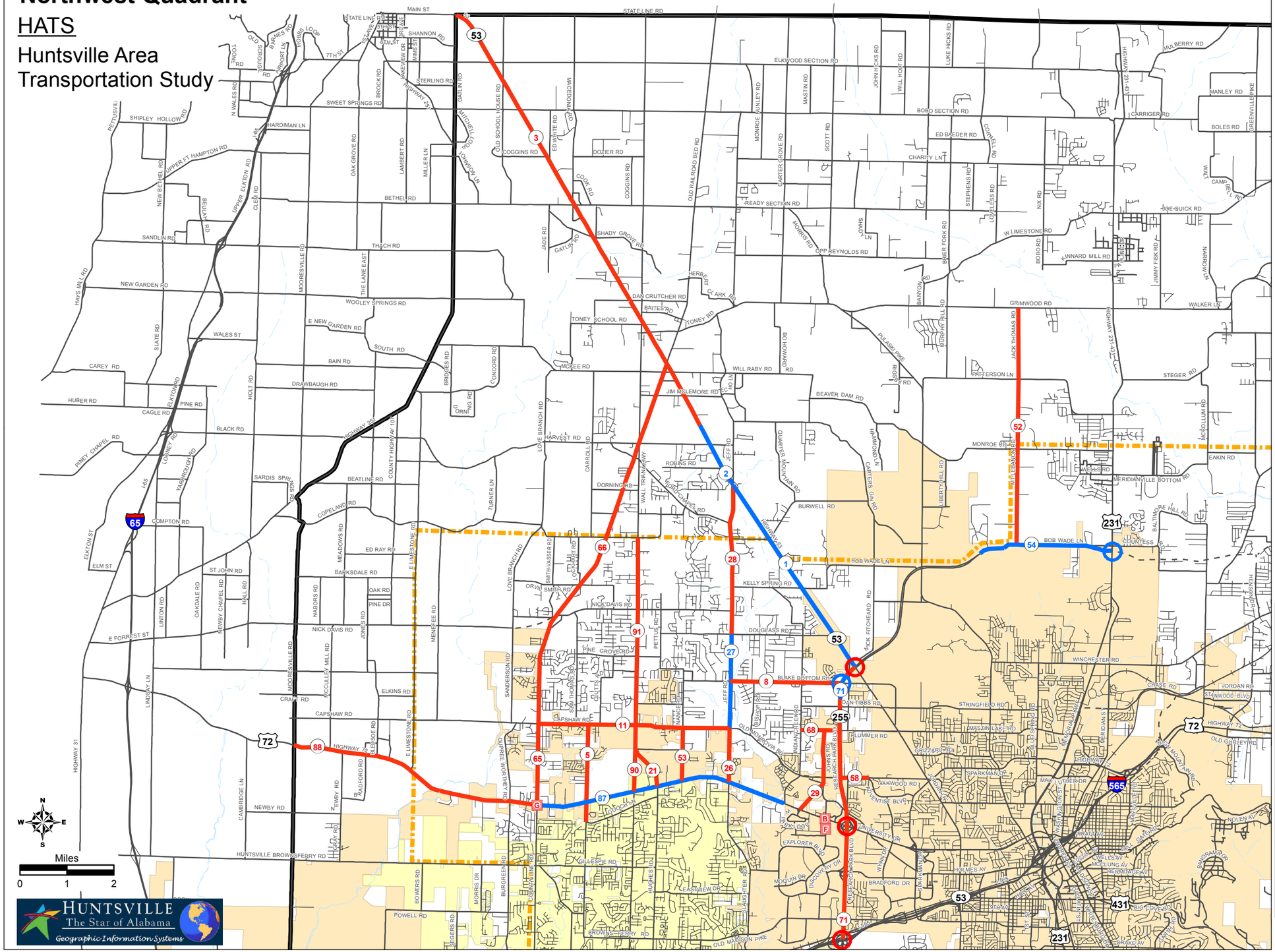
* These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked within the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

Map 4.1A

Year 2035 Transportation Plan
Corridor Improvement Projects
Northwest Quadrant

HATS

Huntsville Area
Transportation Study



Visionary Maintenance & Operation Projects

Capacity Projects

- Financially Constrained Road Projects
- Visionary Road Projects
- Financially Constrained Interchange Projects
- Visionary Interchange Projects
- Major Roads
- Streets
- Proposed Roads
- Study Area
- Urban Area
- Huntsville City Limits
- Madison City Limits
- New Hope City Limits
- Owens Cross Roads Town Limits
- Triana Town Limits
- Mooresville Town Limits
- Gurley Town Limits

VISIONARY MAINTENANCE AND OPERATION PROJECTS

	LOCATION	PROJECT DESCRIPTION
B	Enterprise Way @ University Dr*	Reduce island w idth or eliminate to construct additional north bound approach lane to University Dr.
F	Enterprise Way: Moore Farm to University Dr*	Add signal, left turn restrictions island at shopping center exits, a sidew alk, plus 3rd left turn lane to University Dr
G	County Line Rd @ Hw y 72	Upgrade displays, phasing and timings, and geometric improvements

CAPACITY PROJECTS

	ROADWAY	FROM	TO
1	Ardmore Hw y-AL 53	Research Park Blvd	Jeff Rd
2	Ardmore Hw y-AL 53	Jeff Rd	North of Harvest Rd
3	Ardmore Hw y-AL 53	North of Harvest Rd	Tennessee State Line
5	Balch Rd	Capshaw Rd	Gooch Ln
8	Blake Bottom Rd	Jeff Rd	Research Park Blvd
11	Capshaw Rd	Jeff Rd	Old Railroad Bed Rd
21	Hughes Rd Extension	U.S 72 West	Wall Triana Hw y
26	Jeff Rd (Ph 1)	University Dr	Capshaw Rd
27	Jeff Rd (Ph 2)	Capshaw Rd	Douglass Rd
28	Jeff Rd (Ph 3)	Douglass Rd	AL 53
29	Johns Road	Plummer Road	University Dr
52	Mt Lebannon	Grimw ood Rd	Northern Bypass
53	Nance Rd	University Dr	Capshaw Rd
54	Northern Bypass (PH 2)	East of Pulaski Pike	U.S. 231
58	Oakw ood Rd	Adventist Blvd	Research Park Blvd
65	Old Railroad Bed Rd (PH 1)	U.S. 72 West	Capshaw Rd
66	Old Railroad Bed Rd (PH 2)	Capshaw Rd	AL Hw y 53
68	Plummer Rd	Research Park Blvd	Indian Creek Rd
71	Research Park Blvd & Interchanges	I-565	Ardmore Hw y - AL 53
87	U.S. 72/University Dr	County Line Rd	Mooresville Rd
88	U.S. 72/University Dr*	Providence Main Blvd	County Line Rd
90	Wall Triana Hw y	U.S. 72 West	Capshaw Rd
91	Wall Triana Hw y	Capshaw Rd	Yarborough Rd

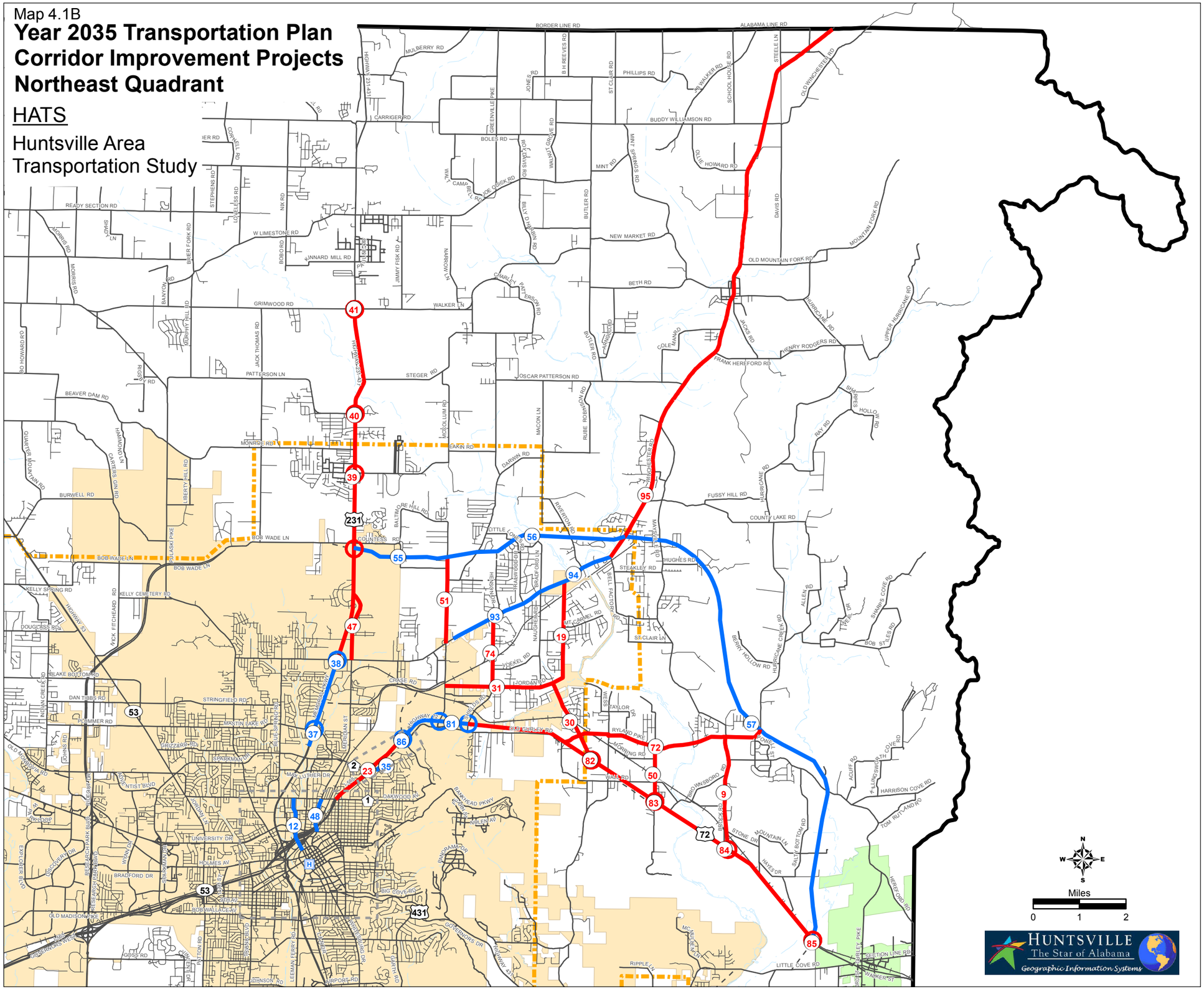
* These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked within the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

Map 4.1B

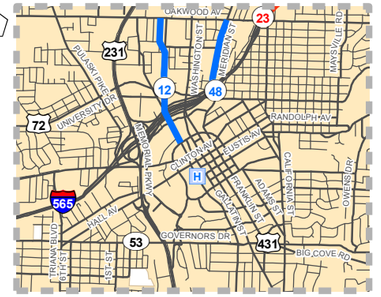
Year 2035 Transportation Plan
Corridor Improvement Projects
Northeast Quadrant

HATS

Huntsville Area
Transportation Study



Inset 1



Inset 2

Financially Constrained Maintenance & Operation Projects

Capacity Projects

- Financially Constrained Road Projects
- Visionary Road Projects
- Financially Constrained Interchange Projects
- Visionary Interchange Projects
- Major Roads
- Proposed Roads
- Study Area
- Urban Area
- Huntsville City Limits
- Madison City Limits
- New Hope City Limits
- Owens Cross Roads Town Limits
- Triana Town Limits
- Mooresville Town Limits
- Gurley Town Limits

CAPACITY PROJECTS			
	ROADWAY	FROM	TO
9	Brock Rd	U.S. 72 East	Ryland Pike
12	Church St	Monroe St	Oakwood Ave
19	Homer Nance Rd	Jordan Rd	Winchester Rd
23	I 565	Oakwood Ave	High Mtn Road
30	Jordan Rd (Ph 1)	Homer Nance Rd	U.S. 72 East
31	Jordan Rd (Ph 2)	Moores Mill Rd	Homer Nance Rd
35	Maysville Rd Connector	Maysville Rd	Epworth Dr
37	Memorial Pkwy Interchange	Mastin Lake Rd	
38	Memorial Pkwy Interchange	Winchester Rd	
39	Memorial Pkwy Interchange	Meridianville Bottom Rd	
40	Memorial Pkwy Interchange	Patterson Ln	
41	Memorial Pkwy Interchange	Walker Ln	
47	Meridian St	Winchester Rd	Memorial Pkwy
48	Meridian St (PH 1)	Oakwood Ave	Pratt Ave
50	Moontown Rd	Ryland Pike	U.S. 72 East
51	Moores Mill Rd	Winchester Rd	Northern Bypass
55	Northern Bypass (PH 3)	U.S. 231	Moores Mill Rd
56	Northern Bypass (PH 4)	Moores Mill Rd	Winchester Rd
57	Northern Bypass (PH 5)	Winchester Rd	U.S. 72 East
72	Ryland Pike	U.S. 72 East	Northern Bypass
74	Shields Rd	Jordan Rd	Winchester Rd
81	U.S. 72 East/ARC Corr V Interchange*	Moores Mill Rd & Shields Rd	
82	U.S. 72 East/ARC Corr V Interchange	Jordan Rd Extended	
83	U.S. 72 East/ARC Corr V Interchange	Moontown Rd	
84	U.S. 72 East/ARC Corr V Interchange	Brock Rd	
85	U.S. 72 East/ARC Corr V Interchange	Eastern Bypass	
86	U.S. 72 East/ARC Corr V Interchange	High Mountain Rd	
93	Winchester Rd (PH 2)	Dominion Cir	Naugher Rd
94	Winchester Rd (PH 3)	Naugher Rd	Bell Factory Rd
95	Winchester Rd (PH 4)	Bell Factory Rd	State Line

MAINTENANCE AND OPERATION PROJECTS		
	LOCATION	PROJECT DESCRIPTION
H	Church St Bridge @ Big Spring Park	Construct bridge to improve pedestrian access to Big Spring Park and reduce vehicular & pedestrian conflicts

HUNTSVILLE
The Star of Alabama
Geographic Information Systems

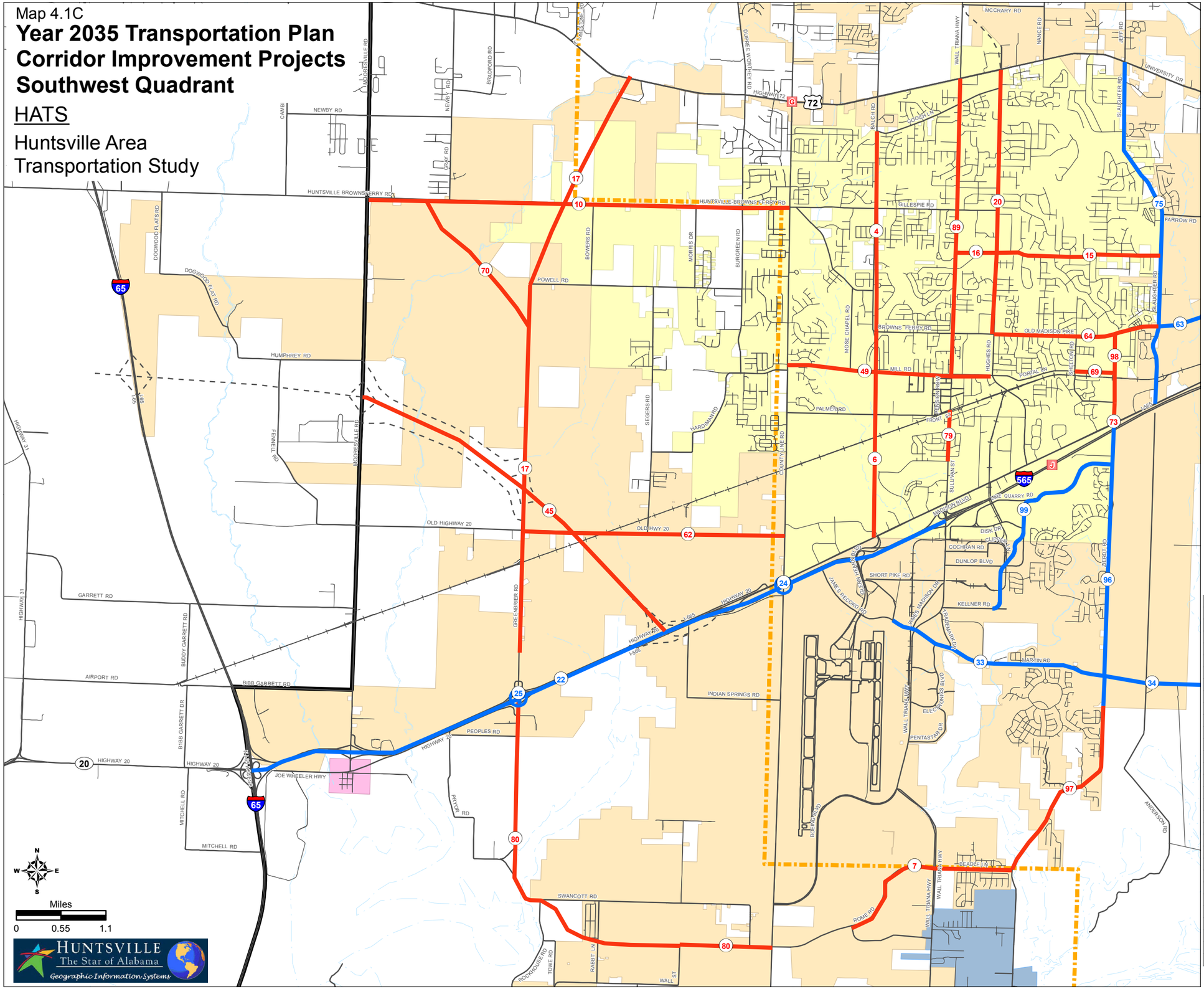
* These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked within the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

Map 4.1C

Year 2035 Transportation Plan
Corridor Improvement Projects
Southwest Quadrant

HATS

Huntsville Area
Transportation Study



Visionary Maintenance & Operation Projects

Capacity Projects

- Financially Constrained Road Projects
- Visionary Road Projects
- Financially Constrained Interchange Projects
- Visionary Interchange Projects
- Major Roads
- Streets
- Proposed Roads
- Study Area
- Urban Area
- Huntsville City Limits
- Madison City Limits
- New Hope City Limits
- Owens Cross Roads Town Limits
- Triana Town Limits
- Mooresville Town Limits
- Gurley Town Limits

VISIONARY MAINTENANCE AND OPERATION PROJECTS

	LOCATION	PROJECT DESCRIPTION
D	Old Madison Pike @ Research Park Blvd*	Construct joint use pedestrian & bicycle bridge and sidewalk approaches across Research Park Blvd
E	Explorer Dr @ Pegasus Rd	New traffic signal installation
J	I-565 near Zierdt Rd	Add interchange

CAPACITY PROJECTS

	ROADWAY	FROM	TO
4	Balch Rd	Browns Ferry Rd	Gooch Ln
6	Balch Rd Extension	Browns Ferry Rd	Madison Blvd
7	Beadle Ln	Swancott Rd	Zierdt Rd
10	Browns Ferry Rd	Mooresville Rd	County Line Rd
15	Eastview Dr	Slaughter Rd	Hughes Rd
16	Eastview Dr Extension	Hughes Rd	Sullivan St
17	Greenbrier Rd/Powell Rd Ext	North of I-565	U.S. 72 West
20	Hughes Rd	Old Madison Pike	U.S. 72 West
22	I 565	Interstate 65	Wall Triana Hwy
24	I-565 Interchange*	County Line Rd	
25	I-565 Interchange*	Greenbrier Rd	
33	Martin Rd	Zierdt Rd	Laracy Dr.
34	Martin Rd	Zierdt Road	Rideout Rd
45	Memphis to Atlanta Highway	I-65	I-565
49	Mill Road	County Line Rd	Hughes Rd
62	Old Hwy 20	Greenbrier Rd	County Line Rd
63	Old Madison Pike	Thornton Industrial Park	Slaughter Rd
64	Old Madison Pike	Hughes Rd	Slaughter Rd
69	Portal Ln Extension	Shelton Rd	Zierdt Rd Extension
70	Powell Rd	Powell Rd	Browns Ferry Rd
73	Shelton Rd	Madison Blvd	1/4 mi N. of Madison Blvd
75	Slaughter Road	Madison Blvd	U.S. 72 West
79	Sullivan St	Royal Dr	Front St
80	Swancott Rd	I-565	County Line Rd
89	Wall Triana Hwy	Mill Rd	U.S. 72 West
96	Zierdt Rd (PH 1)*	Madison Blvd	South of Martin Rd
97	Zierdt Rd (PH 2)	South of Martin Rd	Beadle Ln
98	Zierdt Rd Extension	1/4 mi N. of Madison Blvd	Old Madison Pike
99	Zierdt Rd/Kellner Rd Corridor	Kellner Rd	Zierdt Rd

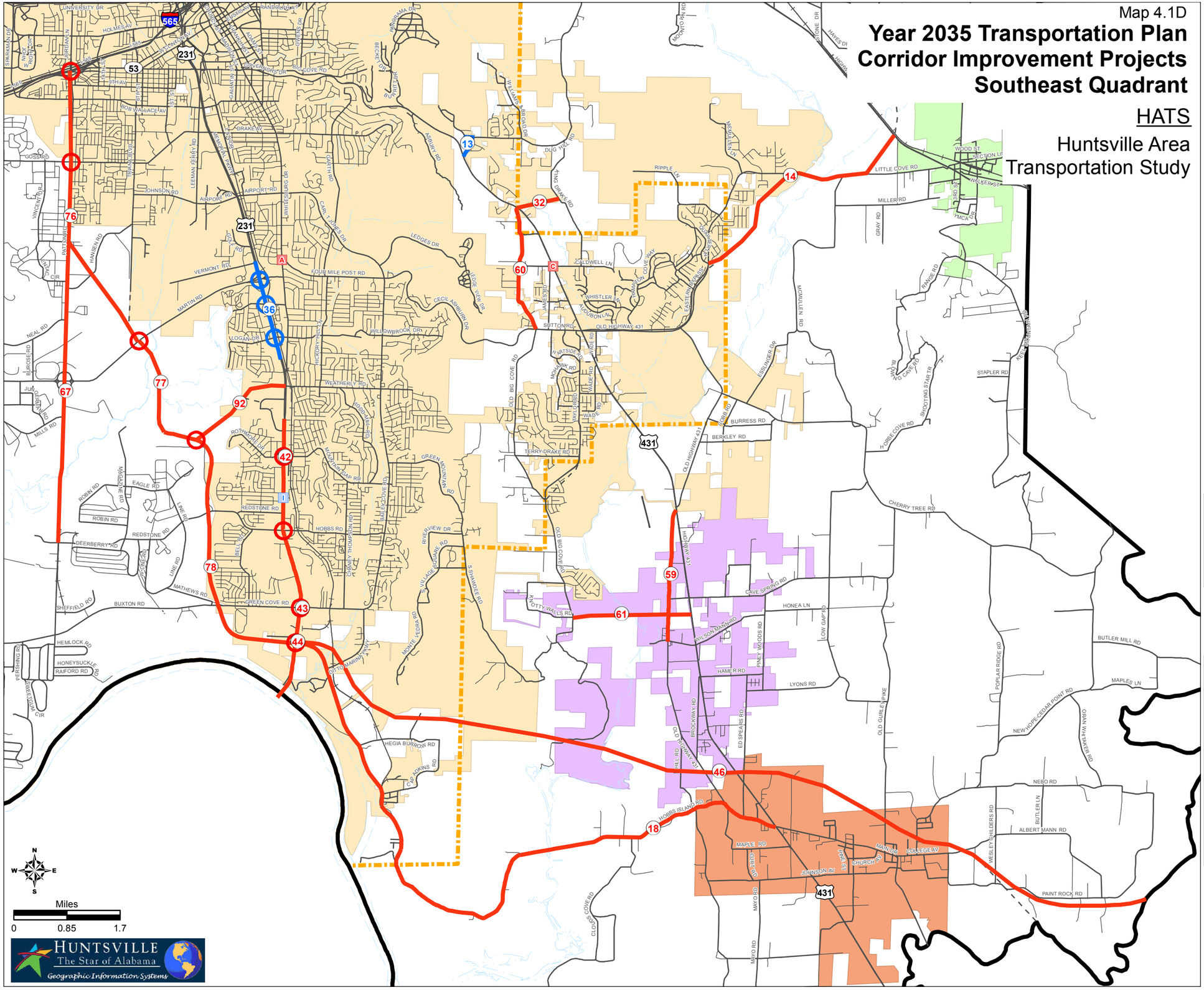
* These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked within the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

Map 4.1D

Year 2035 Transportation Plan
Corridor Improvement Projects
Southeast Quadrant

HATS

Huntsville Area
Transportation Study



VISIONARY MAINTENANCE AND OPERATION PROJECTS		
	LOCATION	PROJECT DESCRIPTION
A	Four Mile Post Rd @ Whitesburg Dr	Signal & major geometric improvements to Four Mile Post Rd approach
C	Caldwell Ln @ Hwy 431	Construction of w est to north right turn lane and acceleration lane on Hwy 431
I	US 231 from Hobbs Rd to Weatherly Rd	Access management and intersection improvements

CAPACITY PROJECTS			
	ROADWAY	FROM	TO
13	Dug Hill Rd	Broad Armstrong Dr	U.S. 431
14	Eastern Bypass (PH 2)	Quarter Ln	U.S. 72 East
18	Hobbs Island Rd	U.S 231	U.S. 431
32	King Drake Rd - 431 Connector	King Drake Rd	US 431
36	Memorial Pkw y Interchange*	N. of Whitesburg-S. of Golf Rd	
42	Memorial Pkw y Interchange*	Mtn. Gap Rd/Hobbs Rd	
43	Memorial Pkw y Interchange	Green Cove Rd	
44	Memorial Pkw y Interchange	Hobbs Island Rd	
46	Memphis to Atlanta Highw ay	Southern Bypass	Marshall County Limits
59	Old 431 Hw y	Highw ay 431	Wilson Mann Rd
60	Old Big Cove Rd	Hw y 431	Sutton Rd
61	Old Big Cove Rd	South Green Mountain Rd	Highw ay 431
67	Patton Rd	Aerobee Rd	Redstone Rd
76	Southern Bypass (PH 1)	I-565	Martin Rd
77	Southern Bypass (PH 2)	Martin Rd	Weatherly Rd Extension
78	Southern Bypass (PH 3)	Weatherly Rd Extension	U.S. 231
92	Weatherly Rd Extension	Memorial Pkw y	Southern Bypass

* These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked within the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

Table 4.1: Year 2035 Long Range Transportation Plan
Capacity Projects

Map No.	Roadway	From	To	Miles	Func Class	2005 Lanes	Ex LOS	Proj LOS	Bike/Ped Facility	Purpose and Need
*1	Ardmore Hwy–AL 53	Research Park Blvd	Jeff Rd	5	MjA	2	C	A	PBL	The purpose of this project is to improve traffic flow, LOS, and enhance regional connectivity.
*2	Ardmore Hwy-AL 53	Jeff Rd	North of Harvest Rd	2.4	MjA	2	C	A	PBL	The purpose of this project is to improve traffic flow, LOS, and enhance regional connectivity.
3	Ardmore Hwy-AL 53	North of Harvest Rd	Tennessee State Line	5.7	MjA	2	C	A	PBL, SW	The purpose of this project is to improve traffic flow, LOS, and enhance regional connectivity.
4	Balch Rd	Browns Ferry Rd	Gooch Ln	0.75	MjC	2	C	C	PGSP	The purpose of this project is to reduce travel delay.
5	Balch Rd	Capshaw Rd	Gooch Ln	2.2	MjC	2	C	A	PGSP	The purpose of this project is to improve traffic flow and LOS.
6	Balch Rd Extension	Browns Ferry Rd	Madison Blvd	2.5	MnA	0	N/A	A	PBR, SW	The purpose of this project is to improve traffic flow and provide needed connectivity/access in the City of Madison.
7	Beadle Ln	Swancott Rd	Zierdt Rd	2	MnC	2	D	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
8	Blake Bottom Rd	Jeff Rd	Research Park Blvd	.8	MnC	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
9	Brock Rd	U.S. 72 East	Ryland Pike	2.5	MnC	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
10	Browns Ferry Rd	Mooresville Rd	County Line Rd	5	MnC	2	C	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
11	Capshaw Rd	Jeff Rd	Old Railroad Bed Rd	2	MjC	2	C	C	PBL, SW	The purpose of this project is to reduce travel delay.
12	Church St	Monroe St	Oakwood Ave	1.3	MjC	2	C	B	BR, SW	The purpose of this project is to improve traffic flow and LOS.
13	Dug Hill Rd	Broad Armstrong Dr	U.S. 431	1.5	MjC	2	B	A	BR, SW	The purpose of this project is to improve traffic flow and LOS.
14	Eastern Bypass (Ph 2)	Quarter Ln	U.S. 72 East	3.7	MjA	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
15	EastviewDr	Slaughter Rd	Hughes Rd	.5	MjC	2	A	C	PGSP	The purpose of this project is to add corridor capacity to handle increased traffic flow.
16	EastviewDr Extension	Hughes Rd	Sullivan St	2	MnC	0	N/A	D	PGSP	The purpose of this project is to improve traffic flow and provide needed connectivity/access in the City of Madison.
17	Greenbrier Rd/Powell Rd Extension	North of I-565	U.S. 72 West	8	MnA	2	A	A	PBL, SW	The purpose of this project is to add corridor capacity and provide connectivity to U.S. 72 West.
18	Hobbs Island Rd	U.S. 231	U.S. 431	11.5	MjA	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
19	Homer Nance Rd	Jordan Rd	Winchester Rd	2	MjC	2	B	A	PBR, SW	The purpose of this project is to improve traffic flow and LOS.
20	Hughes Rd	Old Madison Pike	U.S. 72 West	3.2	MnA	3	C	A	PBR, SW	The purpose of this project is to improve traffic flow and LOS.
21	Hughes Rd Extension	U.S 72 West	Wall Triana Hwy	0.5	MnA	0	N/A	A	PBL, SW	The purpose of this project is to add connectivity and improve traffic flow by dispersing traffic along an alternate route.
22	I-565	Interstate 65	Wall Triana Hwy	9.1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity, improve traffic flow, and reduce travel delay.
23	I-565	Oakwood Ave	High Mountain Rd	2	InT	4	N/A	N/A		The purpose of this project is to enhance regional connectivity, improve traffic flow, and reduce travel delay.
Δ 24	I-565 Interchange	County Line Rd	I-565	1	InT	4	N/A	N/A		The purpose of this project is to enhance regional connectivity, improve traffic flow, and reduce travel delay.
Δ 25	I-565 Interchange	Greenbrier Rd	I-565	0.5	InT	4	N/A	N/A		The purpose of this project is to enhance regional connectivity, improve traffic flow, and reduce travel delay.
26	Jeff Rd (Ph 1)	University Dr	Capshaw Rd	1.1	MjC	2	B	B	PBL, SW	The purpose of this project is to reduce travel delay.
27	Jeff Rd (Ph 2)	Capshaw Rd	Douglass Rd	2	MjC	2	B	C	PBL, SW	The purpose of this project is to add corridor capacity to handle increased traffic flow.

Map No.	Roadway	From	To	Miles	Func Class	2005 Lanes	Ex LOS	Proj LOS	Bike/Ped Facility	Purpose and Need
28	Jeff Rd (Ph 3)	Douglass Rd	AL 53	3.2	MjC	2	B	C	PBL, SW	The purpose of this project is to add corridor capacity to handle increased traffic flow.
29	Johns Rd	Plummer Rd	University Dr	2	MnC	2	C	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
30	Jordan Rd (Ph 1)	Homer Nance Rd	U.S. 72 East	2	MnC	2	C	B	PBR, SW	The purpose of this project is to improve traffic flow and LOS.
31	Jordan Rd (Ph 2)	Moores Mill Rd	Homer Nance Rd	2.3	MnC	2	C	C	PBR, SW	The purpose of this project is to reduce travel delay.
32	King Drake Rd - 431 Connector	King Drake Rd	U.S. 431	0.6	MjC	0	N/A	A	PBL, SW	The purpose of this project is to add connectivity and improve traffic flow by dispersing traffic along an alternate route.
33	Martin Rd	Zierdt Rd	LaracyDr	2.76	MnA	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
34	Martin Rd	Zierdt Rd	Rideout Rd	2.5	MjA	2	C	D	PBL, SW	The purpose of this project is to add corridor capacity to handle increased traffic flow.
35	Maysville Rd Connector	Maysville Rd	Epworth Dr	.32	MnC	2	N/A	A	PRB, SW	The purpose of this project is to add connectivity and improve traffic flow.
Δ 36	**Memorial Parkway Interchange	No. of Whitesburg-So.of Golf Rd	At U.S. 231 South	1.5	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing interchanges and service roads to reduce travel delay.
37	**Memorial Parkway Interchange	Mastin Lake Rd	At U.S. 231 North	0.67	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
38	**Memorial Parkway Interchange	Winchester Rd	At U.S. 231 North	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
39	**Memorial Parkway Interchange	Meridianville Bottom Rd	At U.S. 231 North	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
40	**Memorial Parkway Interchange	Patterson Ln	At U.S. 231 North	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
41	**Memorial Parkway Interchange	Walker Ln	At U.S. 231 North	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
Δ 42	**Memorial Parkway Interchange	Mtn. Gap Rd/Hobbs Rd	At U.S. 231 South	2	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing interchanges and service roads to reduce travel delay.
43	**Memorial Parkway Interchange	Green Cove Rd	At U.S. 231 South	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
44	**Memorial Parkway Interchange	Hobbs Island Rd	At U.S. 231 South	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructingan interchange and service roads to reduce travel delay.
45	Memphis to Atlanta Highway	I-65	I-565	8	MjA	0	N/A	N/A		The purpose of this project is to enhance regional and national connectivity and access for various modes of transportation.
46	Memphis to Atlanta Highway	Southern Bypass	Marshall County Limits	15	MjA	0	N/A	N/A		The purpose of this project is to enhance regional and national connectivity and access for various modes of transportation.

Map No.	Roadway	From	To	Miles	Func Class	2005 Lanes	Ex LOS	Proj LOS	Bike/Ped Facility	Purpose and Need
47	Meridian St	Winchester Rd	Memorial Parkway	1.5	MnA	2	B	A	PGSP	The purpose of this project is to improve traffic flow and LOS.
48	Meridian St (Ph 1)	Oakwood Ave	Pratt Ave	0.7	MnA	2	B	B	PBL, SW	The purpose of this project is to reduce travel delay.
49	Mill Rd	County Line Rd	Hughes Rd	2.5	MnC	2	B	A	PGSP	The purpose of this project is to improve traffic flow and LOS.
50	Moontown Rd	Ryland Pike	U.S. 72 East	1.2	MnC	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
51	Moores Mill Rd	Winchester Rd	Northern Bypass	4.5	MnA	2	N/A	D	PBL, SW	The purpose of this project is to reduce travel delay.
52	Mt. Lebanon/Jack Thomas Rd	Grimwood Rd	Northern Bypass	4.5	MnC	2	A	C	PBL, SW	The purpose of this project is to add corridor capacity to handle increased traffic flow.
53	Nance Rd	University Dr	Capshaw Rd	1.1	MnC	2	N/A	A	PBL, SW	The purpose of this project is to reduce travel delay.
54	Northern Bypass (Ph 2)	East of Pulaski Pike	U.S. 231	3.3	MjA	2	N/A	A	PBL, SW	The purpose of this project is to provide regional and national connectivity for various modes of transportation.
55	Northern Bypass (Ph 3)	U.S. 231	Moores Mill Rd	2.6	MjA	0	N/A	A	PBL, SW	The purpose of this project is to provide regional and national connectivity for various modes of transportation.
56	Northern Bypass (Ph 4)	Moores Mill Rd	Winchester Rd	3	MjA	0	N/A	B	PBL, SW	The purpose of this project is to provide regional and national connectivity for various modes of transportation.
57	Northern Bypass (Ph 5)	Winchester Rd	U.S. 72 East	11	MjA	0	N/A	A	PBL, SW	The purpose of this project is to provide regional and national connectivity for various modes of transportation.
58	Oakwood Rd	Adventist Blvd	Research Park Blvd	1	MnC	2	N/A	C	PBL, SW	The purpose of this project is to reduce travel delay.
59	Old 431 Highway	Highway 431	Wilson Mann Rd	2	MjC	2	A	A	PBL, SW	The purpose of this project is to add corridor capacity and enhance regional connectivity.
60	Old Big Cove Rd	Highway 431	Sutton Rd	2	MjC	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
61	Old Big Cove Rd	South Green Mtn Rd	Highway 431	2	MjC	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
62	Old Hwy 20	Greenbrier Rd	County Line Rd	3	MnA	2	N/A	A	PBL, SW	The purpose of this project is to reduce travel delay.
*63	Old Madison Pike	Thornton Industrial Park	Slaughter Rd	0.5	MnA	2	E	D	PBL	The purpose of this project is to improve traffic flow and LOS.
64	Old Madison Pike	Hughes Rd	Slaughter Rd	2	MjA	3	F	C	PBR, PGSP	The purpose of this project is to improve traffic flow and LOS.
65	Old Railroad Bed Rd (Ph 1)	U.S. 72 West	Capshaw Rd	1.8	MnA	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
66	Old Railroad Bed Rd (Ph 2)	Capshaw Rd	AL Highway 53	8.5	MnA	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
67	Patton Rd	Aerobee Rd	Redstone Rd	5	MjA	4	D	D	PBL, SW	The purpose of this project is to reduce travel delay.
68	Plummer Rd	Research Park Blvd	Indian Creek Rd	0.8	MjC	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
69	Portal Ln Extension	Shelton Rd	Zierdt Rd Extension	0.5	MnC	0	N/A	A	PGSP	The purpose of this project is to improve traffic flow and provide needed connectivity/access in the City of Madison.
70	Powell Rd	Powell Rd	Browns Ferry Rd	1.5	MnA	0	N/A	C	PBL, SW	The purpose of this project is to improve traffic flow and provide needed connectivity/access to the area.
71	Research Park Blvd and Interchanges	I-565	Ardmore Highway – AL53	5.9	MjA	4	C	E		The purpose of this project is to add corridor capacity and enhance regional connectivity.
72	Ryland Pike	U.S. 72 East	Northern Bypass	3.75	MjC	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
73	Shelton Rd	Madison Blvd	¼ mile No. of Madison Blvd	0.25	MnC	2	N/A	A	PGSP	The purpose of this project is to reduce travel delay.
74	Shields Rd	Jordan Rd	Winchester Rd	1.5	MnC	2	B	C	PBL, SW	The purpose of this project is to add corridor capacity to handle increased traffic flow.

Map No.	Roadway	From	To	Miles	Func Class	2005 Lanes	Ex LOS	Proj LOS	Bike/Ped Facility	Purpose and Need
75	Slaughter Rd	Madison Blvd	U.S. 72 West	5	MnA	2	C	B	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
76	Southern Bypass(Ph 1)	I-565	Martin Rd	6.5	MjA	0	N/A	C		The purpose of this project is to enhance regional and national connectivity and access for various modes of transportation.
77	Southern Bypass(Ph 2)	Martin Rd	Weatherly Rd Extension	2	MjA	0	N/A	B		The purpose of this project is to enhance regional and national connectivity and access for various modes of transportation.
78	Southern Bypass(Ph 3)	Weatherly Rd Extension	U.S. 231	4.5	MjA	0	N/A	B		The purpose of this project is to enhance regional and national connectivity and access for various modes of transportation.
79	Sullivan St	Royal Dr	Front St	0.5	MjC	3	E	D	PGSP	The purpose of this project is to improve traffic flow and LOS.
80	Swancott Rd	I-565	County Line Rd	5.5	MnA	2	A	A	PBL, SW	The purpose of this project is to reduce travel delay.
Δ 81	**U.S. 72 East/ARC Corridor V	Moores Mill & Shields Rd	U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
82	**U.S. 72 East/ARC Corridor V	Jordan Rd Extended	@ U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
83	**U.S. 72 East/ARC Corridor V	Moontown Rd	@ U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
84	**U.S. 72 East/ARC Corridor V	Brock Rd	@ U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
85	**U.S. 72 East/ARC Corridor V	Eastern Bypass	@ U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
86	**U.S. 72 East/ARC Corridor V	High Mountain Rd	@ U.S. 72 East	1	MjA	4	N/A	N/A		The purpose of this project is to enhance regional connectivity by constructing an interchange and service roads to reduce travel delay.
Δ 87	U.S. 72/University Drive	Providence Main Blvd	County Line Rd	5	MjA	4	C	D		The purpose of this project is to add corridor capacity and enhance regional and national connectivity and access for various modes of transportation.
88	U.S. 72/University Dr	County Line Rd	Mooresville Rd	5.2	MjA	4	C	C		The purpose of this project is to add corridor capacity and enhance regional connectivity and access for various modes of transportation.
89	Wall Triana Highway	Mill Rd	U.S. 72 West	3.6	MjC	2	B	B	PGSP	The purpose of this project is to reduce travel delay.
90	Wall Triana Highway	U.S. 72 West	Capshaw Rd	1.4	MjC	2	B	B	PBL, SW	The purpose of this project is to reduce travel delay.
91	Wall Triana Highway	Capshaw Rd	Yarborough Rd	4	MnA	2	C	C	PBL, SW	The purpose of this project is to reduce travel delay.
92	Weatherly Rd Extension	Memorial Parkway	Southern Bypass	1.5	MjC	0	N/A	D		The purpose of this project is to improve traffic flow and provide needed connectivity/access to the area.
93	Winchester Rd (Ph 2)	Dominion Cr	Naugher Rd	2	MnA	2	C	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
94	Winchester Rd (Ph 3)	Naugher Rd	Bell Factory Rd	1.5	MnA	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
95	Winchester Rd (Ph 4)	Bell Factory Rd	State Line	9.5	MnA	2	B	A	PBL, SW	The purpose of this project is to improve traffic flow and LOS.
Δ 96	Zierdt Rd (Ph 1)	Madison Blvd	South of Martin Rd	3	MjC	2	C	D	PGSP	The purpose of this project is to add corridor capacity to handle increased traffic flow.

Map No.	Roadway	From	To	Miles	Func Class	2005 Lanes	Ex LOS	Proj LOS	Bike/Ped Facility	Purpose and Need
97	Zierdt Rd (Ph 2)	South of Martin Rd	Beadle Ln	3	MjC	2	C	A	PGSP	The purpose of this project is to improve traffic flow and LOS.
98	Zierdt Rd Extension	¼ mile No. of Madison Blvd	Old Madison Pike	0.8	MnC	0	N/A	A	PGSP	The purpose of this project is to improve traffic flow and provide needed connectivity/access to the area.
99	Zierdt Rd/Kellner Rd Corridor	Kellner Rd	Zierdt Rd	3	MjC	0	N/A	B	PBR, SW	The purpose of this project is to promote economic development of undeveloped land in the City of Madison.

**=Bridge Overpass Construction
Ex LOS = Existing Level of Service
Proj LOS = Projected Level of Service

Δ = These projects include the segments identified in Section 8: "Congestion Management, Safety Management, and Security Element" that are ranked as the top ten locations where congestion currently is or will be a factor in the future. Section 8.2.3 and Appendix C describes the procedures for selecting these corridors.

*= These projects were under design prior to FHWA policy regarding the construction of bike/ped facilities.

MnC = Minor Collector
MjC = Major Collector
MnA = Minor Arterial
MjA = Major Arterial

PBR = Proposed Bike Route
PBL= Proposed Bike Lane
PGSP=Proposed Greenway/Shared Path (These facilities include bike lanes)
SW= Sidewalk
BR = Existing Bike Route

Level of Service
A = .60 - .69
B = .70 - .79
C = .80 - .89
D = .90 - .99
E = 1.00 – 1.10
F = 1.11 >

Projects highlighted "blue" are limited access or controlled access facilities, and do not include bicycle/pedestrian accommodation due to these special exceptions.

Projects highlighted "green" are State or U.S. routes, and as such carry high volumes of traffic. The cost of constructing ***appropriate*** facilities for bicycle/pedestrian use is costprohibitive. US 72 East is planned as an expressway or limited access corridor.

ALL CITY OF HUNTSVILLE ROADS WILL HAVE R/W, CURBS, GUTTERS, AND SIDEWALKS IN ACCORDANCE WITH SUBDIVISION REGULATIONS.

Table 4.2: Year 2035 Long Range Transportation Plan
Maintenance and Operations Projects

Map No.	Location	Description	Func Class	Bike/Ped Facility	Purpose and Need
A	Four Mile Posr Rd @ Whitesburg Dr	Signal and major geometric improvements to Four Mile Post Rd approach	MjC	N/A	This project will improve traffic flow
B	Enterprise Way @ University Dr	Reduce island width or eliminate to construct additional Northbound approach lane to University Dr.	MjC	N/A	This project will improve safety and traffic flow
C	Caldwell Rd @ Hwy 431	Construction of West to North right turn lane and acceleration lane on Hwy 431	MjC	N/A	This project will improve safety and traffic flow
D	Old Madison Pike @ Research Park Blvd	Construct joint use pedestrian &bicycle bridge and sidewalk approaches across Research Park Blvd	MjC	Added as part of project	This project will improve safety
E	Explorer Dr @ Pegasus Rd	New traffic signal installation	MjC	N/A	This project will improve traffic flow
F	Enterprise Way: Moores Farm to University Dr	Add signal, left turn restrictions island at shopping center exits, a sidewalk, plus 3rd left turn lane to University Dr	MjC	N/A	This project will improve safety and traffic flow
G	County Line Rd @ HWY 72	Upgrade displays, phasing and timings and geometric improvements	MjA	N/A	This project will improve safety and traffic flow
H	Church St Bridge @ Big Spring Park	Construct bridge to improve pedestrian access to Big Spring Park and reduce vehicular/pedestrian conflicts	MjC	Added as part of project	This project will improve safety and traffic flow
I	US 231	Access management and intersection improvements at US 231 between Hobbs Road and Weatherly Road	MjA	N/A	This project will improve safety and traffic flow
*J	I-565 near Zierdt Rd	Construct interchange on I-565 near Zierdt Rd	MjA	N/A	The purpose of this project is to allow direct access to undeveloped land suitable for economic development and the existing Intergraph campus that is suitable for future redevelopment. This project will provide additional access to the Zierdt Rd/Redstone Arsenal area.

*An Interchange Justification Study is under development for this project.

MnC = Minor Collector
MjC = Major Collector
MnA = Minor Arterial
MjA = Major Arterial

4.2 The "No Build" and Other Alternatives Evaluation of the Adopted Plan

The previous chapters of this document explained the estimation and forecasting procedure and the data required as input. The development scenario used in the Huntsville Area 2035 update was explained in **Section 2**. This section will examine and explain in detail the procedure used to simulate trips under either present or future conditions.

Future road needs are determined by assigning the forecast trips to a road network with the model structure developed and validated for the base year, or known conditions. There are two types of deficiencies that need to be addressed in formulating the alternate transportation plan, capacity and mobility. Capacity deficiencies occur when the traffic volume exceeds the design capacity of a roadway facility i.e., Memorial Parkway and Governors Drive. Mobility deficiencies occur when travel is impeded by topographical barriers because of a lack of roadway, i.e., Tennessee River or HuntsvilleMountain.

The next step in the process is to assign trips to the existing and committed or E+C network using the projected socioeconomic data for the future year. The E+C system is the system of roads now open to traffic plus those recently opened, currently under construction or under contract for preliminary engineering. In the MPO area, some of these major additional projects on the E+C network include:

- Memorial Parkway @ Whitesburg/Weatherly Road
- Memorial Parkway @ Sparkman/Max Luther Drive
- Memorial Parkway from north of Whitesburg Drive to south of Golf Road
- Memorial Parkway @ Mastin Lake Road
- Memorial Parkway, additional lanes, from Tennessee RiverBridge to Hobbs Island Road
- Widening Meridian Street from Oakwood Drive to Monroe Street
- Old Madison Pike widening from Slaughter Road to Thornton Industrial Park
- Widening Church Street from Oakwood Drive to Monroe Street
- Dug Hill Road from US 431 to King Drake Road
- Moores Mill Road overpass @ US 72 - including overpass @ Moores Mill Road
- Pulaski Pike from Liberty Hill Road to Bob Wade Lane
- Downtown Connector from Memorial Parkway to Williams Avenue

The next step is to evaluate the alternate plans. The build alternates involves expansion of arterial and collector systems including upgrading of some arterials, expressways and constructing new freeways and expressways. The evaluation is undertaken for each type of highway facility: (a) interstate, (b) freeway, (c) expressway, (d) major arterial, (e) minor arterial, (f) collector type of facility, with the following data summarized for each network:

1. Network Street Mileage - Linear miles of street
2. Lane Miles - major street mileage multiplied by lanes in the street
3. Vehicle Miles - The number of vehicle miles traveled on the network
4. Vehicle Hours - The number of vehicle hours of travel on the network
5. Average Network Speed – The average speed on each system

4.3 Network Analysis

In forecasting the future population growth for the Huntsville Metro Area and its impact on its road and highway system, it is necessary to look at alternate scenarios within the long range transportation plan to ensure that traffic congestion remains at a most a minimal issue. **Table 4.3** shows three different scenarios and its impact on the network.

Alternate 1 displays the results of the Existing + Committed network which involves only projects that are currently under construction or design. The end result of this scenario increases the number of vehicle miles driven in the study area by almost 104 percent from 9.3 million miles to over 19.5 million miles daily. The available lane-miles to accommodate this increase would only be about 136 miles greater than today, representing an increase capacity of only about 2 percent. The travel time increases nearly to 400 percent from 289,473 hoursto over 1,682,042 hours.

Alternate 2 constructs all of the future projects except the Southern Bypass which was designated as being a major north-south corridor through Redstone Arsenal connecting Interstate 565 to US 231 south at the Tennessee River. While this scenario does improves traffic flow, the average speed of the network only increases from 11.61 mph to 20.25 mph. Travel time increases an additional 25 percent while total vehicle distance increases almost 11 percent over the E+C network to 18.2 million miles. The operating conditions on these alternate networks would be totally unacceptable, with overcrowded conditions and level of service at E and F on most of the major arterials in the study area. The ultimate result of this network scenario would be a deterioration of air quality along with heavy congestion and the continuing need for additional highway capacity throughout the study area with Memorial Parkway, University Drive and Governors Drive possibly requiring the most attention. **Figures 4.1** and **4.2** summarize the projected characteristics and operating condition of all alternates in detail.

Alternate 3 constructs all future projects in addition to the Southern Bypass and the Memphis to Atlanta highway. This scenario is preferred due to the reduction in travel time and increase in overall network speed.

A synopsis of the statistics for each network as projected by the travel models is shown in **Table 4.3.** Note that the average speed on the 2005 base year network is 32.22 mph compared with that of Alternate 1 and 2 that have an average network speed of 15 mph, which is a reduction of 19.1mph or 64 percent – evidently a sign of traffic congestion. By comparison, the average speed on the 2035 future network decreases about 41 percent or to 19.7 mph and even increases slightly from the Alternate 1 and 2 networks.

Table 4.3: Comparison of Modeled Alternatives

	Base Year 2005	Alt 1 2035 E+C No Build	Alt 2 2035Plan No Southern Bypass	Alt 3 2035 Adopted Plan
Total Network Distance	2,455	2,456	2,566	2,627
Lane Miles	6,321	6,457	6,696	7,090
Total Vehicle Distance	9,326,964	19,528,558	18,246,166	20,394,344
Total Vehicle Travel Time (hours)	289,473	1,682,042	901,039	1,084,015
Average Network Speed	32.22	11.61	20.25	19.77

Figure 4.1 demonstrates the comparison of the network average speed among the different classification of roads and alternative network scenarios. **Figure 4.2** graphically demonstrates the relationship of each network to the other in the category of projected daily vehicle miles traveled and its impact on the roadway system. In comparing the 2005 base year network with the other networks, the amount of VMT increased dramatically on the overall comparison but especially on arterials and expressways.

Further analysis indicates an increase of nearly 42 percent of vehicle miles traveled on arterials when comparing the 2035 build networkto the 2005 base year network.Collectors andExpressways also significantly increased nearly 59 percent and 44percent respectively.

Figure 4.1: Average Modeled Speed per Classification

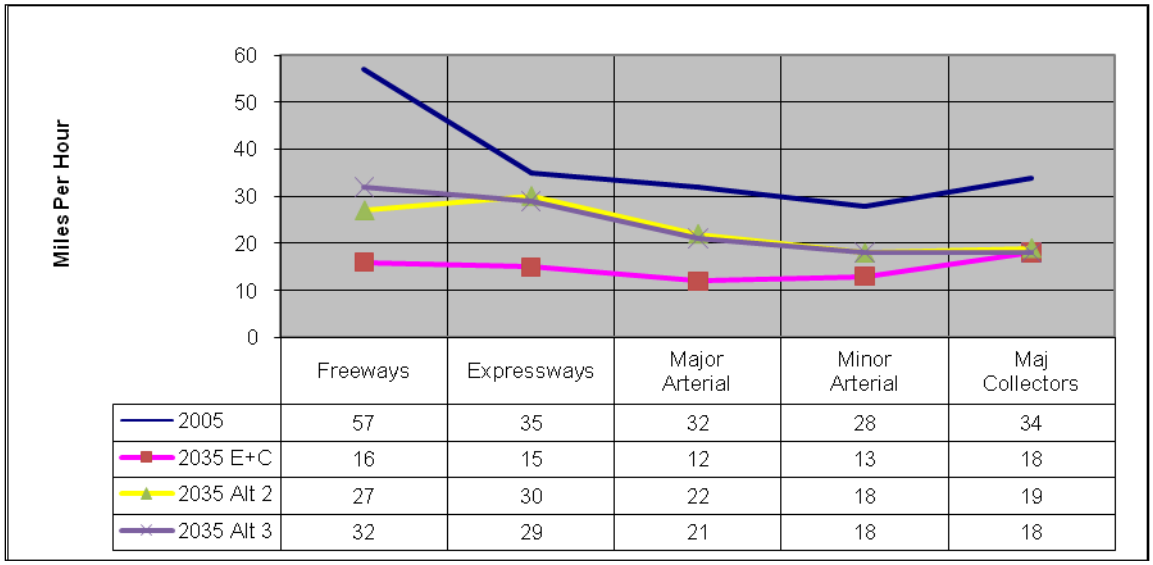
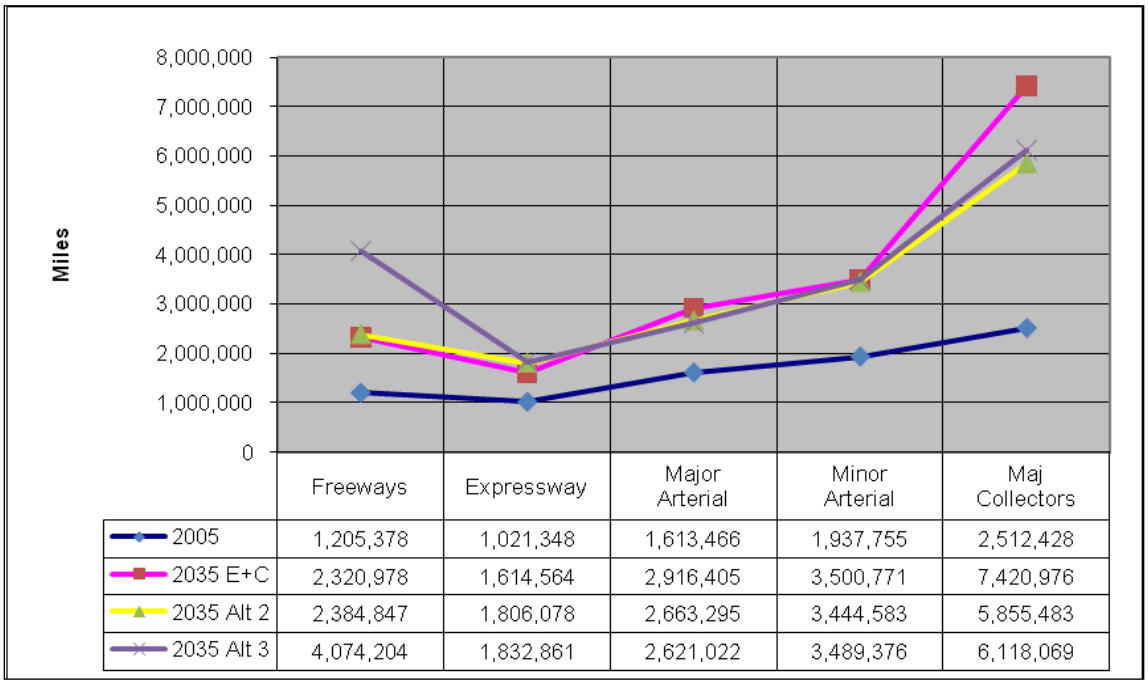


Figure 4.2: Vehicle Miles Traveled on Modeled Network



	Freeways	Expressway	Major Arterial	Minor Arterial	Maj Collectors
2005	1,205,378	1,021,348	1,613,466	1,937,755	2,512,428
2035 E+C	2,320,978	1,614,564	2,916,405	3,500,771	7,420,976
2035 Alt 2	2,384,847	1,806,078	2,663,295	3,444,583	5,855,483
2035 Alt 3	4,074,204	1,832,861	2,621,022	3,489,376	6,118,069

4.4 Volume/Capacity Projections for the National Highway System

Table 4.4 indicates the volume to capacity (V/C) ratios as projected in the 2035 build alternate for major corridors on the National Highway System (NHS).

Table 4.4: Volume/Capacity Ratios for NHS System

Functional Class	Location	2005 Capacity	2005 ADT	2005 V/C Ratio	2035 Capacity	2035 ADT	2035 V/C Ratio
Arterial	**I-565**						
	East of Wall Triana Hwy	102,000	52,900	0.52	102,000	126,300	1.24
	West of Research Park Blvd.	102,000	76,000	0.74	102,000	162,000	1.20
	East of Research Park Blvd.	136,000	85,200	0.62	136,000	151,000	1.11
	East of Sparkman	136,000	89,700	0.65	136,000	107,000	0.79
	East of Governors Dr	136,000	75,500	0.56	136,000	100,000	0.72
	West of 72 E	68,000	36,200	0.53	102,000	59,000	0.59
Arterial	**U.S. 72 E**						
	East of Interstate 565	33,900	36,200	1.07	50,000	59,300	1.14
	West of Moores Mill Rd	33,900	41,000	1.21	50,000	56,600	1.13
	*East of Moores Mill Rd	33,900	25,000	0.74	50,000	52,000	1.01

Table 4.4: Volume/Capacity Ratios for NHS System							
Functional Class	**Location**	**2005 Capacity**	**2005 ADT**	**2005 V/C Ratio**	**2035 Capacity**	**2035 ADT**	**2035 V/C Ratio**
Arterial	**U.S. Hwy 72 W**						
	East of Hughes Rd	33,900	51,000	1.50	50,000	72,600	1.45
	West of Slaughter Rd	33,900	45,000	1.33	50,000	61,400	1.23
	East of Slaughter Rd	33,900	43,000	1.27	50,000	61,600	1.23
	West of Enterprise Dr	33,900	41,000	1.21	50,000	61,700	1.24
	East of Enterprise Dr	33,900	59,000	1.18	50,000	51,700	1.04
	West of Sparkman Dr	50,000	47,200	0.94	50,000	48,400	0.97
	West of Jordan Ln	50,000	44,500	0.89	50,000	54,800	1.10
	East of Jordan Ln	50,000	44,200	0.88	50,000	49,400	.99
Arterial	**U.S. 231 S**						
	South of Governors Dr	75,000	108,900	1.45	125,000	112,700	0.90
	North of Airport Rd	75,000	94,000	1.25	125,000	110,800	0.88
	South of Airport Rd	75,000	71,500	0.95	125,000	101,300	0.81
	South of Weatherly Rd	75,000	53,000	1.06	125,000	84,300	0.67
	North of Redstone Rd	75,000	41,500	0.83	125,000	49,100	0.39
	South of Hobbs Rd	75,000	22,700	0.30	125,000	59,800	0.48
Arterial	**U.S. 231 N**						
	North of Meridian St	33,900	29,200	0.86	125,000	79,700	1.07
	*South of Winchester Rd	33,900	31,300	0.92	125,000	77,000	0.62
	*North of Mastin Lake Rd	33,900	33,000	0.97	125,000	94,000	0.75
Arterial	**U.S. 431**						
	West of Memorial Pkwy	50,000	21,300	0.43	50,000	37,400	0.75
	East of Memorial Parkway	33,900	34,200	0.68	50,000	42,700	0.85
	East of California St	33,900	24,200	0.71	50,000	29,300	0.49
	West of Monte Sano Blvd	33,900	27,900	0.82	33,900	30,300	0.90
	East of Monte Sano Blvd	33,900	20,000	0.59	33,900	31,600	0.93
Arterial	**Southern Bypass**						
	South of I-565	N/A	N/A	N/A	102,000	70,000	0.80
	North of Martin Rd	N/A	N/A	N/A	102,000	59,160	0.58
	North of Weatherly Rd	N/A	N/A	N/A	102,000	76,100	0.75
	South of Weatherly Rd	N/A	N/A	N/A	102,000	60,100	0.59

*Includes frontage roads

4.5 Volume/Capacity Projections for Other Roadways

The Surface Transportation Program (STP) includes all roads not on the NHS. A number of arterial and collector roads in the Huntsville urban area are included in this category. **Table 4.5** includes the V/C ratio for a number of local roadways in the study area.

Table 4.5: Volume/Capacity Ratios For Local Roads and Streets

Functional Class	Location	2005 Capacity	2005 ADT	2005 V/C Ratio	2035 Capacity	2035 ADT	2035 V/C Ratio
Arterial	**Bob Wallace**						
	Intersection at I-565	31,900	20,200	0.63	31,900	39,800	1.25
	West of Triana Blvd	31,900	20,200	0.63	31,900	30,500	0.96
	East of Triana Blvd	31,900	19,000	0.59	31,900	18,500	0.58
	West of Leeman Ferry Rd	31,900	20,800	0.65	31,900	22,500	0.71
Arterial	**California St**						
	North of Adams St	28,000	17,500	0.62	28,000	23,500	0.89
	North of Governors Dr	28,000	19,500	0.69	28,000	27,500	0.98
Arterial	**California St**						
	North of Bob Wallace Ave	28,000	18,000	0.64	28,000	27,200	.97
Arterial	**Carl T. Jones Bailey Cove Rd**						
	East of Whitesburg Dr	31,900	23,000	0.72	45,600	25,800	0.81
	North of Four Mile Post Rd	31,900	23,500	0.74	31,900	28,500	0.89
	North of Weatherly Rd	31,900	20,600	0.65	31,900	20,800	0.65
	South of Mountain Gap Rd	31,900	12,000	0.38	31,900	22,600	0.71
Arterial	**County Line Rd**						
	North of Hwy 20 W	13,700	12,400	0.91	31,900	26,700	0.83
	So. of 72W Brownsferry Rd	27,400	12,500	0.51	31,900	32,600	1.15
Arterial	**Hughes Rd**						
	South of Hwy 72 W	14,800	17,400	1.18	31,900	35,700	1.12
	North of Hwy 20 W	31,900	25,300	0.79	31,900	29,600	0.93
Arterial	**Martin Rd**						
	East of Memorial Pkwy	13,700	5,000	0.36	31,900	19,700	0.62
	West of Memorial Pkwy	27,400	10,500	0.38	31,900	28,400	0.89

Table 4.5: Volume/Capacity Ratios For Local Roads and Streets							
Functional Class	**Location**	**2005 Capacity**	**2005 ADT**	**2005 V/C Ratio**	**2035 Capacity**	**2035 ADT**	**2035 V/C Ratio**
Arterial	**Meridian St**						
	North of Winchester Rd	14,800	6200	0.41	31,900	13,400	0. 64
	S of Max Luther &U.S. 72	31,900	17,400	0.55	31,900	21,700	0.68
	South of Oakwood Ave	13,700	6,000	0.44	17,500	20,100	.96
Arterial	**Northern Bypass**						
	Nick Fitcheard N. of Hwy 53	50,000	9200	0.18	50,000	24,600	0.49
	Bob Wade Ln W. of U.S. 231	16,600	3500	0. 21	50,000	31,600	0.62
Arterial	**Old Madison Pike**						
	East of Slaughter Rd	13,700	13,700	1.00	31,900	21,300	0.74
	West of Research Park Blvd	31,900	14,300	0.45	31,900	50,800	1.59
	East of Research Park Blvd	31,900	18,900	0.59	31,900	31,600	0.99
Arterial	**Patton Rd/Jordan Ln**						
	South of Drake Ave	31,900	12,900	0.40	33,900	31,500	0.92
	South of Bob Wallace Ave	31,900	24,600	0.77	33,900	33,000	0.99
	South of Oakwood Ave	31,900	23,500	0.73	31,900	28,800	0.85
Arterial	**Pulaski Pike**						
	South of Sparkman Dr	31,900	19,700	0.54	31,900	25,800	0.81
	South of Winchester Rd	31,900	17,400	0.55	31,900	15,300	0.48
	North of University Dr	31,900	17,200	0.62	31,900	24,300	0.76
Arterial	**Research Park Blvd**						
	North of Oakwood Rd	50,000	23,600	0.47	50,000	44,200	0.85
	North of Interstate 565	50,000	47,000	0.94	75,000	62,400	0.86
	South of University Dr	50,000	44,500	0.89	75,000	67,500	0.91
Arterial	**Slaughter Rd**						
	South of University Dr	13,700	8900	0.65	31,900	36,200	1.14
	North of Hwy 20	13,700	8000	0.58	31,900	32,443	1.02

Table 4.5: Volume/Capacity Ratios For Local Roads and Streets							
Functional Class	**Location**	**2005 Capacity**	**2005 ADT**	**2005 V/C Ratio**	**2035 Capacity**	**2035 ADT**	**2035 V/C Ratio**
Arterial	**Whitesburg Dr**						
	South of Drake Ave	31,900	26,300	0.82	45,600	31,900	0.70
	South of Airport Rd	31,900	19,600	0.61	31,900	24,700	0.81
Collector	**Blue Springs Rd**						
	North of Oakwood Ave	28,500	8000	0.28	28,500	9,400	0.33
	North of Sparkman Dr	28,500	20,500	0.72	28,500	26,400	0.93
	South of Winchester Rd	28,500	12,800	0.45	28,500	13,200	0.47
Collector	**Chaney Thompson Rd**						
	South of Mountain Gap Rd	16,600	3500	0.21	20,800	18,400	0.84
	North of Green Cove Rd	16,600	1,700	0.08	20,800	6,200	0.30
Collector	**Drake Ave**						
	East of Jordan Ln	28,500	20,200	0.71	26,200	26,000	0.99
	East of Memorial Pkwy	28,500	22,700	0.80	28,500	12,400	0.44
Collector	**Drake Ave**						
	East of Whitesburg Dr	16,600	11,300	0.68	16,600	15,900	0.96
Collector	**Dug Hill Rd**						
	North of Hwy 431	16,600	2400	0.14	20,800	3,900	0.24
	South of Hwy 72 E	16,600	2,200	0.13	16,600	7,200	0.44
Collector	**Four Mile Post Rd**						
	East of Garth Rd	20,800	2,300	0.11	20,800	9,900	0.48
	East of Whitesburg Dr	20,800	5400	0.26	20,800	11,700	0.71
	East of Bailey Cove	28,500	11,100	0.39	28,500	26,700	0.94
Collector	**Holmes Ave**						
	West of Pulaski Pike	20,800	10,900	0.52	20,800	14,500	0.70
	West of Triana Blvd	20,800	9500	0.46	20,800	19,100	0.92
	West of Jordan Ln	20,800	11,000	0.39	20,800	21,600	1.04

Table 4.5: Volume/Capacity Ratios For Local Roads and Streets							
Functional Class	**Location**	**2005 Capacity**	**2005 ADT**	**2005 V/C Ratio**	**2035 Capacity**	**2035 ADT**	**2035 V/C Ratio**
Collector	**Moores Mill Rd**						
	North of U.S. 72 E.	31,900	21,000	0.66	31,900	22,800	0.72
	South of Winchester Rd	31,900	21,000	0.66	31,900	18,500	0.58
	North of Winchester Rd	16,600	10,900	0.66	31,900	22,600	0.71
Collector	**Mountain Gap Rd**						
	East of Memorial Pkwy	28500	6500	0.23	28,500	17,500	0.62
	West of Bailey Cove Rd	28500	5900	0.21	28,500	9,200	0.32
Collector	**Oakwood Ave**						
	East of Jordan Ln	28,500	15,000	0.53	28,500	21,900	0.77
	East of Pulaski Pike	28,500	20,000	0.70	28,500	22,200	0.78
	W of Andrew Jackson Way	28,500	18,800	0.66	28,500	20,300	0.78
Collector	**Pratt Ave**						
	E of Andrew Jackson Way	20,800	5,200	0.25	20,800	12,700	0.61
	East of Meridian St	26,200	13,000	0.50	26,200	13,100	0.50
	West of Washington St	28,500	21,500	0.75	26,200	21,600	0.79
Collector	**Sullivan St (Madison)**						
	South of U.S. Hwy 72 W	20,800	12,000	0.58	28,500	24,300	0.85
	South of Old Madison Pike	28,500	23,700	0.83	28,500	29,600	1.04
Collector	**Weatherly Rd**						
	East of S Memorial Pkwy	28,500	16,200	0.57	28,500	25,600	0.90
	East of Todd Mill Rd	28,500	14,900	0.52	28,500	14,800	0.52
Collector	**Wynn Dr**						
	South of University Dr	28,500	17,000	0.60	28,500	27,300	0.96
	South of Bradford Dr	28,500	13,500	0.47	28,500	26,100	0.92
	North of University Dr	28,500	5,200	0.18	28,500	23,100	0.81

4.6 Traffic Assignment and Volume/Capacity Maps

Maps 4.2–4.17, located at the end of this Section, display the traffic assignment and the volume capacity ratio maps for the 2005 base year network, the 2035 E+C network, 2035 future network without the Southern Bypass or the Memphis to Atlanta Highway, and the adopted 2035 future network which includes the Southern Bypass as well as the Memphis to Atlanta Highway. All of the maps are color coded to display the different levels and volumes of traffic. This information is used to display where traffic congestion occurs in each network and show where the need for improvement in a facility is necessary.

The volume/capacity ratio is needed to determine the level of operation or service for each facility or road segment. The volume of the roadway is divided by its capacity to determine how close the facility is to reaching its maximum capacity. There are six levels of operation by which roads and highways are classified specifically A to F which were discussed in chapter 3.

In the Huntsville study the ratios ranged from 0.03 which is level A to 1.34 which is level F. The standard operating level at which is considered normal is level C or 0.80 –0.89. As traffic continues to build upon the network, the ratios increase and as it approaches and exceeds 1.0 congestion becomes a problem thus the need for improvements to those facilities are examined.

4.7 Model Validation

The base 2005 model was reviewed against existing available traffic counts to check and validate the accuracy of the model. Traffic counts on numerous road segments within the Huntsville Urbanized area, as designated from the U.S. Census Bureau, were obtained from several data sources including the City of Huntsville, Madison County Engineering and the State of Alabama Department of Transportation. The traffic counts that were used were collected between 2004and 2005. Network links were categorized by functional classification and evaluated by each of these classes for acceptable accuracy. The accuracy of the model against actual traffic counts varies on different road segments. The deviations are, however, within the nominal parameters as stated by the Federal Highway Administration.

Table 4.6
Network Assignment by Functional Class

Facility Type	Links with Counts	Mean Count	Mean Load	% Difference	FHWA Target	Average Congested Speed
Freeway	18	28,608	27,412	4.1%	+/- 7%	57.1
Principle Arterial	116	19,558	18,642	4.6%	+/- 10%	35.4
Minor Arterial	161	7,941	7,540	5.0%	+/- 15%	28.7
Collector	271	3,874	4,251	8.9%	+/- 22%	34.1
All Links	566	9,781	9,510	2.7%	n/a	32.24

Table 4.7
Network Assignment by Volume Group

Volume Group	Links with Counts	Mean Count	Mean Load	% Difference	FHWA Target
1000 -2000	88	2228	4175	46.6	+-47%
2001- 5000	129	6650	9118	27.6	+/-36%
5001 – 10,000	194	14757	13780	6.6	+/- 29%
10,001 - 25,000	150	17441	16996	2.5	+/- 25%
>25000	46	38075	30748	19.2	+/-22%

Trip Assignment Summary

Assigned Interzonal Trips	=	942,140
Unassigned Interzonal Trips	=	0
Intrazonal Trips	=	59,829
Total Trips	=	1,001,969

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Map 4.2 - No Changes

Map 4.3 – No Changes

Map 4.4 – No Changes

Map 4.5 – No Changes

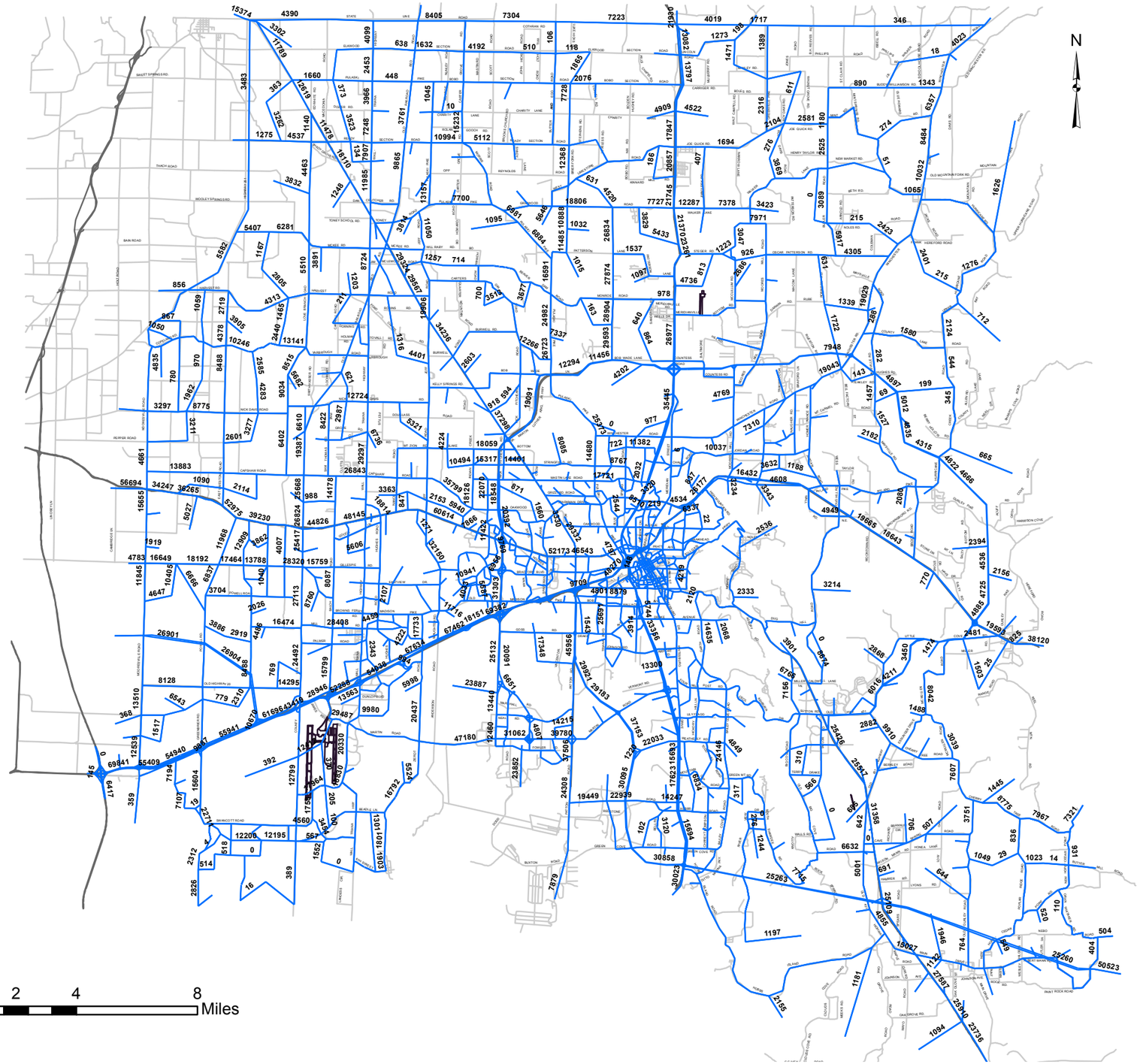
Map 4.6 – No Changes

Map 4.7 – No Changes

Map 4.8 – No Changes

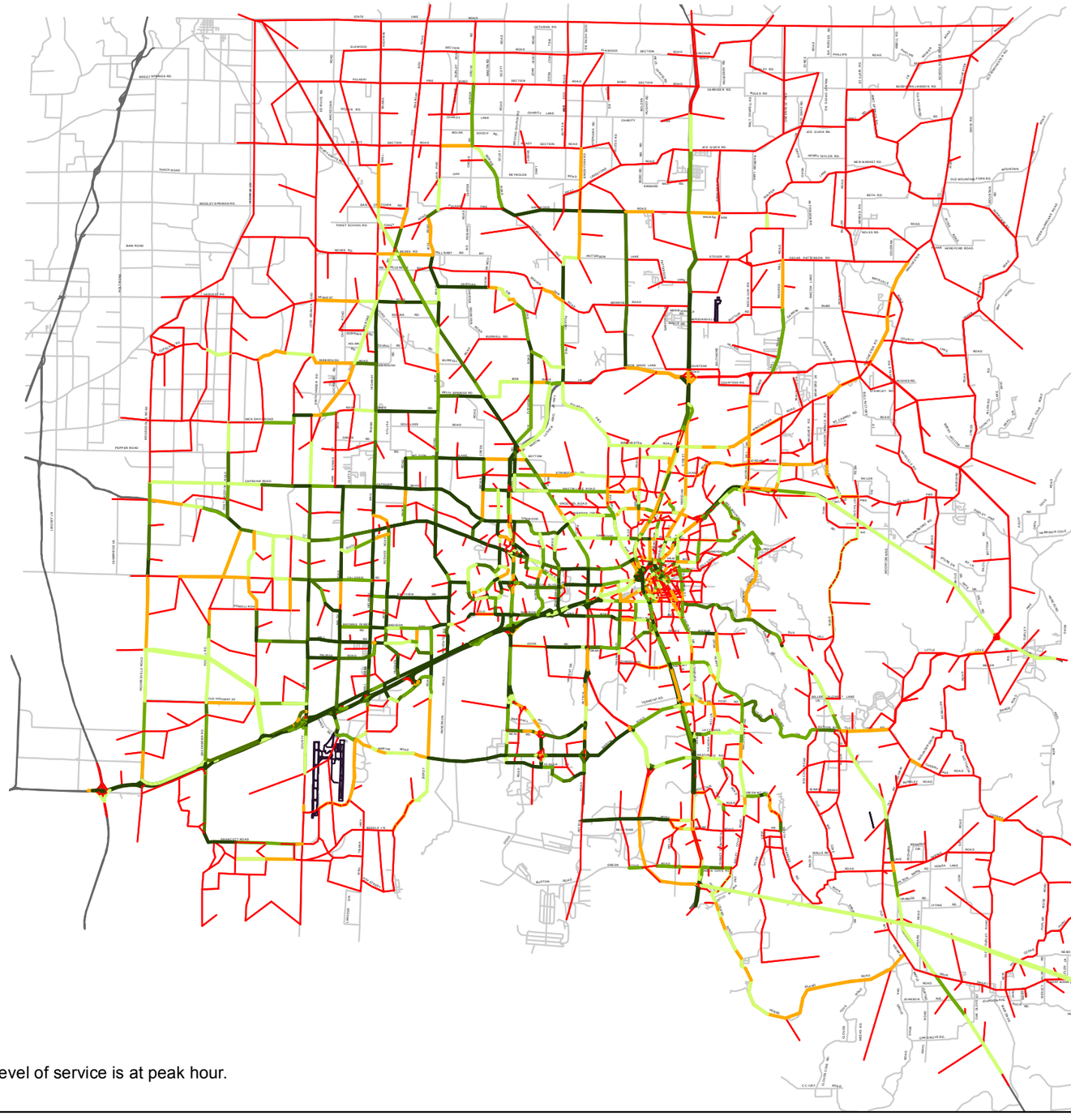
Map 4.9 – No Changes

MAP 4-10
2035 NETWORK W/O SOUTHERN BYPASS
TRAFFIC VOLUME MAP



Map 4.11 – No Changes

MAP 4-12
2035 NETWORK W/O SOUTHERN BYPASS
LEVEL OF SERVICE MAP



N

LEGEND

- LOS A = Free Flowing Traffic
- LOS B = Traffic Flowing Normally
- LOS C = Standard Operating Conditions
- LOS D = Minor Congestion
- LOS E = Major Congestion
- LOS F = Traffic Gridlock

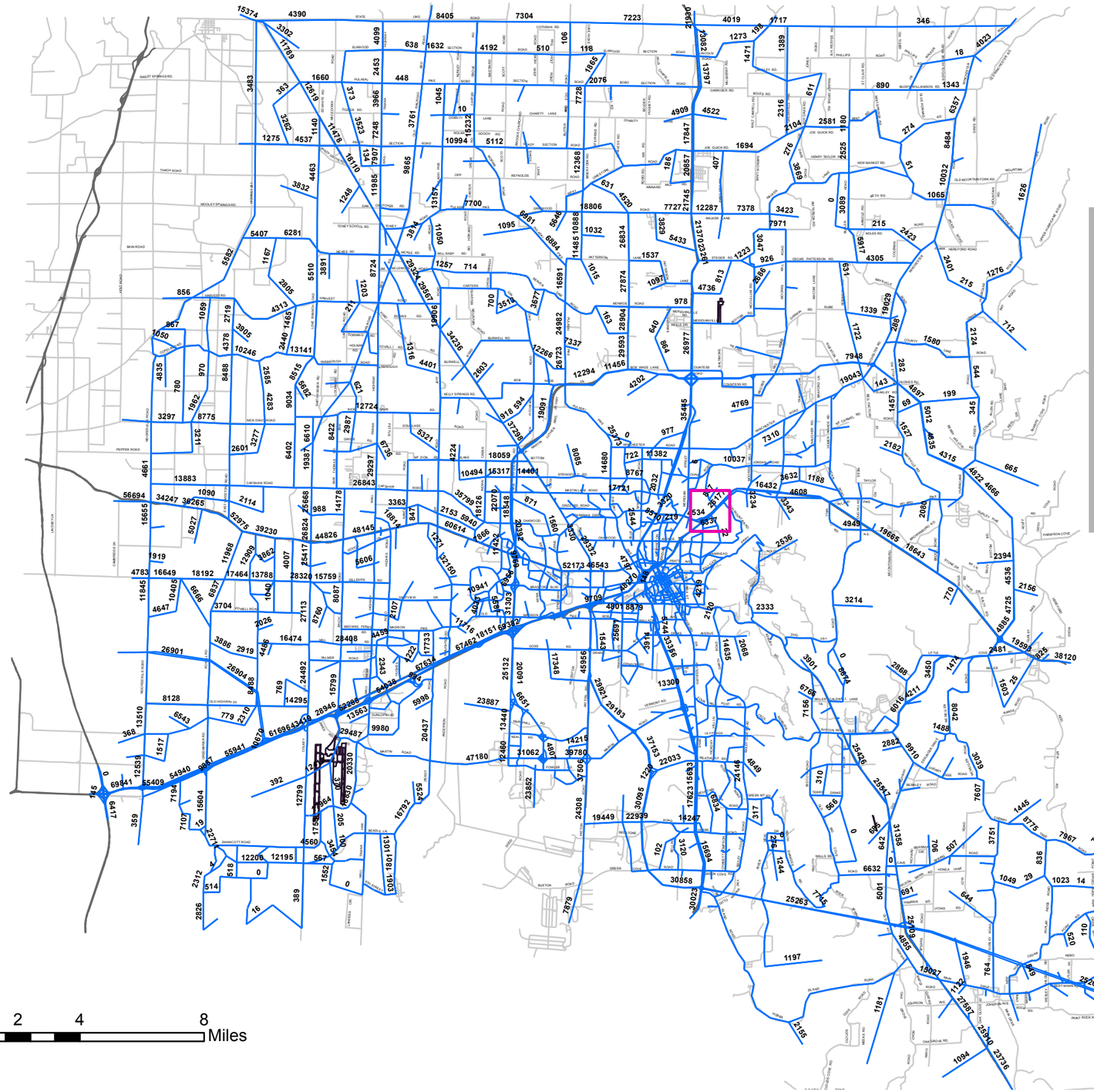
0 10,000 20,000 40,000 Feet

* Level of service is at peak hour.

HUNTSVILLE The Star of Alabama Geographic Information Systems

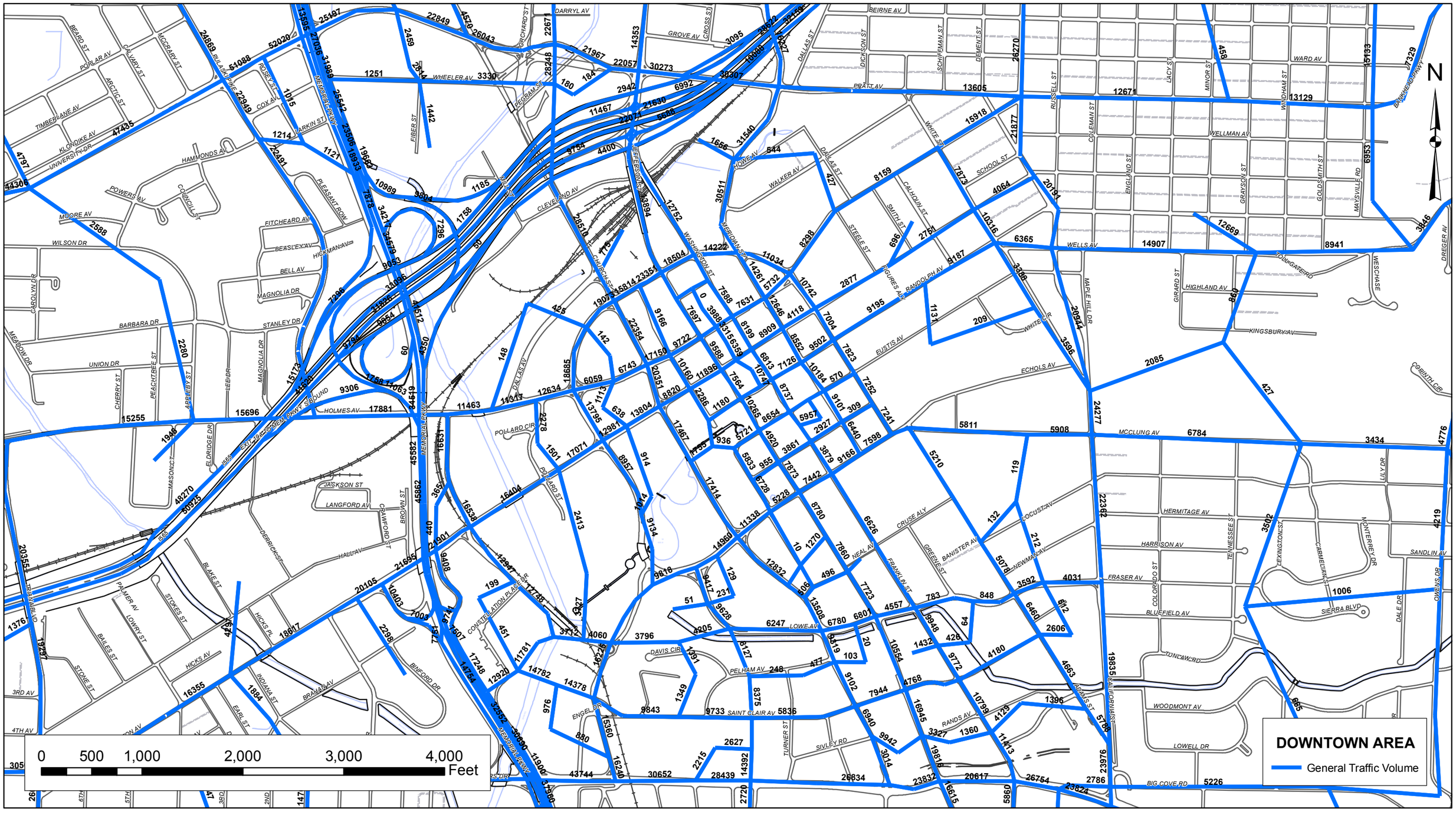
Map 4.13 – No Changes

MAP 4-14
2035 NETWORK W/ SOUTHERN BYPASS
TRAFFIC VOLUME MAP

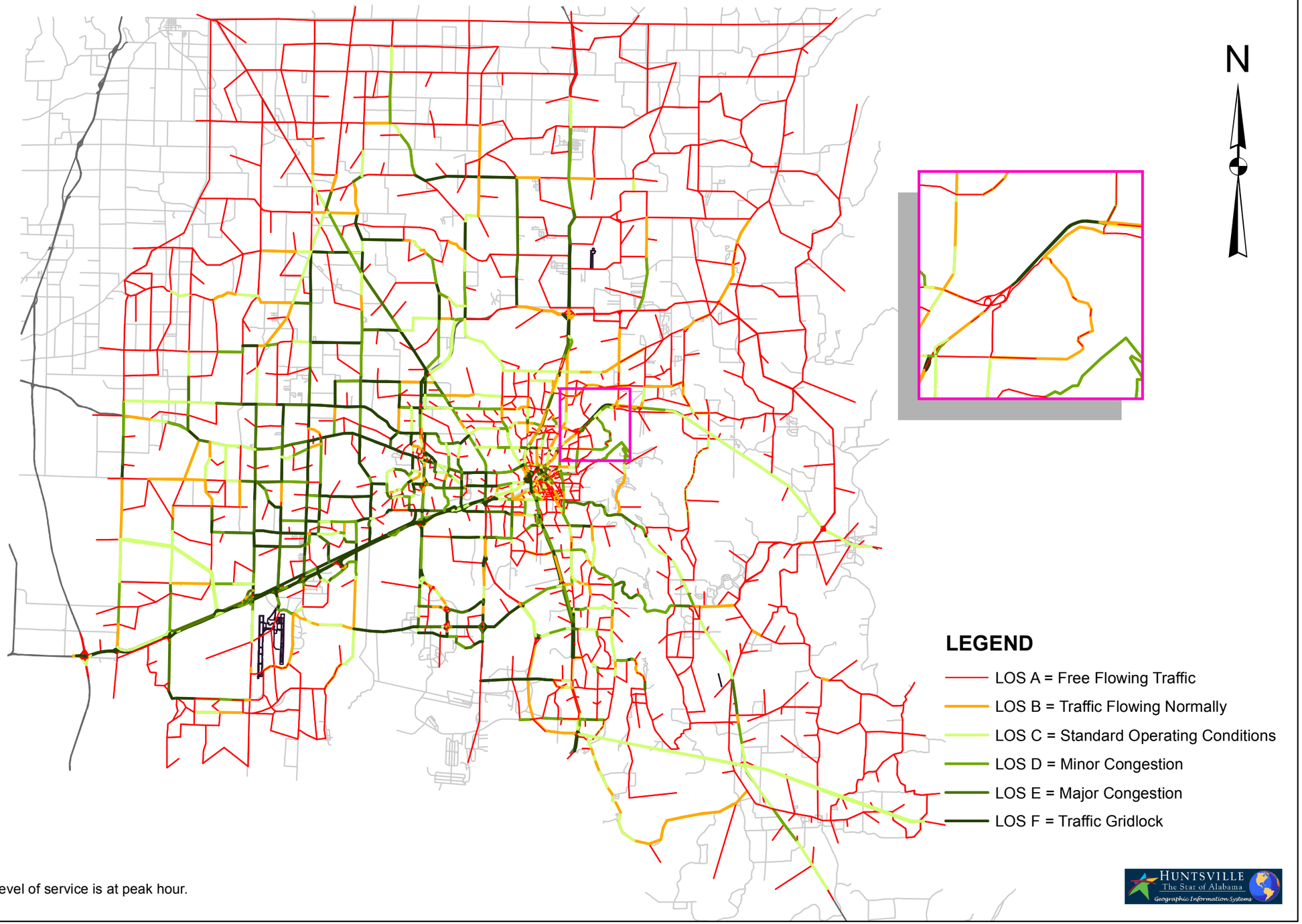


HUNTSVILLE
The Star of Alabama
Geographic Information Systems

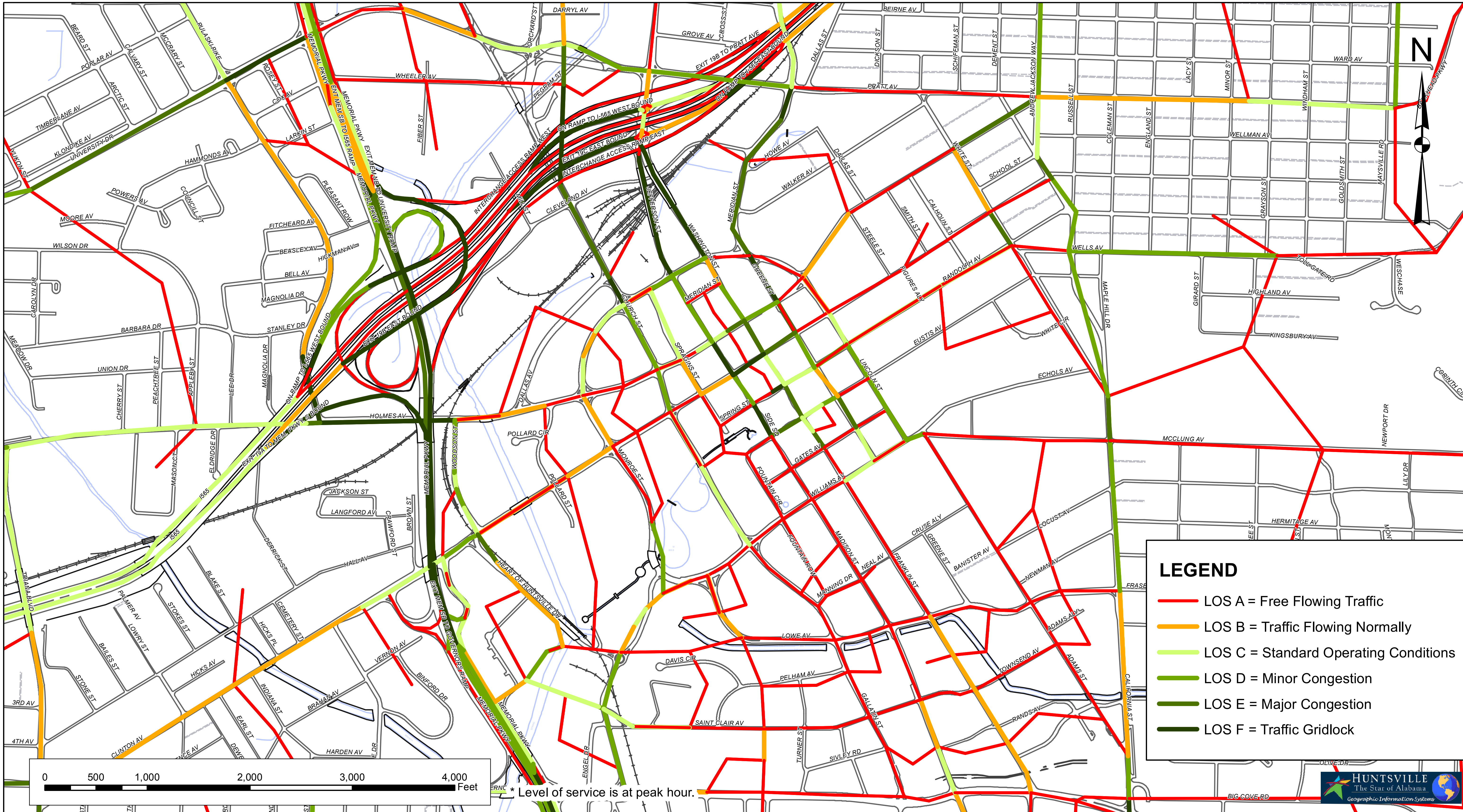
MAP 4-15
2035 NETWORK W/ SOUTHERN BYPASS AND MEMPHIS/ATLANTA HWY
TRAFFIC VOLUME MAP



MAP 4-16
2035 NETWORK W/ SOUTHERN BYPASS AND MEMPHIS/ATLANTA HWY
LEVEL OF SERVICE MAP



M A P 4 - 1 7
2 0 3 5 N E T W O R K W / S O U T H E R N B Y P A S S A N D M E M P H I S / A T L A N T A H W Y
L E V E L O F S E R V I C E M A P



Section 5

HIGHWAY PROJECT EVALUATION

5.0 SAFETEA-LU Planning Factors

The SAFETEA-LU legislation centers on the growing importance of operating, managing, and increasing the safety and security of the transportation system. This focus has been translated into eight broad "areas" to be considered, analyzed as appropriate, and reflected in the planning process. Table 5.1 lists the eight factors and explains how each factor is addressed in the Plan.

Table 5.1: SAFETEA-LU Planning Factors

Factor	How It Is Considered
1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency	Access to industrial parks, ports, airports, intermodal transportation facilities and military installations is provided by interstate highways and other local, state, and federal highways; all of which are included in the Long Range Plan (LRP) highway network. Projects are included in the LRP to reduce congestion and increase accessibility to these locations.
2. Increase the safety of the transportation system for motorized and non-motorized users	Safety projects are addressed in terms of transportation facilities used by all modes of transportation: motor vehicle, transit, bicycles, and pedestrian. Safety projects are included in the Congestion Management, Safety Management, and Security Element of the Plan. Additionally, transit safety is addressed. ITS and its application for network safety is also addressed. Safety is also addressed in the Plan under the Bicycle and Pedestrian/Greenways Element, in terms of the identification of projects dedicated for bike/ped purposes.
3. Increase the security of the transportation system for motorized and non-motorized users	Security of the transportation system is addressed in the Congestion Management, Safety Management, and Security Element of the plan. Transit security is also addressed. ITS and its application for network security is addressed.
4. Increase the accessibility and mobility of people and for freight	The Highway Element and the Congestion Management, Safety Management, and Security Element of the plan provide relief to traffic congestion. More accessibility and mobility options are provided through the Bicycle and Pedestrian/Greenway Facilities Element and Transit Element. Freight issues are being explored.
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns	The Plan includes Transportation Enhancement Activities. These are projects that improve the quality of life through funding bicycle, pedestrian, historic preservation and other projects that make communities more livable. The quality of life afforded by these projects encourages and enhances local planned growth and economic development.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight	Better integration of modes is addressed throughout the Plan. The International Intermodal Center, railroad, and trucking issues are included. In addition, the transit system operates from a transfer station.

Table 5.1: SAFETEA-LU Planning Factors *(Continued)*

Factor	How It Is Considered
7. Promote efficient system management and operation	The Plan promotes ITS as a means to encourage efficient management and operation of the transportation system.
8. Emphasize the preservation of the existing transportation system	Preservation of the existing transportation system is accomplished through upgrading and improving substandard and deficient facilities.

5.1 Consistency With Other Plans

There are general and specific directions under SAFETEA-LU (Section 6001) for the consistency requirement. 23 USC 134, Section 6001(a)(g)(3) states "The secretary shall encourage each metropolitan planning organization to consult with officials responsible for other types of planning activities……economic development, environmental protection, airport operations, and freight movements….to coordinate its planning process….with such planning activities. Under the metropolitan planning process, transportation plans and TIPs shall be developed with due consideration of other related planning activities…"

The MPO addresses this requirement by including planning, economic development, engineering, and other technical personnel from various levels of government on the Technical Coordinating Committee (TCC). In addition, the MPO consults with agencies and officials responsible for other planning activities within the Study Area that are affected by transportation when developing the long range transportation plan and Transportation Improvement Program (TIP). This includes Federal, State and Local agencies responsible for:

- Economic growth and development
- Environmental protection
- Airport operations
- Freight movement
- Land use management
- Natural resources
- Conservation
- Historic preservation
- Human service transportation providers

A contact list of these officials and agencies has been developed and is maintained, per the MPO's **Participation Plan for Transportation Planning in the Huntsville Urbanized Area,** found in **Appendix A, Policy 5** and **Policy 6** of this document. **Policy 5** specifically discusses consultation with other agencies and organizations to determine plan consistency, and **Policy 6** specifically discusses consultation with other agencies and organizations concerning environmental impacts.

A listing of all agencies and organizations contacted during this plan update and their responses are recorded in **Appendix B**. A formal request to these agencies is made to compare the draft long range transportation plan with their plans, maps, and inventories. Incorporating these key individuals in the transportation planning process allows for broad acknowledgement of

transportation planning and land use development activities at the local and regional level which can afford opportunities for cooperation and coordination. The spirit and intent of SAFETEA-LU 6001 are clear. In accordance with Public Law 109-59 policy provisions and subsequent agency interpretation, the metropolitan plan should acknowledge consistency with other plans that include transportation and land use components: Regional, Long Range, municipal and county Comprehensive and Master Plans (Airport, Multimodal, Transit, and Utility), Congestion Management Plans, Air Quality Conformity Determination, Freight, Bicycle/Pedestrian, Public Participation Process, and Environmental Plans.

5.2 SAFETEA-LU Requirements for Consultation and Environmental Mitigation

SAFETEA-LU requires State transportation agencies to consult with other agencies in order to eliminate or minimize conflicts with activities that could impact or be impacted by transportation. Furthermore, transportation decisionmakers must take into account the potential environmental impacts associated with a transportation plan or plan update, in order to mitigate those impacts. Locally, the actions to be taken concerning environmental mitigation and determining environmental impacts as related to the long range transportation plan is discussed in **Appendix A, Policy 6**.

Mitigation as defined by the National Environmental Policy Act (NEPA) is really a three-level concept. The first level is avoidance, and for transportation agencies, this could be as simple as choosing an alternative that avoids a sensitive resource, such as an historic site or a wetlands area.

The second level is minimization, which means that if avoidance is not possible, then the transportation agency takes action to minimize impact to the sensitive resource. For example, spanning a stream or wetlands area would have considerably less impact than re-channeling the stream or filling the wetlands.

The third level is mitigation, which means impact to a resource can't be avoided. Examples here include maintaining records of a historic structure that must be demolished and compensation for filled wetlands by debits from a wetlands "bank" either on-site or at some other location.

A few examples may illustrate how this hierarchy operates. Please note that for these resources there may be many more possible options to avoid, minimize or mitigate.

5.2.1 Wetlands

Wetland impacts require avoidance, minimization, or mitigation by Executive Order 11990, to the extent practical.

For these resources we first try to avoid by shifting alignments. When the wetlands are narrow, for example, stream bank wetlands, we may avoid by spanning both the stream and the wet areas adjacent. That assumes a reasonable cost to avoid.

We may minimize by such actions as:
- narrowing medians,
- constructing fill slopes as steep as warranted by geotechnical investigation,
- alignment shift that may not entirely miss the wetland, but lessen the impact, or
- partial bridging

While mitigation for State projects in Alabama can utilize credits purchased from an established wetland bank, on-site mitigation may be possible by, for example, enhancing the remaining portion of the wetland to function at a higher level. Restoration/enhancement efforts for isolated wetlands are usually successful only when involving simple actions like restoring water flow to a former wetland that has been drained.

5.2.2 Historic Property

Historic properties are protected by both Section 4(f) of the DOT Act of 1966 (as amended) and Section 106 of the Historic Preservation Act. Section 4(f) in particular creates a high standard to pass before we can say we cannot avoid ("use") the resource. Other resources, notably publicly owned recreational lands are also protected by Section 4(f).

Therefore we mandate fairly detailed consideration of shifts to either side of each individual resource as well as all protected resources. The costs and impacts associated with these avoidance alternatives must be substantial before FHWA can agree to use the resource.

Minimization for historic property can take the form of planting to screen the view of a modern facility, restoring (e.g.) a stone wall taken by the ROW, even moving a building that is historic for architectural reasons and restoring it in an appropriate location..

Mitigation of historic property taken can be in the form of archival quality (i.e. long-lasting) photographs or line drawings of the structure to be taken. A researched, written narrative of the historical importance of the resource may also be developed. In some cases parts of the structure (e.g. approach spans to a longer bridge) may be reused in another application.

5.2.3 Resources for Consultation and Environmental Mitigation

Considerations of potential environmental impacts associated with transportation projects include but are not limited to the following resources/issues, listed in **Table 5.2**:

Table 5.2: Resources for Consultation and Environmental Mitigation

Resource/Issue	Why Important	Regulatory Basis	Contact
HAZMAT Sites	Health hazards, costs, delays, liability for both State & federal projects on either existing or acquired right-of-way	State & federal law; Guidelines for Ops; ASTM E-1527	Phase-I: Design Bureau/ETS, phone 334-242-6154 Phase-II & III: Materials & Tests Bureau, phone 334-206-2284
Air Quality	Public health, welfare, productivity, and the environment are degraded by air pollution	Clean Air Act of 1970; 40 CFR Parts 51 & 93; State Implementation Plan	Design Bureau/ETS, phone 334-242-6147; PM-2.5 – Design Bureau/ETS, phone 334-242-6315
Noise	Noise can irritate, interrupt, and disrupt, as well as generally diminish the quality of life	Noise Control Act of 1972; ALDOT's highway Traffic Noise Analysis Policy and Guidance	Design Bureau/ETS, phone 334-242-6147 or 6828 or 6710
Wetlands	Flood control, wildlife habitat, water purification; applies to both State and federally funded projects	Clean Water Act of 1977; Executive Order 11990; 23 CFR 777	Design Bureau/ETS, phone 334-242-6145; US Army Corps of Engineers, phone 251-690-2658
Threatened and Endangered Species	Loss of species can damage or destroy ecosystems, to include the human food chain	Endangered Species Act of 1973; 7 CFR 355	Design Bureau/ETS, phone 334-242-6132; US Fish & Wildlife Service, phone 251-441-5181
Floodplains	Encroaching on or changing the natural floodplain of a water course can result in catastrophic flooding of developed areas	Executive Order 11988; 23 CFR 650; 23 CFR 771	Design Bureau/ETS, phone 334-242-6145; Bridge Bureau, phone 334-242-6598
Farmlands	Insure conversion compatibility with State and local farmland programs and policies	Farmland Protection Policy Act of 1981; 7 CFR 658	Design Bureau/ETS, phone 334-242-6150; Natural Resources Conservation Service (NRCS), phone 334-887-4500
Recreation Areas	Quality of life; neighborhood cohesion	Section 6(f) of the Land and Water Conservation Fund Act; Section 4(f) of the DOT Act of 1966 (when applicable); 23 CFR 771	Design Bureau/ETS, phone 334-242-6143 or 6152; Alabama Department of Economic and Community Affairs, phone 334-242-5363

Table 5.2: Resources for Consultation and Environmental Mitigation *(Continued)*

Resource/Issue	Why Important	Regulatory Basis	Contact
Historic Structures	Quality of life; preservation of the national heritage	National Historic Preservation Act of 1966 (Section 106); the DOT Act of 1966 [Section 4(f)]; 23 CFR 771; 36 CFR 800	Design Bureau/ETS, phone 334-242-6144 or 6225; Alabama Historical Commission, phone 334-230-2667
Archaeological Sites	Quality of life; preservation of national and Native American heritage	National Historic Preservation Act of 1966 (Section 106); the DOT Act of 1966 [Section 4(f)]; 23 CFR 771; Executive Order 13175	Design Bureau/ETS, phone 334-242-6144 or 6225; Alabama Historical Commission, phone 334-230-2667
Environmental Justice	To avoid, minimize, or mitigate disproportionately high impacts on minorities and low-income populations; basic American fairness	Title VI, Civil Rights Act of 1964; Executive Order 12898	Design Bureau/ETS, phone 334-242-6529 or 6576; right-of-way office in each respective ALDOT Division

In each of the examples given above, the first contact listed is the ALDOT's Design Bureau Environmental Technical Section (ETS), not because it is a "resource agency" as defined by federal regulations, but because it has the multidisciplinary experts who can guide the MPO through the early identification of impacts in the initial project planning and development stage. The sooner a potential environmental impact is identified, the more likely it can be avoided, minimized, or mitigated. Early contact with the ETS can insure timely consultation with all potentially affected stakeholders and compliance with provisions of the National Environmental Policy Act (NEPA) and its enforcing regulations.

5.3 Environmental Factors and Land Use

An overview of environmental factors and land use must be conducted to determine the viability of proposed projects. In order to assess the impacts of the planned transportation improvements in the area, the following environmental/land use factors were considered:

5.3.1 Air Quality

The Huntsville urban area is presently classified as an attainment area for all criteria pollutants [pollutants for which EPA has promulgated National Ambient Air Quality Standards (NAAQS) under the Clean Air Act]. In 2008, EPA lowered the ambient standard for ozone to 75 ppb (parts per billion) and Madison County was included on the list of recommended non-attainment areas submitted by the State of Alabama to EPA in March 2009. However, as of September 2009, it appeared that Madison County would attain the standard prior to designations being made with the inclusion of the data from the 2009 ozone season. EPA was scheduled to make the designations under the 2008 standard in March 2010, but has delayed the designation process pending further revisions to the ozone standard. In all likelihood the standard will be tightened further, and EPA has

indicated their intention to publish proposed revisions to the standard in December 2009, promulgate a final rule in August 2010, and designate areas as attainment or non-attainment under the revised standard in August 2011. Depending on the stringency of the revised standard, the Huntsville area could be designated as a non-attainment area in 2011.

The latest **Air Quality Report** (February 2009) published by the City of Huntsville's Department of Natural Resources, indicates that nearly 70% of the ozone precursor emissions (oxides of nitrogen and volatile organic compounds) in the area comes from mobile sources. While substantial reductions in emissions from individual vehicles have occurred due to Federal limitations on fuel volatility and national tailpipe emissions standards, increases in VMT (Vehicle Miles Traveled) have partially offset these reductions in many parts of the country. With stricter tail-pipe standards taking effect in 2004, and with imposition of tighter 2007 and 2010 diesel emissions standards, on-road emissions of ozone precursors should decrease in the coming years as a result of fleet turnover. However, further improvements in the transportation network to reduce congestion and improve connectivity are necessary to ensure these air quality benefits are actually realized.

5.3.1.1 Transportation Conformity

Transportation conformity is an analytical process required of MPOs in non-attainment and maintenance areas as a result of the Clean Air Act Amendments of 1990. SAFETEA-LU links compliance with conformity requirements to continued funding of transportation plans, programs and projects. States and MPOs must demonstrate, through the conformity process, that the transportation investments, strategies and programs they choose, taken as a whole, have air quality impacts consistent with the State Implementation Plan (SIP). Emissions from mobile sources may not exceed the SIP targets.

The State and MPO are responsible for deciding what transportation investments the area will make to attain the standards. Emissions reduction targets for mobile sources can be achieved through programs that address vehicle emissions (use of reformulated gasoline, implementation of inspection/maintenance programs), by changing how we travel (ridesharing or use of transit) or congestion mitigation programs (traffic signal synchronization).

5.3.1.2 CMAQ Funds

The Congestion Management and Air Quality (CMAQ) Program was reauthorized in SAFETEA-LU. The primary purpose of the CMAQ is to fund transportation projects and programs in non-attainment and maintenance areas which reduce transportation-related emissions. Over $8.61 billion dollars will be authorized nationwide over the 5-year program (2005-2009), with annual authorization amounts increasing each year during this period.

5.3.2 Cemeteries/Historic Properties

Cemeteries (public and private) were located using information from United States Geological Survey (USGS) Quad Maps and from a cemetery inventory map. Copies of the

USGS Quad Maps are kept on file in the City of Huntsville Planning Division Facility Inventory Data Base. A copy of the cemetery inventory map is located in the Huntsville/Madison County Public Library.

Historic properties are properties listed on or eligible for the National Register of Historic Places, and/or are designated as National Historic Landmarks and/or are located in a Locally Designated Historic District. This information is kept on file in the City of Huntsville Planning Division Facility Inventory database; however, information concerning eligible properties must be determined by field investigations conducted by qualified personnel.

5.3.3 Potential Protected and Protected Lands/Champion Trees

Potentially Protected and Protected Lands are from an inventory of properties that have been acquired by, or have been designated as having the potential to be acquired by, the non-profit Huntsville Land Trust.

Champion Trees are those trees that are considered to be of state and/or national significance due to their outstanding size. This information is available from the Alabama Forestry Commission.

5.3.4 Parks and Recreation/Landfills

The parks and recreation facilities inventoried include City of Huntsville neighborhood and community park and recreation facilities as well as Madison County park and recreation facilities. This information is kept on file in the City of Huntsville Planning Division Facility Inventory database.

The locations of the known landfills (licensed and unlicensed) were provided by the Environmental Services Division of the Madison County Health Department.

5.3.5 Topography

The topographical features of the study area (including slopes, mountains and depressions) were derived from USGS Quad Maps. Copies of these maps are kept on file in the City of Huntsville Planning Division Facility Inventory database.

5.3.6 Floodplains

The locations of the floodplains are designated by the Federal Emergency Management Agency (FEMA). Copies of the maps depicting the locations of the floodplains are kept on file in the City of Huntsville Planning Division Facility Inventory database.

5.3.7 Wetlands

The U.S. Fish and Wildlife Service designate the location of wetlands. Copies of the maps depicting the locations of the wetlands are kept on file in the City of Huntsville Planning Division Facility Inventory database.

5.3.8 Other

The locations of utility delivery points, universities, public properties, industrial parks, hospitals, water treatment plants, sewage treatment plants, and Redstone Arsenal facilities are found in this category. This information is kept on file in the City of Huntsville Planning Division Facility Inventory Data Base.

5.4 Environmental Mitigation and Climate Change

5.4.1 Federal Assessment

"According to the FHWA report Integrating Climate Change into the Transportation Planning Process, there is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) may be the predominant cause. The combustion of fossil fuels is by far the biggest source of GHS emissions. In the United States, transportation is the largest source of GHG emissions, after electricity generation. Within the transportation sector, cars and trucks account for a majority of emissions.

Opportunities to reduce GHG emissions from transportation include switching to alternative fuels, using more fuel efficient vehicles, and reducing the total number of miles driven. Each of these options requires a mixture of public and private sector involvement. Transportation planning activities, which influence how transportation systems are built and operated, can contribute to these strategies. In addition to contributing to climate change, transportation will likely also be affected by climate change. Transportation infrastructure is vulnerable to predicted changes in sea level and increases in severe weather and extreme high temperatures. Long-term transportation planning will need to respond to these threats."

Introduction to Integrating Climate Change into the Transportation Planning Process - Federal Highway Administration, Final Report, July 2008

5.4.2 Local Assessment

All corridors identified for improvement have been analyzed for environmental concerns, so that mitigation activities can be considered during the planning phase. Discussions are also held with other agencies as applicable to determine any environmental concerns regarding the overall proposed future plan network. It is hoped that through close coordination with the appropriate entities, that creative environmental mitigation strategies may be developed prior to the project design phase. The aggressive screening of projects, as shown in **Table 5.3**, can lead to various mitigation strategies that may achieve a balance between economic concerns and environmental stewardship. **Table 5.3** illustrates the proposed transportation improvements in relation to the environmental and land use factors listed in the previous section. While a more detailed study, such as the Environmental Assessment, is required once a project is selected for design and construction, the overview presented in this plan is only a brief synopsis of preliminary findings.

Table 5.3: Environmental and Land Use Factors per Project

	PROJECT	FROM	TO	WETLANDS	TOPOGRAPHY	FLOODPLAINS	FARMLANDS	RECREATION AREAS	HISTORIC STRUCTURES	NOISE	ENVIRONMENTAL JUSTICE
1	Ardmore Hwy-AL 53 (PH 1)	Research Park Blvd	Robins Rd	■		■	■			■	
2	Ardmore Hwy-AL 53 (PH 2)	Jeff Rd	McKee Rd	■							
3	Ardmore Hwy-AL 53 (PH 3)	North of Harvest Rd	Tennessee State Line	■							
4	Balch Rd	Browns Ferry Rd	Gooch Ln			■					
5	Balch Rd	Capshaw Rd	Gooch Ln			■					
6	Balch Rd Extension	Browns Ferry Rd	Madison Blvd			■					
7	Beadle Lane	Swancott Rd	Zierdt Rd	■		■	■				
8	Blake Bottom Road	Jeff Rd	Research Park Blvd.	■		■					
9	Brock Rd	U.S. 72 East	Ryland Pike								
10	Browns Ferry Rd	Mooresville Rd	County Line Rd	■							
11	Capshaw Rd	Jeff Rd	Old Railroad Bed Rd			■					
12	Church St	Monroe St	Oakwood Ave								
13	Dug Hill Rd	Broad Armstrong Dr	U.S. 431								
14	Eastern Bypass (PH 2)	Quarter Ln	U.S. 72 East	■		■				■	
15	Eastview Dr	Slaughter Rd	Hughes Rd								
16	Eastview Dr Extension	Hughes Rd	Sullivan St								
17	Green Brier Rd/Powell Rd Ext	North of I-565	U.S. 72 West			■	■				
18	Hobbs Island Rd	U.S. 231	U.S. 431			■					
19	Homer Nance Rd	Jordan Rd	Winchester Rd								
20	Hughes Road	Old Madison Pike	U.S. 72 West								
21	Hughes Road Extension	U.S. 72 West	Wall Triana Rd								
22	I-565	Interstate 65	Wall Triana Hwy								
23	I-565	Oakwood Ave	High Mtn Road		■						
24	I-565 Interchange	County Line Rd					■				
25	I-565 Interchange	Greenbrier Rd									
26	Jeff Rd (Ph 1)	University Dr	Capshaw Rd			■					
27	Jeff Rd (Ph 2)	Capshaw Rd	Douglass Rd	■							
28	Jeff Rd (Ph 3)	Douglass Rd	AL Hwy 53	■							
29	Johns Road	Plummer Rd	Old Monrovia Rd	■			■				
30	Jordan Rd (Ph 1)	Homer Nance Rd	U.S. 72 East								
31	Jordan Rd (Ph 2)	Moores Mill Rd	Homer Nance Rd			■					
32	King Drake Rd - 431 Connector	King Drake Rd	U.S. 431								
33	Martin Rd	Zierdt Rd	Laracy Dr	■							
34	Martin Rd	Zierdt Rd	Rideout Rd								
35	Maysville Rd Connector	Maysville Rd	Epworth Dr								
36	Memorial Parkway	N. of Whitesburg-S. of Golf Rd								■	
37	Memorial Parkway	Mastin Lake Rd								■	
38	Memorial Parkway	Winchester Rd								■	
39	Memorial Parkway	Meridianville Bottom Rd								■	
40	Memorial Parkway	Patterson Ln								■	
41	Memorial Parkway	N. of Whitesburg-S. of Golf Rd								■	
42	Memorial Parkway	Mtn. Gap Rd/Hobbs Rd								■	
43	Memorial Parkway	Green Cove Rd				■				■	
44	Memorial Parkway	Hobbs Island Rd		■		■				■	
45	Memphis to Atlanta Hwy	I-65	I-565								
46	Memphis to Atlanta Hwy	Southern Bypass	Marshall County Limits	■	■	■					
47	Meridian St (PH 1)	Winchester Rd	Memorial Parkway								
48	Meridian St (PH 2)	Oakwood Ave	Pratt Ave								
49	Mill Rd	County Line Rd	Hughes Rd	■							
50	Moontown Rd	Ryland Pike	U.S. 72 East								
51	Moores Mill Rd	Winchester Rd	Northern Bypass								
52	Mt Lebannon	Grimwood Rd	Northern Bypass								
53	Nance Rd	University Dr	Capshaw Rd								
54	Northern Bypass (PH 2)	East of Pulaski Pike	U.S. 231		■		■			■	
55	Northern Bypass (PH 3)	U.S. 231	Moores Mill Rd		■		■			■	
56	Northern Bypass (PH 4)	Moores Mill Rd	Winchester Rd		■		■			■	
57	Northern Bypass (PH 5)	Winchester Rd	U.S. 72 East		■		■			■	
58	Oakwood Rd	Adventist Blvd	Old Monrovia Rd			■					
59	Old 431 Hwy	Highway 431	Wilson Mann Rd						■		
60	Old Big Cove Rd	Hwy 431	Sutton Rd	■	■	■	■				
61	Old Big Cove Rd	South Green Mountain Rd	Hwy 431				■				
62	Old Hwy 20	Greenbrier Rd	County Line Rd								
63	Old Madison Pike	Thornton Industrial Park	Slaughter Rd		■	■					
64	Old Madison Pike	Hughes Rd	Slaughter Rd								
65	Old Railroad Bed Rd (PH 1)	U.S. 72 West	Capshaw Rd				■				
66	Old Railroad Bed Rd (PH 2)	Capshaw Rd	AL Hwy 53				■				
67	Patton Rd	Aerobee Rd	Redstone Rd								
68	Plummer Rd	Research Park Blvd	Indian Creek Rd			■					
69	Portal Ln Extension	Shelton Rd	Zierdt Rd Extension								
70	Powell Rd	Powell Rd	Brownsferry Rd	■			■				
71	Research Blvd and Interchanges	I-565	Ardmore Hwy - AL 53								

	PROJECT	FROM	TO	WETLANDS	TOPOGRAPHY	FLOODPLAINS	FARMLANDS	RECREATION AREAS	HISTORIC STRUCTURES	NOISE	ENVIRONMENTAL JUSTICE
72	Ryland Pike	U.S. 72	Northern Bypass								
73	Shelton Rd	Madison Blvd	1/4 mi N. of Madison Blvd			■					
74	Shields Rd	Jordan Rd	Winchester Rd			■					
75	Slaughter Road	Madison Blvd	U.S. 72 West	■					■		
76	Southern Bypass (PH 1)	I-565	Martin Rd	■							
77	Southern Bypass (PH 2)	Martin Rd	Weatherly Rd Ext			■					
78	Southern Bypass (PH 3)	Weatherly Rd Ext	U.S. 231								
79	Sullivan St	Royal Dr	Front St							■	
80	Swancott Rd	I-565	County Line Rd								
81	U.S. 72 East/ARC Corr V	Moores Mill Rd & Shields Rd								■	
82	U.S. 72 East/ARC Corr V	Jordan Rd Extended		■			■			■	
83	U.S. 72 East/ARC Corr V	Moontown Rd		■			■			■	
84	U.S. 72 East/ARC Corr V	Brock Rd		■			■			■	
85	U.S. 72 East/ARC Corr V	Eastern Bypass		■						■	
86	U.S. 72 East/ARC Corr V Interchange	High Mountain Rd			■					■	
87	U.S. 72/University Dr	Providence Main Blvd	County Line Rd								
88	U.S. 72/University Dr	County Line Rd	Mooresville Rd	■							
89	Wall Triana Hwy	Mill Rd	U.S. 72 West								
90	Wall Triana Hwy	U.S. 72 West	Capshaw Rd				■				
91	Wall Triana Hwy	Capshaw Rd	Yarborough Rd			■	■				
92	Weatherly Rd Extension	Memorial Parkway	Southern Bypass	■		■					
93	Winchester Rd (PH 2)	Dominion Cr	Naugher Rd								
94	Winchester Rd (PH 3)	Naugher Rd	Bell Factory Rd				■				
95	Winchester Rd (PH 4)	Bell Factory Rd	State Line		■		■				
96	Zierdt Rd (PH 1)	Madison Blvd	South of Martin Rd			■					
97	Zierdt Rd (PH 2)	South of Martin Rd	Beadle Ln	■		■					
98	Zierdt Rd Ext	1/4 mi N. of Madison Blvd	Old Madison Pike			■					
99	Zierdt Rd/Kellner Rd Corridor	Kellner Rd	Zierdt Rd		■	■					

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Section 7

BICYCLE AND PEDESTRIAN/GREENWAY FACILITIES ELEMENT

7.0 Introduction

Bicycling and walking are viable transportation alternatives throughout many communities within the north Alabama region. Whether for commute or recreational enjoyment, the Huntsville Area Metropolitan Planning Organization (MPO) understands the importance of these activities to ones health, safety and general welfare. Therefore, the Huntsville Area MPO is committed to improving bicycle and pedestrian conditions throughout the region and has adopted bicycle and pedestrian plans aimed at increasing the awareness and benefits of non-motorized modes of travel.

The **Year2035 Transportation Plan** references the bicycle and pedestrian plans adopted by the Huntsville Area MPO. These plans include existing and proposed projects throughout the Huntsville MPO study area and are published as elements of the 2035long range transportation plan in separate documentation. The City of Madison adopted the **City of Madison Greenway and Trail Master Plan** in February 2003 and just recently the City of Huntsville, coordinating with neighboring communities in the MPO study area, adopted the **City of Huntsville Bikeways Plan 2006**and the **City of Huntsville Greenways Plan 2006**.

To encourage the use of alternative means of transportation, these plans collectively will feature linked transportation facilities for bicyclists and pedestrians, encourage community-wide support of educational programs, and promote coordinated bicycle and pedestrian programs and services. The ultimate goal of the Huntsville Metropolitan Planning Area Bicycle and Pedestrian Plan, as shown in **Map 7.1** is to provide bicyclists and pedestrians with a countywide system of non-motorized corridors for safe travel and recreational enjoyment.

7.1 Requirementsfor Bicycle and Pedestrian Travel

Both the Federal Highway Administration (FHWA) and the MPO have established requirements for bicycle and pedestrian travel.

7.1.1 FHWA Requirements

According to FHWA, MPOs must consider at a minimum, accommodating bicycle and pedestrian needs as identified below:

- 23 United States Code 217 states that "Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State."

- FHWA guidance on this issue states that "due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and

pedestrians will be accommodated in the design of new and improved transportation facilities. In the planning, design, and operation of transportation facilities, bicyclists and pedestrians should be included as a matter of routine, and the decision not to accommodate them should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

Exceptional circumstances are defined below:

- If bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, an effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right-of-way or within the same transportation corridor.

- If the cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project. This twenty percent figure should be used in an advisory rather than an absolute sense.

- Where sparsity of population or other factors indicate an absence of existing and future need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings, or the street has severe topographic or natural resource constraints.

In order to comply with these requirements, the MPO long range transportation plans must, at a minimum:

- Consider the context of the project setting. In other words, MPOs should consider whether the general project area includes features like neighborhoods, shopping, schools, transit, or other facilities likely associated with the needs of bicyclists or pedestrians;

- Consider any evidence of existing, informal bicycle-pedestrian activities. An example could be a worn, dirt path along an existing road;

- Consider any reference to bicycle or pedestrian needs in the planning process for the project area;

- Consider public, agency, or other comments requesting such facilities;

- Include maps and other appropriate documentation; e.g., project listing tables, identifying specific bicycle-pedestrian projects proposed in the long range transportation plan. The maps and documentation should be consistent with the treatment of traditional "highway" projects in the long range transportation plan; and

- Include a policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.

7.1.2 Additional Huntsville MPO Requirements

The Huntsville Area MPO has carefully considered the appropriateness of the areas designated for bicycle and pedestrian travel. When planning for new construction and the reconstruction of transportation facilities, the MPO gives full consideration to non-motorized transportation facilities designed for bicyclists and pedestrians. Examples include, but are not limited to the following:

- Sidewalks are required on both sides of newly constructed or widened streets.
- Sidewalk construction shall be required at the time of construction or widening.
- All new roads designed with shoulders will be required to have smooth, paved shoulders.Rumble strips will be optionally applied, if necessary, not to interfere with bicycle use of shoulders.

7.2 List of Planned Bicycle and Pedestrian Projects

In addition other factors are considered in the feasibility of bicycle and pedestrian projects. These factors include traffic volume, connectivity, cost, land acquisition and safety. Currently, the Huntsville Area MPO has federal and local funds allocated for planned transportation enhancement projects aimed at increasing the quality of life for bicyclists and pedestrians. The City of Huntsville, through capital funding, allocates $200,000 per year in sidewalk construction and sidewalk improvement projects. **Table 7.1** displays the Huntsville MPO future transportation projects in the **Year 2035 Transportation Plan** and how these projects will address or consider bicycle and pedestrian travel.The projects identified in **Section 4,** for which bicycle and pedestrian use are considered, are reflected in **Table 7.1.** M&O projects, or maintenance and operation projects are displayed in this section as well. These projects include the installation of bicycle route signs in order to accommodate bicyclists. **Table 7.2** displays the sidewalk improvement projects that are associated with capacity adding roadway improvements listed in **Section 4**as well as thegreenway projects that are committed in the MPO area. Please note that additional projects are reflected in **Tables 7.1** and **7.2** that are not associated with planned road improvements shown in **Section 4**.

Projects listed in **Table 7.1**and **Table 7.2** are identified as paved bike lanes, share the road/bike routes, sidewalks, and greenways (shared use paths). These projects can be further defined as follows:

- Paved Bike Lane: A corridor expressly reserved for bicycles existing on a street or roadway in addition to any lanes for motorized vehicles.

- Share the Road/Bike Routes: A facility shared with motorists and identified only by signs. A bicycle route has no pavement markings or lane stripes.A street which is recommended for bicycle use but does not have a specific area designated within the right of way.

- Sidewalk:An improved pedestrian surface that is typically located adjacent to a roadway.

- Greenway (Shared Use Path):A linear park, alternative transportation route, or open space conservation area that provides passive recreational opportunities for pedestrian and/or bicycle paths.

All paved bike lanes, share the road/bike routes, and sidewalks will be constructed on both sides of the street. Greenways or shared use paths will be constructed on one side of the street, or will provide a single transportation route beside or near the planned road improvements listed in **Section 4**. Additional details concerning the exact placement of greenways will not be known until engineering design can begin.

Several corridors listed in **Section 4** do not have bicycle or pedestrian facilities associated with their improvement because the projects were under engineering design prior to the FHWA policy regarding the construction of bicycle/pedestrian facilities. These projects are nearing the right of way acquisition phase or utility relocation phase. Paved bike lanes are planned for these locations, but pedestrian facilities are not. These corridors are as follows:

Map No. (Pg. 4-2)	Project Description
1	Ardmore Hwy-AL 53 from Research Park Blvd to Jeff Rd
2	Ardmore Hwy-AL 53 from Jeff Rd to North of Harvest Rd
63	Old Madison Pike from Thornton Industrial Park to Slaughter Road

As mentioned in **Section 4,** several corridors have been identified that cannot accommodate bicycles and pedestrians because the corridor is a limited access or controlled access roadway, or are U.S. routes and carry high volumes of traffic. The cost of constructing the *appropriate* bicycle and pedestrian facilities for these corridors is either legally impossible or cost prohibitive at the present time.

These following corridors are limited or controlled access facilities and do not include bicycle/pedestrian accommodation due to these special circumstances:

Map No. (Pg. 4-2)	Project Description
22	I-565 from Interstate 65 to Wall Triana Highway
23	I-565 Interstate from Oakwood Avenue to High Mo9untain Rd
24	I-565 Interchange at County Line Rd
25	I-565 Interchange @ Greenbrier Rd
45	Memphis to Atlanta Highway from I-65 to I-565
46	Memphis to Atlanta Highway from Southern Bypass to Marshall County Limits
71	Research Park Blvd and Interchanges from I-565 to Ardmore Highway – AL 53
76	Southern Bypass Ph 1 from I-565 to Martin Rd
77	Southern Bypass Ph 2 from Martin Rd to Weatherly Rd Extension
78	Southern Bypass Ph 3 from Weatherly Rd Extension to U.S 231
92	Weatherly Rd Extension from Memorial Parkway to Southern Bypass

These following corridors are U.S. Routes and carry large volumes of traffic. The cost of constructing appropriate bicycle and pedestrian facilities for these corridors is cost prohibitive at the present time:

Map No. (Pg. 4-2)	Project Description
36	Memorial Parkway Interchange from No. of Whitesburg-So. of Golf Rd @ U.S. 231 South
37	Memorial Parkway Interchange at Mastin Lake Rd
38	Memorial Parkway Interchange at Winchester Road
39	Memorial Parkway Interchange at Meridianville Bottom Rd
40	Memorial Parkway Interchange at Patterson Ln
41	Memorial Parkway Interchange at Walker Ln
42	Memorial Parkway Interchange at Mtn. Gap/Hobbs Rd
43	Memorial Parkway Interchange at Green Cove Rd
44	Memorial Parkway Interchange at Hobbs Island Rd
81	U.S. 72 East/Corridor V Interchange at Moores Mill and Shields Rd
82	U.S. 72 East/Corridor V Interchange at Jordan Rd Extended
83	U.S. 72 East/Corridor V Interchange at Moontown Rd
84	U.S. 72 East/Corridor V Interchange at Brock Rd
85	U.S. 72 East/Corridor V Interchange at Eastern Bypass
86	U.S. 72 East/Corridor V Interchange at High Mountain Rd
87	U.S 72/University Dr from Providence Main Blvd to County Line Rd
88	U.S. 72/University Dr from County Line Rd to Mooresville Rd

Table 7.1: Summary of Committed and Future Bicycle Facilities Projects Within the MPO Study Area

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ ***Proposed Paved Bike Lanes***					
1	N/A	Ardmore Hwy-AL 53 (Ph 1)	City of Huntsville	Capacity	Provide bike lanes from Research Park Blvd to Robins Rd
2	N/A	Ardmore Hwy-AL 53 (Ph 2)	City of Huntsville	Capacity	Provide bike lanes from Jeff Road to McKee Road
3	N/A	Ardmore Hwy-AL 53 (Ph 3)	City of Huntsville	Capacity	Provide bike lanes from North of Harvest Rd to Tennessee State Line
7	20	Beadle Lane	City of Huntsville	Capacity	Provide bike lanes from ZierdtRd to Swancott Rd
8	72	Blake Bottom Rd	City of Huntsville	Capacity	Provide bike lanes from Jeff Rd to Research Park Blvd
9	74	Brock Rd	City of Huntsville	Capacity	Provide bike lanes from US 72E to Ryland Pike
10	21	Browns Ferry Rd	City of Huntsville	Capacity	Provide bike lanes from Mooresville Rd to County Line Rd
11	64	Capshaw Rd	City of Huntsville	Capacity	Provide bike lanes from Jeff Rd to County Line Rd
14	30	Eastern Bypass (Ph 2)	City of Huntsville	Capacity	Provide bike lanes from Quarter Ln to U.S. 72 East
17	11	Greenbriar Rd/ Powell Rd Ext	City of Huntsville	Capacity	Provide bike lanes from North of I-565 to US-72W
18	69	Hobbs Island Rd	City of Huntsville	Capacity	Provide bike lanes from US- 231 to US-431
21	21	Hughes Rd Ext	City of Madison	Capacity	Provide bike lanes from US 72 West to Wall Triana Highway
26	25	Jeff Road Ph 1	City of Huntsville	Capacity	Provide bike lanes from University Dr to Capshaw Rd
27	25	Jeff Road Ph 2	Madison County	Capacity	Provide bike lanes from Capshaw Rd to Douglass Rd
28	25	Jeff Road Ph 2	Madison County	Capacity	Provide bike lanes from Douglass Rd to AL Hwy 53
29	31	Johns Rd	City of Huntsville	Capacity	Provide bike lanes from Plummer Rd to University Dr
30	73	King Drake Road- US 431 Connector	City of Huntsville	Capacity	Provide bike lanes for new road construction from Old Big Cove Rd to King Drake Rd
31	30	Martin Rd	City of Huntsville	Capacity	Provide bike lanes from Zierdt Rd to Laracy Dr
32	30	Martin Rd	City of Huntsville	Capacity	Provide bike lanes from Zierdt Rd to Rideout Rd
47	69	Meridian St	City of Huntsville	Capacity	Provide bike lanes from Winchester Road to Memorial Parkway
48	69	Meridian St Ph 1	City of Huntsville	Capacity	Provide bike lanes from Oakwood Ave to Pratt Ave
50	75	Moontown Rd	City of Huntsville	Capacity	Provide bike lanes from Ryland Pike to US 72E
51	78A	Moores Mill Rd	City of Huntsville	Capacity	Provide bike lanes from Winchester Rd to Northern Bypass

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ ***Proposed Paved Bike Lanes***					
52	57	Mount Lebanon	City of Huntsville	Capacity	Provide bike lanes from Grimwood Rd to Northern Bypass
53	64A	Nance Rd	City of Huntsville	Capacity	Provide bike lanes from University Dr to Capshaw Rd
54	80	Northern Bypass Ph 2	City of Huntsville	Capacity	Provide bike lanes from East of Pulaski Pike to US 231 N
55	80	Northern Bypass Ph 3	City of Huntsville	Capacity	Provide bike lanes from US 231 N to Moores Mill Rd
56	80	Northern Bypass Ph 4	City of Huntsville	Capacity	Provide bike lanes from Moores Mill Rd to Winchester Rd
57	80	Northern Bypass Ph 5	City of Huntsville	Capacity	Provide bike lanes from Winchester Road to US 72E
58	64	Oakwood Rd	City of Huntsville	Capacity	Provide bike lanes from Adventist Blvd to Research Park Blvd
59	81	Old Hwy 431	City of Huntsville	Capacity	Provide bike lanes from US 431 S to North of Wilson Mann Rd
60	71	Old Big Cove Rd	City of Huntsville	Capacity	Provide bike lanes from US 431 S to Sutton Rd
61	71	Old Big Cove Rd	City of Huntsville	Capacity	Provide bike lanes from South Green Mountain Road to Hwy 431
62	20	Old Hwy 20	City of Huntsville	Capacity	Provide bike lanes from Greenbriar Rd to County Line Rd
63	50	Old Madison Pike	City of Huntsville	Capacity	Provide bike lanes from Thornton Industrial Park to Slaughter Rd
65	15	Old Railroad Bed Rd Ph 1	City of Huntsville	Capacity	Provide bike lanes from U.S 72 W to Capshaw Rd
66	15	Old Railroad Bed Rd Ph 2	City of Huntsville	Capacity	Provide bike lanes from Capshaw Road to AL Hwy 53
67	N/A	Patton Rd	City of Huntsville	Capacity	Provide bike lanes from Aerobee Rd to Redstone Rd
68	70	Plummer Rd	City of Huntsville	Capacity	Provide bike lanes from Research Park Blvd to Indian Creek Rd
70	11	Powell Rd	City of Huntsville	Capacity	Provide bike lanes from Powell Rd to Browns Ferry Rd
72	70	Ryland Pike	City of Huntsville	Capacity	Provide bike lanes from US 72 E to Northern Bypass
74	74A	Shields Rd	City of Huntsville	Capacity	Provide bike lanes from Jordan Ln to Winchester Rd
75	25	Slaughter Rd	City of Huntsville	Capacity	Provide bike lanes from Madison Blvd to US 72W
80	20	Swancott Rd	City of Huntsville	Capacity	Provide bike lanes from I-565 to County Line Rd
90	19	Wall Triana Highway	City of Madison	Capacity, Maintenance & Operations	Provide bike lanes and install “Share the Road” signage from US 72 W to Capshaw Rd

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ ***Proposed Paved Bike Lanes***					
91	19	Wall Triana Highway	City of Madison	Capacity, Maintenance & Operations	Provide bike lanes and install "Share the Road" signage from Capshaw Rd to Yarborough Rd
93	76	Winchester Rd Ph 2	City of Huntsville	Capacity	Provide bike lanes from Dominion Cr to Naugher Rd
94	76	Winchester Rd Ph 3	City of Huntsville	Capacity	Provide bike lanes from Naugher Rd to Bell Factory Rd
95	76	Winchester Rd Ph 4	City of Huntsville	Capacity	Provide bike lanes from Bell Factory Rd to Maysville Rd
■ ***Proposed Share the Road/Bike Route Projects***					
6	17	Balch Rd Ext	City of Madison	Maintenance & Operations	Install "Share the Road" signage from Browns Ferry Rd to Madison Blvd
12	59A	Church St	City of Huntsville	N/A	Bike route already exists from Monroe Street to Oakwood Ave
13	52	Dug Hill Rd	City of Huntsville	N/A	Bike route already exists from 431 to Broad Armstrong
99	N/A	Zierdt Rd/Kellner Rd Corridor	City of Madison	Capacity	Install 'Share the Road" signage along extended Kellner Rd to Zierdt Rd
19	69A	Homer Nance Rd	Madison County	Maintenance & Operations	Install "Share the Road" signage from Jordan Rd to Winchester Rd
20	21	Hughes Rd	City of Madison	Maintenance & Operations	Install "Share the Road" signage from Madison Blvd to US 72W
30	74	Jordan Rd Ph 1	Madison County	Maintenance & Operations	Install "Share the Road" signage from Homer Nance Rd to US 72 East
31	75	Jordan Rd Ph 2	Madison County	Maintenance & Operations	Install "Share the Road" signage from Moores Mill Rd to Homer Nance Rd
35	70	Maysville Rd Connector	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Maysville Rd to Epworth Dr
64	50	Old Madison Pike	City of Madison	Maintenance & Operations	Install "Share the Road" signage from Hughes Rd to Slaughter Rd
N/A	50	Drake Ave	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Memorial Parkway to Garth Rd
N/A	69	Garth Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Drake Ave to Four Mile Post Rd
N/A	73	Terry Drake Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Old Big Cove Rd to Taylor Rd
N/A	73	Taylor Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Sutton Rd to Terry Drake Rd
N/A	73	James Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Sutton Rd to Miller Ln

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ *Proposed Share the Road/Bike Route Projects*					
N/A	73A	Miller/ Caldwell Ln	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from James Rd to King Drake Rd
N/A	22	Mountain Gap Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Memorial Parkway to Todd Mill Rd
N/A	52	Dug Hill Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from US 431S to King Drake Rd
N/A	52	Dug Hill Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from US 72 E south to Caldwell Ln
N/A	70	Plummer Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Indian Creek Rd to Jordan Ln
N/A	70	Grizzard Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Jordan Ln to Brookline Dr
N/A	70	Chapman Dr	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Rueben Dr to Gladstone Dr
N/A	15	County Line Rd	City of Madison	Maintenance & Operations	Install "Share the Road" signage from US 72W to Madison Blvd
N/A	24	Gillespie Rd	City of Madison	Maintenance & Operations	Install "Share the Road" signage from County Line Rd to Hughes Rd
N/A	N/A	Palmer Rd	City of Madison	Maintenance & Operations	Install "Share the Road" signage from County Line Rd to Balch Rd extension
N/A	N/A	Kellner Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Wall Triana Hwy to beginning of Kellner Rd's Extension
N/A	19	Sullivan St	City of Madison	Maintenance & Operations	Install "Share the Road" signage from Dublin St to Mill Rd
N/A	25	Zierdt Rd, Shelton Rd Ext.	City of Madison	Maintenance & Operations	Install "Share the Road" signage from Madison City Limits to Old Madison Pike
N/A	69	Bailey Cove Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Four-Mile Post Rd south to Hobbs Island Rd
N/A	53	Bell Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Redstone Rd south to Green Cove Rd
N/A	31	Johns Rd, Enterprise Way, Explorer Blvd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Old Monrovia to Old Madison Pike
N/A	64	Oakwood Ave, High Mountain Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Maysville Rd to High Mountain Rd
N/A	51	Maysville Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from US72E South to Pratt Ave
N/A	69	Green Cove Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Bailey Cove west to Bell Rd

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ ***Proposed Share the Road/Bike Route Projects***					
N/A	60	Monroe Street, Green Cove Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Monroe St south on Church/ Gallatin, south on Bonita/Hastings/Homewood/ Chateau/ Queensbury/ Cadillac/Todd Mill/ Chaney Thompson Rd to Green Cove Rd
N/A	30	Four Mile Post, Cecil Ashburn Way, Sutton Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs Whitesburg east to Old 431 South
N/A	50	Old Madison Pike	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Wynn Dr east to 9th Ave to Seminole Dr
N/A	51	Cedar St, Gladstone Dr	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Cedar St, north on Alpine, east on Holly Ave, north on Triana Blvd, northeast on Hall Ave, south on Derrick St, east on Clinton Ave, north on Maysville Rd to Gladstone Dr
N/A	74	Chase Rd, Jordan Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Meridian St east to Homer Nance Rd
N/A	76	Winchester Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Pulaski Pike east to Moores Mill Rd
N/A	60	Bankhead Parkway	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Maysville Rd east to Nolen Ave
N/A	22	Mountain Gap Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Bailey Cove west thru Memorial Parkway to English Dr west to St. Alban Dr
N/A	60A	Farrow Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Slaughter Rd east to Explorer Blvd to Voyager Way
N/A	70	Old Gurley Rd, Harris Hill, Mastin Lake Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from US 72E west to Maysville Rd south to Quietdale Ave, west to Max Luther Dr to Blue Spring Road, north on Millbrook to Broadview/Pulaski Pike, north to Grizzard Rd , north to Mastin Lake Rd
N/A	74	Dan Tibbs Rd, Stringfield Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Indian Creek Rd east to Blue Springs Rd
N/A	40	Patton Rd, ChadwellDr	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Patton Rd , east on Telstar Cr, east on Centaur Blvd, north on Squaw Valley, east on GrundenDr, north in Conger Rd, north on McCalley Pl, east on Village Dr, south on Triana Blvd, east on Johnson Rd, east on Airport Rd, south on Balmoral, east on Breckenridge Dr to ChadwellDr

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-17)	Project	Jurisdiction	Project Type	Project Description
■ ***Proposed Share the Road/Bike Route Projects***					
N/A	69	Wade Mtn. Preserve-Aldridge Creek	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Hollow Rd south on Meridian/Greene/Franklin and Hastings, east on Drake, south on Garth, east on Four Mile Post to Bailey Cove, south to Mountain Gap
N/A	74	Governors House Dr-Stringfield Rd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Sparkman Dr, east on Technology Dr, north on South Loop Rd, east on Putnam Dr, north on Jordan Ln, east on Sparkman Dr, north on Aspen Dr, north on Grizzard Rd, north on Rosedale Dr to Stringfield Rd
N/A	49	Village Dr/Holmes Ave	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Village Dr, north on McCalley Pl, east on Archer Dr, north on Lemley Pl, east on Drake Ave, north on Alpine Dr, west Gesman Pl, north on Atlantic St, west on 10th Ave and north on 14th St to Holmes Ave

■ All Proposed Bike Lane and Proposed Share the Road/Bike Route Projects are shown on **Map 7.1**. Bicycle facilities that are associated with proposed road improvements are indicated by map number. As mentioned in this Section, additional bicycle facility projects have been identified that do not correlate directly with proposed road improvement projects.

All projects highlighted in blue are financially constrained projects. All projects highlighted in red are visionary projects. The cost of constructing bike lanes and/or providing signage for the above projects have already been incorporated in the total cost of the road improvement projects shown on page 4-2. Project costs are detailed in **Section 10**. The cost of constructing bike lanes or providing signage for the above projects not associated with any road improvement listed on page 4-2 is provided as well in **Section 10**.

Table 7.2:Summaryof Committed and Future Pedestrian Enhancement Projects Within the MPO Study Area

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description
Sidewalks				
3	Ardmore Hwy-AL 53 Ph 3	City of Huntsville	Capacity	Provide sidewalks from North of Harvest Rd to Tennessee State Line
6	Balch Rd Ext	City of Madison	Capacity	Provide sidewalks from Browns Ferry Rd to Madison Blvd
7	Beadle Ln	City of Huntsville	Capacity	Provide sidewalks from Zierdt Rd to Swancott Rd
8	Blake Bottom Rd	City of Huntsville	Capacity	Provide sidewalks from Jeff Rd to Research Park Blvd
9	Brock Rd	City of Huntsville	Capacity	Provide sidewalks from US 72E to Ryland Pike
10	Browns Ferry Rd	City of Huntsville	Capacity	Provide sidewalks from Mooresville Rd to County Line Rd
11	Capshaw Rd	City of Huntsville	Capacity	Provide sidewalks from Jeff Rd to County Line Rd
12	Church St	City of Huntsville	Capacity	Provide sidewalks from Monroe St to Oakwood Ave
13	Dug Hill Rd	City of Huntsville	Capacity	Provide sidewalks from Broad Armstrong Dr to U.S. 431
14	Eastern Bypass Ph 2	City of Huntsville	Capacity	Provide sidewalks from Quarter Ln to U.S. 72 East
17	Greenbriar Rd/ Powell Rd Ext	City of Huntsville	Capacity	Provide sidewalks from North of I-565 to US-72W
18	Hobbs Island Rd	City of Huntsville	Capacity	Provide sidewalks from US- 231 to US-431
19	Homer Nance Rd	Madison County	Capacity	Provide sidewalks from Jordan Rd to Winchester Rd
20	Hughes Rd	City of Madison	Capacity	Provide sidewalks from Old Madison Pike to U.S 72 East
21	Hughes Rd Ext	City of Madison	Capacity	Provide sidewalks from US 72 West to Wall Triana Hwy
26	Jeff Rd Ph 1	City of Huntsville	Capacity	Provide sidewalks from University Dr to Capshaw Rd
27	Jeff Rd Ph 2	Madison County	Capacity	Provide sidewalks from Capshaw Rd to Douglass Rd
28	Jeff Road Ph 3	Madison County	Capacity	Provide sidewalks from Douglass Rd to AL Hwy 53
29	Johns Rd	City of Huntsville	Capacity	Provide sidewalks from Plummer Rd to University Dr
30	Jordan Rd Ph 1	Madison County	Capacity	Provide sidewalks from Homer Nance Rd to US 72 East
31	Jordan Rd Ph 2	Madison County	Capacity	Provide sidewalks from Moores Mill Rd to Homer Nance Rd
32	King Drake Rd- US 431 Connector	City of Huntsville	Capacity	Provide sidewalks for new road construction from Old Big Cove Rd to King Drake Rd
33	Martin Rd	City of Huntsville	Capacity	Provide sidewalks from Zierdt Rd to Laracy Dr
34	Martin Rd	City of Huntsville	Capacity	Provide sidewalks from Zierdt Rd to Rideout Rd
35	Maysville Rd Connector	City of Huntsville	Capacity	Provide sidewalks from Maysville Rd to Epworth Dr
48	Meridian St Ph 1	City of Huntsville	Capacity	Provide sidewalks from Oakwood Ave to Pratt Ave

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description
Sidewalks				
50	Moontown Rd	City of Huntsville	Capacity	Provide sidewalks from Ryland Pike to US 72E
51	Moores Mill Rd	City of Huntsville	Capacity	Provide sidewalks from Winchester Rd to Northern Bypass
52	Mount Lebanon Rd	City of Huntsville	Capacity	Provide sidewalks from Grimwood Rd to Northern Bypass
53	Nance Rd	City of Huntsville	Capacity	Provide sidewalks from University Dr to Capshaw Rd
54	Northern Bypass Ph 2	City of Huntsville	Capacity	Provide sidewalks from East of Pulaski Pike to US 231 N
55	Northern Bypass Ph 3	City of Huntsville	Capacity	Provide sidewalks from US 231 N to Moores Mill Rd
56	Northern Bypass Ph 4	City of Huntsville	Capacity	Provide sidewalks from Moores Mill Rd to Winchester Rd
57	Northern Bypass Ph 5	City of Huntsville	Capacity	Provide sidewalks from Winchester Rd to US 72E
58	Oakwood Rd	City of Huntsville	Capacity	Provide sidewalks from Adventist Blvd to Research Park Blvd
59	Old Hwy 431	City of Huntsville	Capacity	Provide sidewalks from US 431 S to North of Wilson Mann Rd
60	Old Big Cove Rd	City of Huntsville	Capacity	Provide sidewalks from US 431 S to Sutton Rd
61	Old Big Cove Rd	City of Huntsville	Capacity	Provide sidewalks from South Green Mountain Rd to Hwy 431
62	Old Hwy 20	City of Huntsville	Capacity	Provide sidewalks from Greenbriar Rd to County Line Rd
65	Old Railroad Bed Rd Ph 1	City of Huntsville	Capacity	Provide sidewalks from U.S 72 W to Capshaw Rd
66	Old Railroad Bed Rd Ph 2	City of Huntsville	Capacity	Provide sidewalks from Capshaw Road to AL Hwy 53
67	Patton Rd	City of Huntsville	Capacity	Provide sidewalks from Aerobee Rd to Redstone Rd
68	Plummer Rd	City of Huntsville	Capacity	Provide sidewalks from Research Park Blvd to Indian Creek Rd
70	Powell Rd	City of Huntsville	Capacity	Provide sidewalks from Powell Rd to Browns Ferry Rd
72	Ryland Pike	City of Huntsville	Capacity	Provide sidewalks from US 72 E to Northern Bypass
74	Shields Road	City of Huntsville	Capacity	Provide sidewalks from Jordan Ln to Winchester Rd
75	Slaughter Rd	City of Huntsville	Capacity	Provide sidewalks from Madison Blvd to US 72W
80	Swancott Rd	City of Huntsville	Capacity	Provide sidewalks from I-565 to County Line Rd
90	Wall Triana Hwy	City of Madison	Capacity	Provide sidewalks from US 72 W to Capshaw Rd
91	Wall Triana Hwy	City of Madison	Capacity	Provide sidewalks from Capshaw Rd to Yarborough Rd
93	Winchester Rd Ph 2	City of Huntsville	Capacity	Provide sidewalks from Dominion Cr to Naugher Rd
94	Winchester Rd Ph 3	City of Huntsville	Capacity	Provide sidewalks from Naugher Rd to Bell Factory Rd
95	Winchester RdPh 4	City of Huntsville	Capacity	Provide sidewalks from Bell Factory Rd to Maysville Rd
99	Zierdt Rd/Kellner Rd Corridor	City of Madison	Capacity	Provide sidewalks from Kellner Rd to Zierdt Rd

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description
∞ *Greenways (Shared Use Paths)*				
4&5	Balch Rd Greenway	City of Madison	Enhancement Unclassified	2.89 mile path from Browns Ferry Rd to US 72. Coincides with road project #4 and a portion of #5: Balch Rd widening from Browns Ferry Rd to Gooch Ln, and Balch Rd from Gooch Ln to Capshaw Rd
16	Mill Creek Greenway & Trail	City of Madison	Enhancement Unclassified	1 mile, asphalt, 2 mile natural trail from Hughes Rd to Browns Ferry Rd. Greenway project compliments road project # 16: EastviewDr Extension from Hughes Rd to Sullivan St
79	Sullivan St Greenway	City of Madison	Enhancement Unclassified	.5 mile path from Royal St to Front St. This also correlates to Bike Route 50 shown on Map 7.1
89	Wall Triana Highway Greenway	City of Madison	Enhancement Unclassified	3.6 mile multi-use path from Mill Rd to US 72
96& 97	Zierdt Rd Greenway	City of Huntsville	Enhancement Unclassified	8.75 mile, 12-ft wide asphalt multi-use path from Slaughter Rd to Wheeler National Wildlife Refuge. Includes greenway at Zierdt Rd from Madison Blvd to South of Martin Rd and Zierdt Rd from South of Martin Rd to Beadle Ln.
98	Zierdt Rd Greenway, Ph 2	City of Madison	Enhancement Unclassified	.8 mile , 12 ft wide asphalt multi-use path on Zierdt Rd from ¼ mile north of Madison Blvd to Old Madison Pike
15	EastviewDr Greenway	City of Madison	Enhancement Unclassified	2.1 mile greenway from West of Slaughter Rd to Hughes Rd. Includes project #15: Eastview Drive from Slaughter Road to Hughes Road
64	Old Madison Pike Greenway	City of Madison	Enhancement Unclassified	2.77 mile greenway from Browns Ferry Rd to Slaughter Rd. Includes project of Old Madison Pike from Hughes Rd to Slaughter Rd. Also is shown as Bike Route 50 on Map 7.1.
49	Mill Rd Greenway	City of Madison	Enhancement Unclassified	1.07 mile greenway from Sullivan St to Hughes Rd. Includes the parameters of project #53: Mill Rd from Hughes Rd to County Line Rd.
69	Portal Ln Greenway (Ph 2)	City of Madison	Enhancement Unclassified	.5 mile greenway (multi-use path) from Shelton Rd to Portal Ln Extension
73	Shelton Rd Greenway	City of Madison	Enhancement Unclassified	.81 mile greenway from Old Madison Pike to Madison Blvd. Includes the parameters of project #73: Shelton Road from Madison Blvd to ¼ mile north of Madison Blvd.
N/A	Bradford Creek Greenway Phase II	City of Madison	Enhancement Unclassified	1 ½ mile, asphalt multi-use path, from Palmer Park to Westchester Rd
N/A	Aldridge Creek Greenway II	City of Huntsville	Enhancement Unclassified	1.0 mile from Four Mile Post Rd to Mira Vista Dr
N/A	Barren Fork/ Miller Branch Greenway	City of Huntsville	Enhancement Unclassified	5.75 mile, 12-ft wide asphalt multi-use path from Martin Rd to Wheeler National Wildlife Refuge
N/A	Betts Spring Branch Greenway	City of Huntsville	Enhancement Unclassified	2.5 mile, 12-ft wide asphalt multi-use path from Zierdt Rd to Martin Rd
N/A	Big Cove Greenway	City of Huntsville	Enhancement Unclassified	8.0 mile, 12-ft wide asphalt multi-use path from Flint River to Monte Sano State Park
N/A	Big Spring Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Big Spring Park to Monte Sano Mountain
N/A	Blevins Gap Greenway	City of Huntsville	Enhancement Unclassified	4.5 mile, 12-ft wide asphalt multi-use path from Big Cove Creek to Bailey Cove Rd
N/A	Blue Creek Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Big Spring Park to Monte Sano Reserve.

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description
∞ *Greenways (Shared Use Paths)*				
N/A	Blue Spring Creek Greenway	City of Huntsville	Enhancement Unclassified	2.5 mile, 12-ft wide asphalt multi-use path from Pinhook Creek to Pulaski Pike.
N/A	Broglan Branch N. Greenway	City of Huntsville	Enhancement Unclassified	1.5 mile, 12-ft wide asphalt multi-use path from Stoner Park to Sparkman Dr
N/A	Broglan Branch S. Greenway	City of Huntsville	Enhancement Unclassified	1.25 mile, 12-ft wide asphalt multi-use path from Holmes Ave to Huntsville Spring Branch.
N/A	Chapman Mountain Greenway	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use from north section of Monte Sano State Park to Alabama A&M University.
N/A	Dallas Branch Greenway	City of Huntsville	Enhancement Unclassified	.5 mile, 12-ft wide asphalt multi-use path from Pinhook Creek to abandoned L&N railroad corridor.
N/A	Dry Creek Greenway	City of Huntsville	Enhancement Unclassified	6.25 mile, 12-ft wide asphalt multi-use path from Providence Main to Pulaski Pike
N/A	Huntsville Spring Branch Greenway	City of Huntsville	Enhancement Unclassified	10 mile, 12-ft wide asphalt multi-use path from Tenn. River to Holmes Ave.
N/A	Indian Creek Greenway Ph II-III	City of Huntsville	Enhancement Unclassified	1.5 mile, 12 ft-wide asphalt multi-use path from Creekwood Park to Providence Elementary School.
N/A	Knox Creek Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Wall Triana Hwy to Limestone Creek.
N/A	Limestone Creek Greenway	City of Huntsville	Enhancement Unclassified	14 mile, 12-ft wide asphalt multi-use path from AL Hwy 20 to Nick Davis Rd
N/A	McDonald Creek Greenway	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use path from Redstone Arsenal boundary to Alabama Space and Rocket Center.
N/A	Pinhook Creek Greenway Ph 1	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use path from Holmes Ave to Lakewood Elementary School.
N/A	Pinhook Creek Greenway Ph 2	City of Huntsville	Enhancement Unclassified	1.25 mile, 12-ft wide asphalt multi-use path from Medaris Rd to Wade Mountain.
N/A	Smithers Mountain Greenway	City of Huntsville	Enhancement Unclassified	4.0 mile, 12-ft wide asphalt multi-use path from Edmonton Heights Park to Spragins Hollow Rd
N/A	Spacewalk Greenway Ph 1	City of Huntsville	Enhancement Unclassified	5.5 mile, 12-ft wide asphalt multi-use path from Blevins Gap to Monte Sano State Park
N/A	Spacewalk Greenway Ph 2	City of Huntsville	Enhancement Unclassified	5.0 mile, 12-ft wide asphalt multi-use path from Blevins Gap to Madison County Nature Trail
N/A	Spacewalk Greenway Ph 3	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Space Walk Phase II to Ditto Landing
N/A	Tennessee River Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from west of Ditto Landing along the river east to Flint River
N/A	Wade Mountain Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from Spragins Hollow Rd to Pulaski Pike at Dry Creek
N/A	Wallace Mountain Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from Spacewalk III terminus to Flint River
N/A	Weatherly Mountain Greenway	City of Huntsville	Enhancement Unclassified	1.5 mile, 12-ft wide asphalt multi-use path from Hemlock Dr to Mountain Gap Rd
N/A	Gooch Lane Greenway	City of Madison	Enhancement Unclassified	1.6 mile greenway from Balch Rd to Hughes Rd

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description
∞ ***Greenways (Shared Use Paths)***				
N/A	Highland Avenue Greenway	City of Madison	Enhancement Unclassified	1.55 mile greenway from Old Madison Pike to EastviewDr
N/A	Portal Lane Greenway	City of Madison	Enhancement Unclassified	1.04 mile greenway from Hughes Rd to Shelton Rd

∞ All Greenway Projects are shown on **Map 7.1**. Greenways that are associated with proposed road improvements are indicated by map number. As mentioned in this Section, additional greenway projects have been identified that do not correlate directly with proposed road improvement projects.

All Sidewalk and Greenway (Shared Use Path) projects highlighted in blue arefinancially constrained projects. All projects highlighted in red are visionary projects. The cost of constructing sidewalks for the above projects has already been incorporated in the total cost of the road improvement projects shown on page 4-2. Project costs are detailed in **Section 10**. The cost of constructing Greenways (Shared Use Paths) for the above projects not associated with any road improvement listed on page 4-2 is provided as well in **Section 10**.

7.3 Huntsville Metropolitan Planning Area Bicycle and Pedestrian Plan

The purpose of the Huntsville Metropolitan Planning Area Bicycle and Pedestrian Plan is to guide the long-term direction of bicycle and pedestrian projects within the MPO study area. The plan provides a regional view of interconnected bicycle and pedestrian networks and identifies a countywide system of corridors aimed at improving non-motorized transportation and accessibility.

The MPO Bicycle and Pedestrian Plan emphasizes regional connectivity to provide a framework for the development and enhancement of bicycle and pedestrian facilities throughout the counties, cities and towns of the MPO study area. With growing interests in walking, cycling and the safety of these modes of travel, the MPO has carefully considered the appropriateness of the areas designated for bicycle and pedestrian travel. The MPO has adopted the following bicycle and pedestrian plans, which collectively feature a linked network of non-motorized transportation facilities throughout the MPO study area.

The City of Huntsville Bikeways Plan

The City of Huntsville Bikeways Planaddresses the bicycle transportation needs of the citizens within the Huntsville area. With growing interest in cycling and bicycle safety, the City of Huntsville continues to promote bicycle projects and programs that encourage the use of alternate means of transportation which supports active transportation and healthy lifestyles. The goal of this plan is to develop a safe, continuous comprehensive network and to enhance non-motorized transportation facilities and projects throughout the metro area, by advancing education, enabling planning, and encouraging cycling. The plan also encourages the use alternative means of transportation to promote active communities, and a bicycle friendly community with a transportation network supporting bicycles, pedestrians, transit, and motorists.

It identifies bike routes that connect residential areas to major employers and shopping centers, covering a distance of over 282 miles throughout the city. In addition to the 34 miles of existing bike routes, the plan calls for another 148.4 miles of proposed bike routes, 81.5 miles of proposed bike lanes, and 18.1 miles of shared routes. Combined with the 119 miles of additional proposed routes in the county, a total of over 400 miles of bicycle facilities is planned for the Huntsville metro area. The plan serves as a guide for improving bicycle activity and suggests education, promotion and policy projects to integrate bicycling into the existing transportation environment. **Map 7.1** shows an overall map of bike routes planned throughout the Huntsville Study Area.

The City of Huntsville Greenways Plan

This City of Huntsville Greenways Plan identifies over 282 miles of interconnected trails, which includes shared use paths for biking and walking as well as canoe trails and hiking trails for recreational enjoyment. The goal of this plan is to maintain a continuous greenway system of interconnected corridors that offer alternative non-motorized transportation to demonstrate the many benefits of greenways to the community. This includes access to facilities for recreation, increased quality of life and preserving cultural, natural and historic resources. With more than 22 miles of existing greenways and trails, local pedestrians and bicyclists will enjoy open space along natural features and scenic roadways throughout the Huntsville and MadisonCounty area.

Map 7.1 also shows the existing and proposed greenways and trails within the City of Huntsville, Madison County and Limestone County.

The City of Huntsville Sidewalk Improvement Plan

The Sidewalk Improvement Program is an on-going effort by the City of Huntsville to maintain existing sidewalks as well as to construct sidewalk projects that provide connectivity to community facilities; thus encouraging an alternative means of transportation. The plan details a five-year schedule of prioritized sidewalk construction projects, allocating an annual budget of $300,000.00 for construction and $100,000.00 for maintenance. In addition the City of Huntsville was awarded a $200,000 grant for the Safe Route to School program which allows spending on facilities within 2 miles of elementary schools to improve the safety for children walking or riding bicycles. Although the grant is awarded bi-annually it presents an opportunity for the city to increasingly provide safe travel for all pedestrians.

Countywide Shared Bike Routes

The Huntsville Metropolitan Planning Area Bicycle and Pedestrian Plan highlights connecting bicycle routes, bike lanes and greenways throughout the counties, cities and towns of the MPO study area. These routes are depicted on **Map 7.1**. These routes will be signed to alert cyclists and motorists of shared road usage while traveling on county roadways. The MPO will promote the use of "Share the Road" signs in efforts to alert motorists of the presence of bicyclists, thus encouraging and creating cooperative behavior, courtesy, and safety for both area cyclists and motorists. The use of "Share the Road" signs is an objective of the plan to enhance the existing bicycle and pedestrian programs by educating motorists and bicyclists on safe and effective ways to coexist – ultimately leading to a greater safe traveling environment for all.

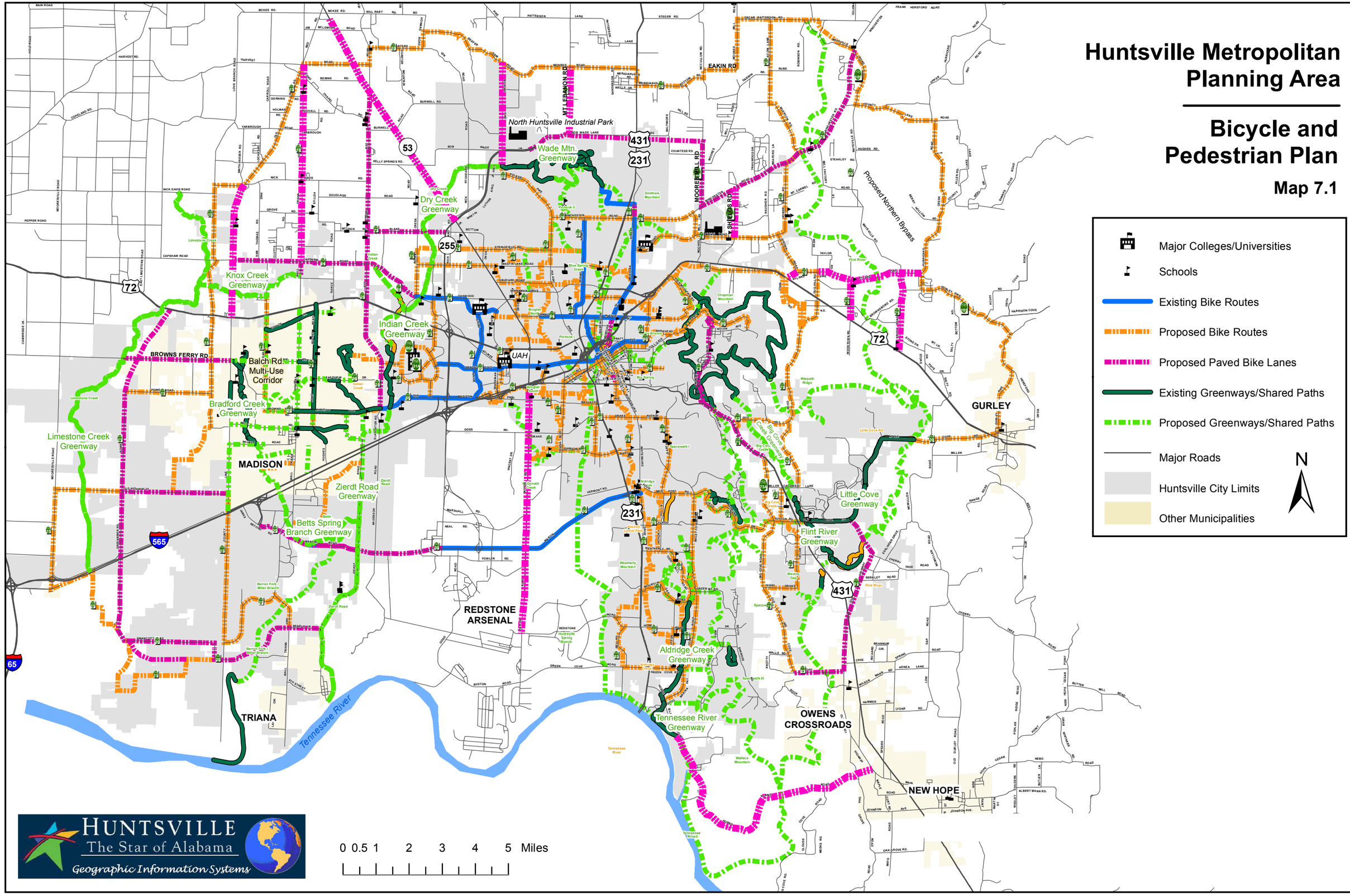
City of Madison Greenway Plan

The City of Madison has a number of greenway and trails projects identified and underway. The goal of the plan,which was adopted in 2003, is to connect the city with various pathways to facilitate alternative modes of transportation and promote a healthy lifestyle. Numerous trails, greenways, sidewalks/walkways, and multipurpose facilities have been planned for its citizens. A pedestrian and non-motorized corridor along Bradford Creek has already been funded with federal money, with construction starting FY 2010. This corridor will provide a walking laboratory and a new route for elementary and middle school children. Also along the corridor is Madison's largest recreation park: 99 acre Palmer Park, which contains a playground, softball and baseball diamonds, and soccer and football fields. In addition the Mill Creek Greenway which can be accessed via Mill Road connects Mill Stone subdivision to the new Mill Creek Elementary with future connections from Browns Ferry Road and the new Balch Road extension. **Map 7.1**includes all future greenways and multi-use corridors projects along the major roads in the City of Madison.

Huntsville Metropolitan Planning Area

Bicycle and Pedestrian Plan

Map 7.1



Map 7.1.A – No changes required

Major Colleges/Universities
Schools
Existing Bike Routes
Proposed Bike Routes
Proposed Paved Bike Lanes
Existing Greenways/Shared Paths
Proposed Greenways/Shared Paths
Major Roads
Huntsville City Limits
Other Municipalities

N

Limestone Creek
Limestone Creek Greenway
Balch Rd. Multi-Use Corridor
Bradford Creek Greenway
Indian Creek
Broglan South
Zierdt Road Greenway
Zierdt Road
McDonald Creek
Betts Spring Branch
Betts Spring Branch Greenway
Barren Fork / Miller Branch
Huntsville Spring Branch

MADISON
TRIANA
REDSTONE ARSENAL
UAH

BROWNS FERRY RD
GILLESPIE RD.
EASTVIEW DR.
OLD HIGHWAY 20
MADISON
PIKE
GOSS RD.
DRAKE
JOHNSON RD
MARSHALL RD.
NEAL RD.
MARTIN ROAD
FOWLER RD.
BEADLE LN
6TH STREET
BUXTON ROAD
GREEN COVE
SWANCOTT RD

Tennessee River

0 0.45 0.9 1.8 Miles

HUNTSVILLE The Star of Alabama
Geographic Information Systems

Huntsville Metropolitan Planning Area

Bicycle and Pedestrian Plan

Map 7.1B (Southwest Huntsville)

Map 7.1.C – No changes required

Map 7.1.D – No changes required

7.4TransportationEnhancements Activities

Transportation Enhancements (TE) activities are transportation-related initiatives that are designed to strengthen the cultural, aesthetic, and environmental aspects of the intermodal transportation system. The transportation enhancements program provides the implementation of a variety of non-traditional projects, with examples ranging from the restoration of historic transportation facilities to the mitigation of water pollution from highway runoff.All transportation enhancement projects must relate to surface transportation, which includes all elements of the intermodal transportation system, exclusive of aviation. According to the Federal Highway Administration, all qualifying TE activities must comply with at least one of the following 12 categories:

	Activity	***Examples***
1	Provision of pedestrian and bicycle facilities	New or reconstructed sidewalks, walkways, or curb ramps; wide paved shoulders for non-motorized use, bike parking, and bus racks; construction or major rehabilitation of off-road shared use paths (non-motorized transportation trails); bridges and underpasses for non-motorized users.
2	Provision of pedestrian and bicycle safety and education activities	Educational activities to encourage safe walking and bicycling.
3	Acquisition of scenic or historic easements and sites	Acquisition of scenic land easements, vistas, and landscapes; acquisition of buildings in historic districts or historic properties (including historic battlefields).
4	Scenic or historic highway programs including tourist and welcome centers	For projects related to scenic or historic highway programs: Construction of turnouts, overlooks, and viewing areas; construction of visitor and welcome centers; designation signs and markers.
5	Landscaping and scenic beautification	Landscaping, street furniture, lighting, public art, and gateways along highways, streets, historic highways, trails, and waterfronts.
6	Historic Preservation	Preservation of buildings in historic districts; restoration of historic buildings for transportation-related purposes.
7	Rehabilitation and operation of historic transportation buildings, structures, or facilities	Restoration of historic railroad depots, bus stations, ferry terminals and piers, and lighthouses; rehabilitation of rail trestles, tunnels, and bridges; restoration of historic canals, canal towpaths, and historic canal bridges.
8	Conversion of abandoned railway corridors to trails	Acquiring railroad rights-of-way; planning, designing, and constructing multiuse trails; developing rail-with-trail projects.
9	Control and removal of outdoor advertising	Billboard inventories or removal of illegal and nonconforming billboards.
10	Archaeological planning and research	Research, preservation planning, and interpretation of archaeological artifacts; curation for artifacts related to surface transportation and artifacts recovered from locations within or along surface transportation corridors.
11	Environmental mitigation of highway runoff pollution, reduce vehicle-caused wildlife mortality, maintain habitat connectivity	For existing highway runoff: soil erosion controls, detention and sediment basins, and river clean-ups. Wildlife underpasses or other measures to reduce vehicle caused wildlife mortality and/or to maintain wildlife habitat connectivity.
12	Establishment of transportation museums	Construction of new transportation museums; additions to existing museums for a transportation section; conversion of railroad stations or historic properties to museums with transportation themes.

Source: U.S. Department of Transportation, Federal Highway Administration, 2004

The Alabama Department of Transportation (ALDOT) accepts transportation enhancements project applications. A thorough review, which includes a five step process, is conducted annually to determine projects selected for funding. Through the Huntsville Metropolitan Planning Area Bicycle and Pedestrian Plan, the Huntsville Area MPO can ensure that bicycle and pedestrian accommodations will be more fully integrated into local, state and regional transportation improvements. As federal transportation policy with regards to bicycle and pedestrian accommodations evolves, new funding opportunities are made available to enhance the non-motorized transportation network.The projects identified in **Tables7.1** and **7.2,** and further displayed in **Map 7.1** are eligible for transportation enhancement funding.

Section 8

CONGESTION MANAGEMENT, SAFETY MANAGEMENT, AND SECURITY ELEMENT

8.0 Introduction

This section focuses upon three program elements to be considered in the planning process: Congestion Management, Safety Management, and Security of the transportation system. These elements serve to increase the mobility of persons and freight that utilize the transportation system and to eliminate or mitigate hazards on the transportation network. TEA-21 legislation required a Congestion Management System be developed for Transportation Management Areas, such as the Huntsville Urbanized Area. SAFETEA-LU updated the requirement for a Congestion Management Process, in contrast to the Congestion Management System. This change intends to address congestion management through a process that provides for effective management and operations, an enhanced linkage to the planning process, and to the environmental review process, based upon cooperatively developed travel demand reduction and operational management strategies as well as capacity increases. Additionally, SAFETEA-LU split two previously conjoined planning factors: safety and security of the transportation system, and added emphasis upon maintenance and operations strategies. Since these factors are clearly integrated within Congestion Management, they are included in this section as well.

8.1 Congestion Management Element

Increasing traffic congestion is one of the greatest challenges facing the Huntsville Urbanized Area. It results in motorist frustration, the loss of productivity, and the deterioration of air quality. Better management of the transportation system will help the region to address these growing problems as limited transportation resources struggle to meet rising travel demands.

The Huntsville Urbanized Area has been designated as a Transportation Management Area by the Federal Highway Administration and the Federal Transit Administration. This designation requires the MPO to develop and maintain a comprehensive congestion management process. As a result, a detailed congestion management analysis has been performed which specifies current and future congestion problems on the network, and identifies various strategies to correct system deficiencies.

The new legislative requirements view the Congestion Management Process (CMP) as more objectives-driven. The CMP also has an emphasis on incorporating management and operations in the project development process, so that short-term improvements may be made to alleviate immediate congestion problems, and long range solutions may also be offered as a more permanent fix.

8.1.1. Management and Operations (M&O)

One of the planning factors identified in the SAFETEA-LU legislation that must be considered in the transportation planning process is to "promote efficient system management and operations". The legislation specifically requires that the metropolitan transportation plan, or long range plan, include not only capital projects, but management and operations strategies as well. These management and operations strategies are highlighted as an important component in mitigating congestion in addition to increasing safety and security.

The Federal Highway Administration recently published: **Management and Operations in the Metropolitan Transportation Plan** (November 2007) and **An Interim Guidebookon the Congestion Management Process in Metropolitan Transportation Planning** (February 2008). These publications define M&O as an integrated approach to optimize the performance of existing and programmed infrastructure through the implementation of multi-modal, intermodal, and often cross-jurisdictional systems, services, and projects. Implementing a planning process with a strong M&O component is best accomplished by a new way of thinking about management and operations in transportation planning – one that is objectives-driven and performance-based such as the CMP. Essentially, the M&O is integrated into the CMP. The CMP actualizes the operations objectives through a systematic approach for developing performance measures, identifying and analyzing problems, collecting data, developing strategies, implementing strategies, and further evaluating how the implemented strategy(ies) impact the transportation network.

M&O strategies are integrated into the long range transportation plan through the CMP. While the CMP focuses on congestion relief, the process itself is systematic in that it involves developing performance measures, identifying operational needs and deficiencies, and developing strategies, including M&O strategies. A discussion of the types of strategies considered in the transportation planning process is found in **Section 8.1.2.3** and in **Appendix C.** Specific projects have been identified to improve the management and operation of the transportation network. These projects are listed in **Section 8.4**, and are classified by the Alabama Department of Transportation as "maintenance and operations" projects.

8.1.2 Steps to an Effective CMP

There are eight steps to an effective CMP. These steps are as follows:

1. Develop Congestion Management Objectives
2. Identify Area of Application
3. Define System or Network of Interest
4. Develop Performance Measures
5. Institute System Performance Monitoring Plan
6. Identify and Evaluate Strategies
7. Implement Selected Strategies and Manage Transportation System
8. Monitor Strategy Effectiveness

Of these eight steps, three provide a critical foundation to the process. These three steps are further discussed below.

8.1.2.1 Develop Congestion Management Objectives

Objectives are specific steps that help to accomplish the goal, and include outcome or output-oriented measures. Objectives should be stated in such a way that performance measures can be derived from the objectives. Congestion management objectives may be related to other, operations-oriented objectives, such as making transit more attractive to commuters or to objectives aligned with regional land use goals.

8.1.2.2 Develop Performance Measures

Performance measures provide metrics that can be used regionally to track systemwide performance, or at a corridor, roadway, or intersection, etc… to identify specific deficiencies within the system. These have been identified and are integrated within the CMP.

8.1.2.3 Identify, Evaluate, Implement and Monitor Strategies

Selected projects and programs are implemented to achieve objectives and to mitigate congestion. Various types of strategies to be considered in the CMP are identified in **Appendix C**. While corridor widening is a viable option, the CMP requires additional strategies to be considered as well. SAFETEA-LU requires that "for transportation management areas classified as nonattainment for ozone or carbon monoxide pursuant to the Clean Air Act, federal funds may not be advanced in such area for any highway project that will result in a significant increase in the carrying capacity for single-occupant vehicles unless the project is addressed through a congestion management process." Furthermore, the CMP must give priority to strategies that reduce congestion and improve the mobility of people, goods, and services without requiring the construction of additional roadway capacity. Capacity adding projects are not prohibited, but the CMP requires the MPO to consider alternative strategies to capacity increases, and that measures be incorporated into the project to make the most efficient use of the new capacity once it has been constructed. At the present time, the Huntsville Urbanized Area is at attainment, but in good faith will consider the additional strategies to mitigate congestion.

In addition to increasing roadway capacity, there are two other major categories of congestion mitigation strategies: Transportation System Management (TSM) and Travel Demand Management (TDM). The TSM approach to congestion management seeks to identify improvements to new and existing facilities that are operational in nature. These techniques are designed to improve traffic flow through better management of existing facilities. The TDM approach to congestion management focuses on user demand and behavior modification strategies to reduce drive-alone and peak-period travel.

The adopted TSM strategies include intersection and signalization improvements on collector and arterial streets to help alleviate traffic congestion. A group of technologies, collectively known as Intelligent Transportation Systems (ITS), is proposed to improve transportation system efficiency and safety. The City of Huntsville has embarked upon a regional effort to develop methods that would enhance the management and operation of the local transportation system in efforts to maximize the level of efficiency and safety through its investment in ITS. Strategies have been identified for the region, and are planned for implementation; however, current efforts are hampered due to lack of federal funds to support the program. The ITS strategies include, but are not limited to, the integrated and coordinated operations of incident management, emergency management, and advanced traffic signal and traveler information. These strategies are discussed in further detail in the Intelligent Transportation Systems (ITS) section of this chapter.

TDM strategies currently underway include the rideshare program which helps to encourage carpooling, vanpooling, and transit usage by offering incentives to the employees of the region's large employers. Additionally, the recent development of bicycle facilities encourages cycling to work.

The implementation of congestion mitigation strategies provides several benefits. The reduction of vehicle travel will mean less traffic congestion on our roadways resulting in reduced travel times, lower vehicle emissions, and improved air quality. Enhanced accessibility, fewer traffic accidents, and greater transportation system reliability will also be achieved through the use of these relatively low-cost strategies. Monitoring the implemented strategies will assure that these benefits continue for users of the transportation system.

The Congestion Management Process for the Huntsville Urbanized Area is presented below.

8.2 Congestion Management Process

The Congestion Management Process (CMP) is a federally required program providing for the comprehensive and continuous study of traffic movement on major corridors at the regional level. Locally, the Huntsville Area Transportation Study's CMP consists of on-going data collection and analysis used to establish trends and to monitor the overall mobility of the transportation system through benchmarking techniques established in the **CMP Procedures and Responsibilities Report**, found in **Appendix C** of this document.

8.2.1 Local CMP Framework

This CMP has been prepared to meet the requirements of federal legislation. The purpose of the CMP is to establish certain characteristics of the local transportation system, so that future data analysis may be performed which would show changes in system efficiency and the quality of the transportation system service experienced by users. All CMP monitoring requirements have been consolidated. The CMP is divided into the following four sections to cover all aspects of the CMP addressed in the federal

requirements:

- State of the System
- CMP Technical Ranking
- Strategy Recommendations
- Strategy Effectiveness Evaluations

The "State of the System" section will assess mobility conditions through established performance measures. The "CMP Technical Ranking" section will list in priority order current and anticipated congested corridors for further study. The "Strategy Recommendations" section provides for further analysis and defines appropriate actions for implementation to solve congestion problems. The "Strategy Effectiveness Evaluations" section will include an evaluation of any implemented strategy recommendations mentioned in previous congestion management documents to determine if the implemented strategy is successful.

The cornerstone of an effective CMP is dependent upon the quality and quantity of data collected for the study area. Specific performance criteria and the parameters of study were established in the **CMP Procedures and Responsibilities Report**, found in **Appendix C**. According to the report, the following elements were selected for study, and have been incorporated into this document:

1. *CMP Transportation Network:*
   The CMP Transportation Network consists of all major arterials, minor arterials, major collectors, and major rural collectors that have been modeled per the MPO's **Year 2035 Transportation Plan**. Traffic counts have been taken from the base year network of the transportation model and were used in compiling this report on mobility.

2. *Local Public Transit Systems:*
   Both fixed route and demand response public transit services were studied that receive federal funds through the Federal Transit Administration either directly or through the State of Alabama. The City of Huntsville Department of Parking and Public Transit administers a fixed route service - the Huntsville Shuttle. The Shuttle operates thirteen routes within the city limits of Huntsville, and provides service Monday through Friday from 6:00 a.m. until 6:00 p.m. The fixed route system began in 1990 with four routes and a limited schedule, and has since expanded routes and service hours based upon demand for service.

   The City of Huntsville also administers a demand response service, known as Handi-Ride. The Handi-Ride service operates Monday through Friday from 6:00 a.m. until 6:00 p.m. Service is limited to pre-qualified individuals that are elderly and/or disabled and cannot access traditional fixed route transit service. Handi-Ride transportation must be scheduled at least 24 hours in advance.

Madison County operates a demand response transportation service as well. Transportation for Rural Areas of Madison County (TRAM) operates Monday through Friday from 7:00 a.m. until 3:00 p.m. This service is limited to individuals residing in rural MadisonCounty; otherwise, there are no other service restrictions. TRAM service must be scheduled at least 24 hours in advance.

Utilizing the data collected for the established CMP network and public transit systems, analyses and assessments were made concerning the state of our local transportation system. The State of the System follows.

8.2.2 State of the System

The following categories of performance measures are being monitored to analyze current mobility conditions and trends in the Huntsville region:

- Congestion Based measures
- System Efficiency Based Measures
- System Mobility Based Measures
- System Accessibility Measures
- Non-Recurring Congestion Measures

These categories have been further broken down into specific performance measures analyzed later in this section.

Statistics are available only for routine vehicular traffic and public transit services on the adopted Congested Management System Network as defined in the **CMP Procedures and Responsibilities Report, Appendix C.**

Data collection for the CMP was performed in accordance with the methods and procedures outlined in the **CMP Procedures and Responsibilities Report**. The most recent traffic count data collected and utilized in this report was collected by all entities and was input into the base year transportation model during its 2009 update. The latest public transit statistics have been compiled from data provided in annually required federal and State reports for the years 2005 through 2008. Data for 2009 has not been validated as of publication time.

8.2.2.1 CMP Objectives

Various objectives for the Huntsville Urbanized Area have been developed, and are based upon the identified performance measures. These objectives and their correlating performance measuresfollow:

1. Congestion-Based Measures: V/C Ratio and Fixed Route Rate of Occupancy

   Reduce the number of segments on the transportation network that have a V/C ratio of 1.0 or higher, so that by 2015 the transportation network exhibit more free flow conditions. This can be accomplished by

implementing various strategies that relate to land use, access management, operational improvements, construction of additional bike and pedestrian facilities, as well as road widening.

Correlate Shuttle Bus ridership with Shuttle Bus capacity so that by 2015 certain routes will not require additional buses to handle overflow passengers.

2. System Efficiency Based Measures: Daily VMT, Daily VMT per Person, Roadways Operating at Congested Conditions (uncongested vs. congested lane miles, congested vs. uncongested VMT)

   Reduce congestion on the transportation network so that users accessing the network may experience overall efficient trips.

3. System Mobility Based Measures: Trip oriented and measures the ease and freedom with which persons can travel from one location to another (Total yearly public transit ridership, average daily passengers on transit services, annual revenue miles, average speed on the transportation network)

   Correlate public transit ridership with bus capacity so that by 2015 certain routes or systems can easily handle the demand for service.

   Routinely increase average speed of all classifications of corridors on the transportation network so that by 2015 enhanced mobility on the overall network can be realized. This may be accomplished through the implementation of short-term and long-term strategies that will either operationally enhance mobility or increase system capacity.

4. System Accessibility Measures: Activity oriented and measures the degree of ease that individuals experience in traveling to employment, shopping, school, and even other modes of transportation.

   Increase carpool activity and the use of alternative modes of transportation besides the vehicle, so that system accessibility may be improved and congestion experienced on the network may be reduced. This may be performed through marketing various modes of transportation and providing more opportunities for network users to try “new” methods of transportation.

   Decrease travel to work time by subarea by implementing short-term congestion relieving strategies as well as planning long-term road widening projects, so that users of the network may access the system during peak times with minimal delay.

5. Non-Recurring Congestion Measures: Traffic Accidents by Intersection

Reduce the number of accidents at high accident prone locations by investigating the need for operational improvements, and correlate the high rate of accidents to congested corridors which will define the potential for delayed trips on the network.

8.2.2.2 System Performance Measures

The statistics presented in this section validates the current state of the regional transportation system, and will assist the region in meeting the above objectives.

1. Congestion Based Measures

Congestion based measures are facility oriented and indicate how much of the road capacity or bus capacity is being used within a corridor. The following indicators of roadway and bus congestion were evaluated:

a. Volume to Capacity Ratios

The Volume to Capacity Ratio (V/C Ratio) is the comparison of traffic volume at a specific location versus the roadway's capacity. Roadway segments experiencing v/c ratios in excess of 1.0 are considered congested. **Section 4, Map 4.4** identifies locations experiencing congestion using this method of measure. Data was obtained from the base year network of the **Year 2035 Transportation Plan**.**Section 4, Map 4.16** displays locations anticipated to experience congestion per the "Future Year Network" data obtained from the Year **2035 Transportation Plan**. These specific roadway segments will be identified and studied further in **Section 8.2.3** and **Section 8.2.4** of this report.

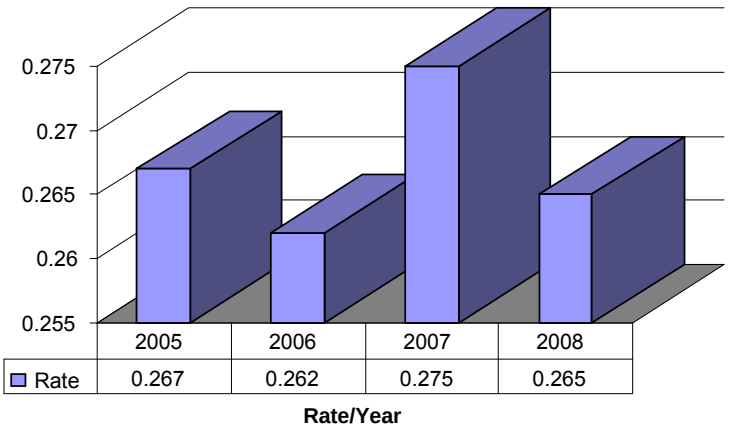
b. Fixed Route Rate of Occupancy

The fixed route rate of occupancy measured here gauges congestion on the Huntsville Shuttle bus system on an average daily basis. According to Huntsville Parking and Public Transit officials, there is not a standard system wide peak time of service for the Huntsville Shuttle; therefore, statistics are displayed on an average daily basis. **Figure 8.1** shows the fixed rate of occupancy for the years 2005 through 2008. In the past, average daily ridership for 2002 was 1,200 passengers, while average daily ridership for 2003 and 2004 stabilized to approximately 1,100 passengers per day. Ridership on the

system increased for 2005-2008, and peaked at 1,617 trips daily during 2007. Trips declined by only 59 trips during 2008. The average system wide rates of occupancy indicate that the fixed transit route is not experiencing congested conditions.

Of all the routes in service, the Southwest Huntsville route tends to have the most ridership, and experiences service at or beyond capacity several times during the day. The primary reason for this was ridership to and from StoneMiddle School. Recent action by the Huntsville City School Board has closed the school beginning with the 2009-2010 school year, and it will be interesting to note what impacts this action will have upon this particular route. More detailed fixed route rate of occupancy data per routemay be available during the next reporting period.

Figure 8.1
Fixed Route Rate of Occupancy
Years 2005-2008



2. System Efficiency Based Measures

System efficiency based measures provide an overall assessment of the transportation system's performance by measuring system demand and the level of congestion in the area. Measures in this category consist of vehicle miles traveled (VMT) and roadways operating at congested conditions. It is important to note that the VMT estimates do not indicate system wide demand, only demand on the CMP network. The following indicators of system efficiency were evaluated:

a. Average Daily Vehicle Miles of Travel (VMT)

The average daily VMT is calculated by multiplying each roadway segment's length by its average daily traffic count, and adding the results from each segment together. The average daily vehicle miles of travel driven on the CMP network totaled 7,291,749 miles for the modeled 2000 base year, and increased by nearly 12% to 8,290,375 for the year 2005 modeled network. This indicates an increase in average daily travel of nearly 1 million miles on the modeled network.

b. Average Daily Vehicle Miles of Travel per Person

The average daily VMT on the CMP network per person was calculated. Countywide, persons traveled an average 25.08 miles per day on the CMP network according to the modeled 2000 base year network. The number of average VMT on the CMP network increased to an average of 26.59 miles per day for the 2005 modeled base year network.

c. Roadways Operating at Congested Conditions

For the purpose of this report, congested roads have been defined as corridors or roadway segments where the average daily traffic count is equal to or greater than the roadway's capacity. For the Huntsville Area MPO, any location with a volume/capacity ratio of 1.0 or higher is considered congested. This section will establish the baseline of vehicle miles traveled on various road classifications operating at congested conditions on the CMP network. This information is displayed on **Figure 8.2. Figure 8.3** shows the total vehicle miles traveled on congested vs. uncongested roadways.

According to **Figure 8.2**, congested vehicle miles traveled are higher on the network's major and minor collectors, followed by major arterials, minor arterials, and interstate highway facilities.

Figure 8.2
Base Year 2005 Congested Vehicle Miles Traveled (VMT) by Roadway Classification

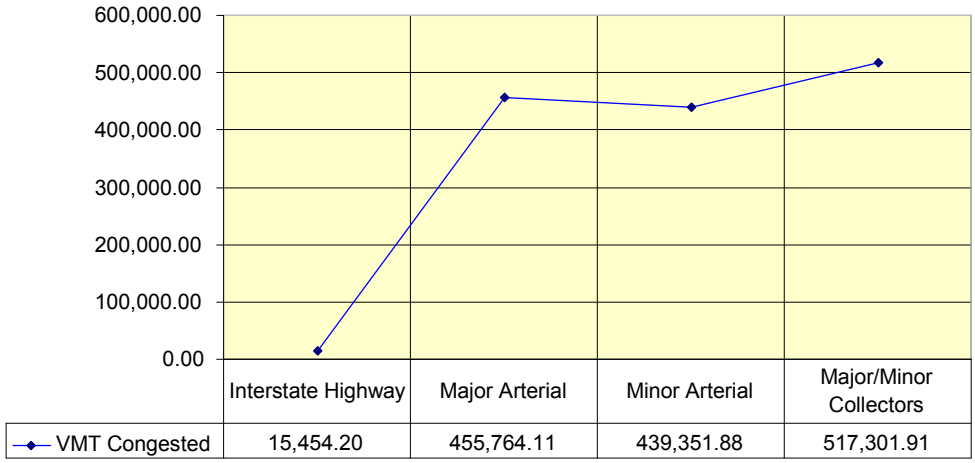
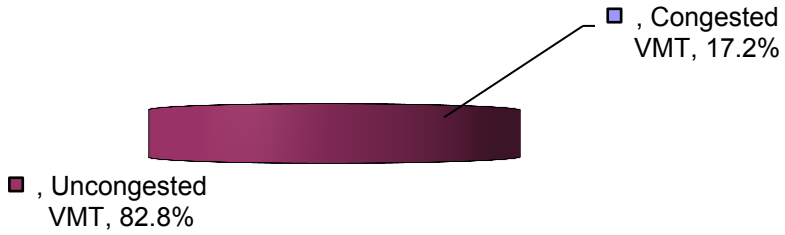


Figure 8.3
Base Year 2005 Congested versus Uncongested Vehicle Miles Traveled (VMT)



An assessment of actual vehicle miles traveled (VMT) congested vs. uncongested was conducted, and results are shown at **Figure 8.3**. Overall, 17.2% of all vehicle miles traveled on the CMP network during this reporting period occurred on congested roadways. A comparison with the modeled 2000 base year data indicates an 11.9% increase in congested vehicle miles traveled on the 2005 modeled base

year network.

3. System Mobility Based Measures

Mobility based measures are trip oriented, and measure the ease and freedom with which persons can travel from one location to another. For the purpose of this report, mobility will be measured for public transit services and on the CMP transportation network.

a. Public Transit Ridership

The previously reported fixed route rate of occupancy indicates a high degree of mobility on the transit system and its capability to accommodate passenger trips. Passenger mobility is not negatively impacted because the calculated rate does not indicate congested conditions on the fixed route system.

To further determine passenger throughput on the transit system, the following indicators have been evaluated:

(1) Total Yearly Ridership

Total yearly ridership for the Huntsville Shuttle fixed route service, and demand response services (Huntsville's Handi-Ride and rural Madison County's TRAM) for the years 2005-2008 are presented below.

Figure 8. 4
Total Ridership Huntsville Shuttle
Years 2005-2008

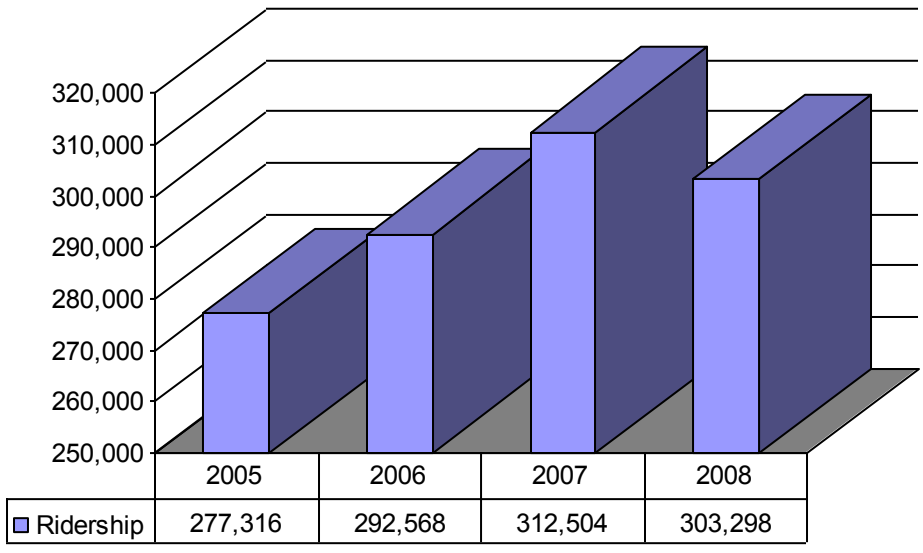


Figure 8.5
Total Ridership Demand Response
Huntsville Handi-Ride: Years 2005-2008

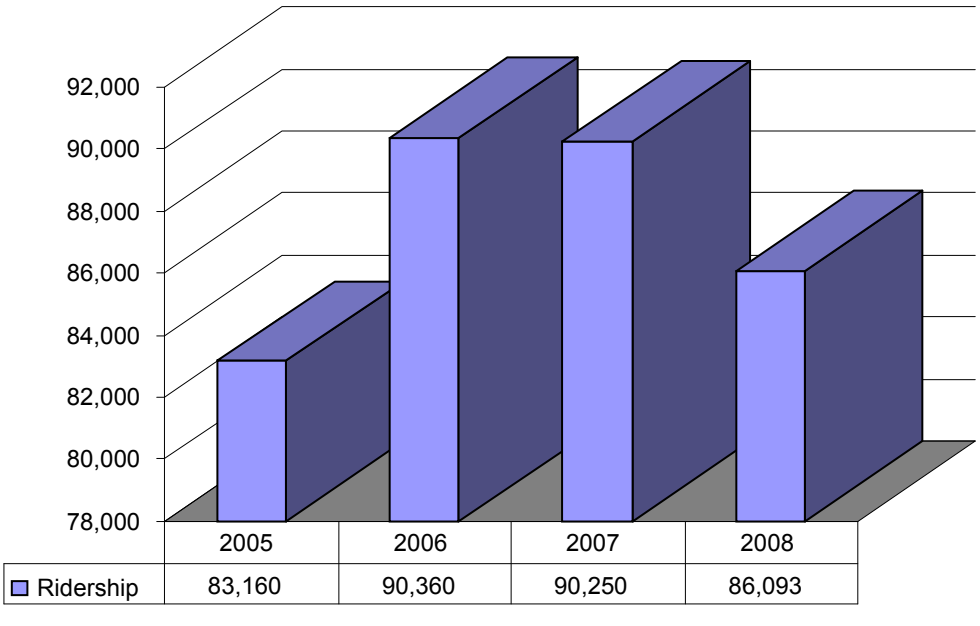
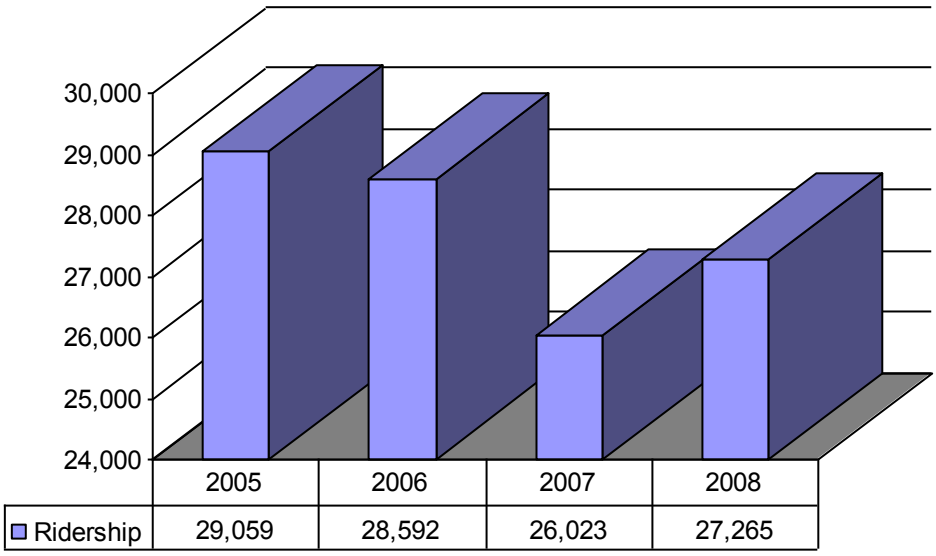


Figure 8.6
Total Ridership Demand Response
Madison County TRAM: Years 2005-2008



While ridership declined by almost 3% in 2008 for Huntsville's fixed route system form 2007's numbers, overall system throughput on the system has increased during the past four years by nearly 8.6%. The City of Huntsville's demand response service, Handi-Ride, has seen a sporadic overall increase in ridership of over 3.5% during the past four years. This sporadic trend in ridership may be due to the following reasons:

- Several human service and social service agencies that historically have depended upon demand response services provided by the City of Huntsville have dropped out of the program and some are now providing transportation services to their own clients. This decrease in demand contributed to a reduction of vehicles, ridership, and revenue miles. This is a continuing trend, as several other human service and social service agencies were not contracted in fiscal year 2006 and beyond.

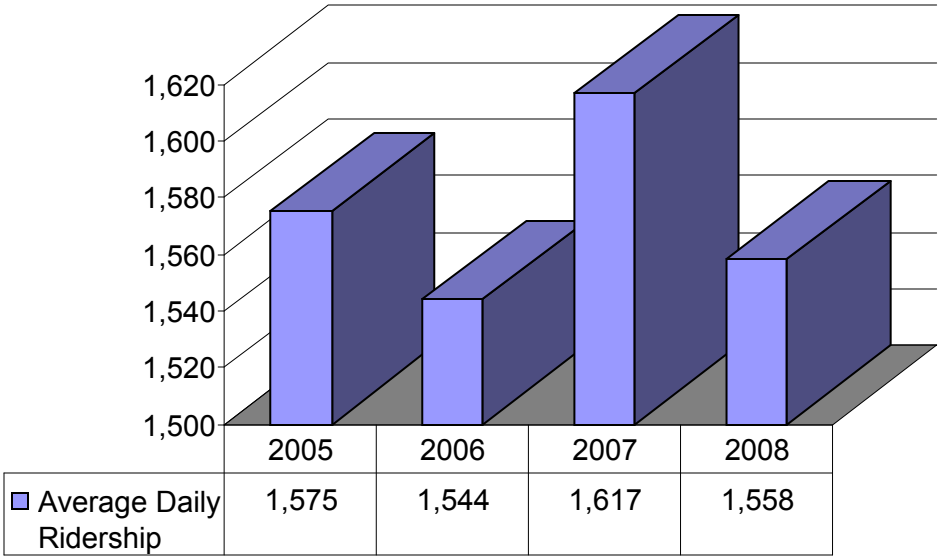
- Additionally, assisted living facilities that have recently been opened in the City of Huntsville also provide transportation for their residents. These trips are of the same nature as those that are typically provided by Handi-Ride (i.e., grocery store, doctor's appointments, drug store, SeniorCenter, etc…).

Demand response trips provided by Madison County's service, TRAM, has decreased during the past four years by over 6%, primarily due to the same reasons.

(2) Average Daily Passengers

Average daily passenger information was collected only for the Huntsville fixed route system. Statistics indicate that a peak average 1,617 passengers rode the Huntsville Shuttle bus per day during 2007. The average number of passengers riding the Shuttle during 2008 was 59 less. While ridership numbers have fluctuated during the past four years, the rate has not been dramatic. These ridership numbers are characteristic of a consistent population that depends on transit for trips to work, school, shopping, and socialization.

Figure 8.7
Average Daily Ridership Huntsville Shuttle
Years 2005-2008

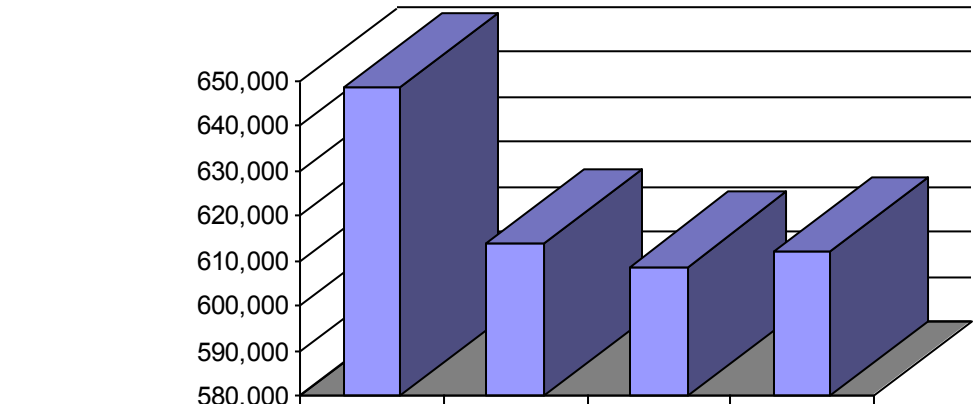


	2005	2006	2007	2008
Average Daily Ridership	1,575	1,544	1,617	1,558

(3) Annual Revenue Miles

Annual revenue mile data was collected on all public transit systems. A discrepancy in the fixed route service is expected since the service days vary from year to year. Additionally, the Shuttle is in service during some holidays and for some special events. The Handi-Ride demand response service's annual revenue miles for the past four years indicate an instability, which may be explained by either persons choosing fixed route service during 2007 (in which Shuttle ridership increased), or a reduction in usage by human service and social service agencies. Madison County's TRAM service reported a decrease in revenue miles, proportional with decreased ridership levels over the past four years.

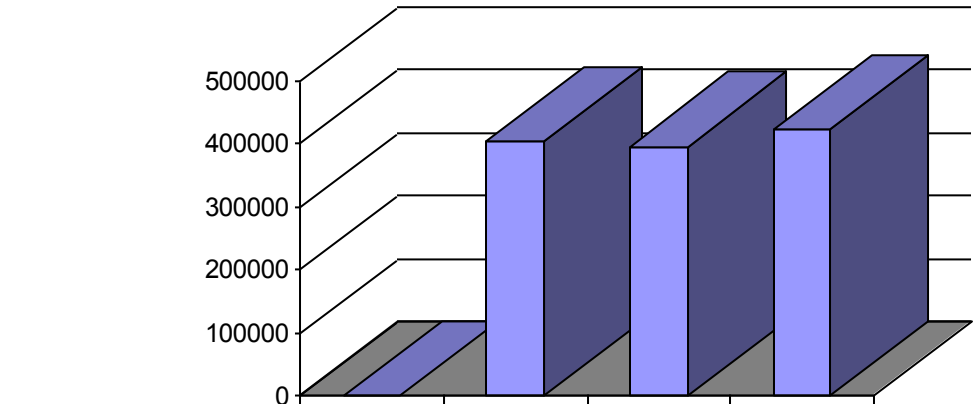
Figure 8.8
Annual Revenue Miles Huntsville Shuttle
Years 2005-2008



	2005	2006	2007	2008
Annual Revenue Miles	648,590	613,880	608,804	612,049

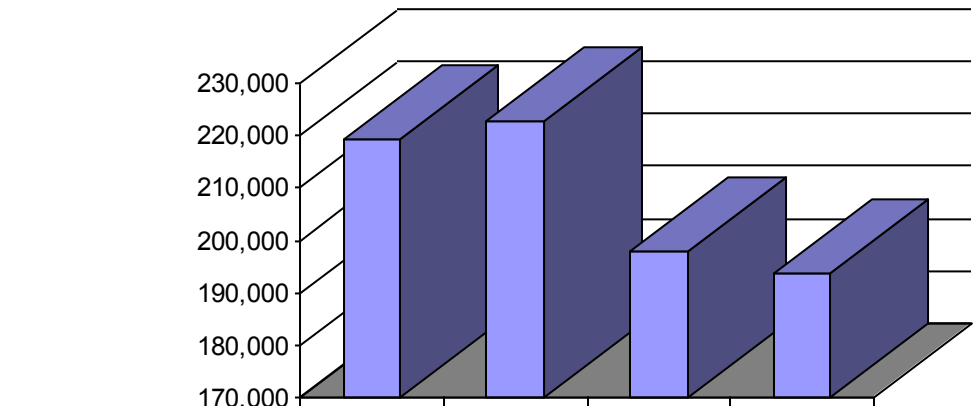
***Annual Revenue Miles for 2005 are not available.**

Figure 8.9
Annual Revenue Miles Handi-Ride
Years 2005-2008



	2005	2006	2007	2008
Annual Revenue Miles	0	403,106	395,958	423,688

Figure 8.10
Annual Revenue Miles TRAM
Years 2005-2008

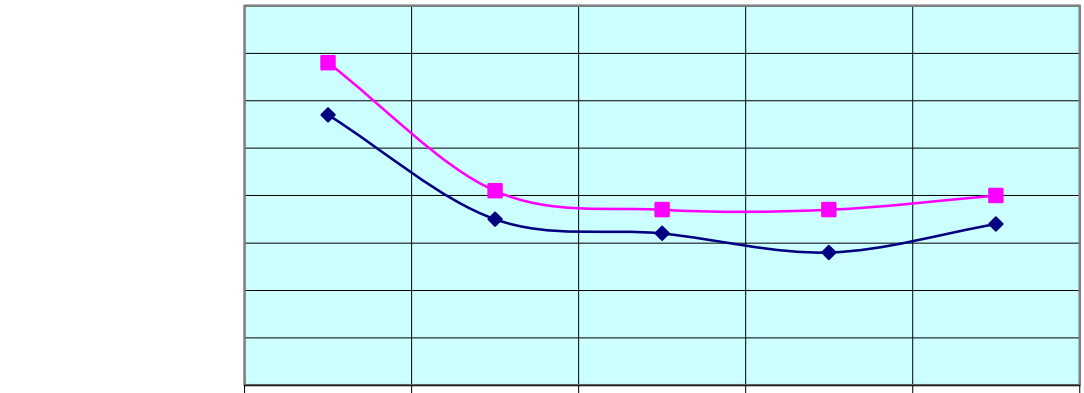


	2005	2006	2007	2008
Annual Revenue Miles	219,255	222,770	197,982	193,836

b. CMP Transportation Network

Travel time data is the best measure of mobility on transportation networks. Unfortunately, real time travel data is not available for the Huntsville area CMP transportation network. The **Year 2025 Transportation Plan** as well as the **Year 2030 Transportation Plan** and the 2035 update modeled travel time on roads within the MPO study area, which mirrors the CMP transportation network. Higher speeds translate into better mobility across the network. A comparison between the speeds indicated by the **Year 2025 Transportation Plan**, adopted in January 2000, the **Year 2030 Transportation Plan**, adopted during 2005, and the modeled year 2035 transportation network are shown at **Figure 8.11**. Overall, travel speeds have decreased on all classifications of roadways. This decrease in speed indicates more heavily traveled roadways. A decrease in speed of about 10 miles per hour is indicated on freeways and minor arterials, while expressways, major arterials, and major collectors decreased in travel speed by about 5 miles per hour.

Figure 8.11
Comparison of Average Speed on the CMP Network



	Freeway	Expressway	Major Arterials	Minor Arterials	Major Collectors
Base Year 2000	68	41	37	37	40
Base Year 2005	57	35	32	28	34

4. System Accessibility Measures

System accessibility measures are activity oriented, and measure the degree of ease that individuals experience in traveling to employment, shopping, school, and even other modes of transportation. For the purpose of this section, fixed route public transit and the CMP network were evaluated.

a. Public Transit Accessibility

Public transit accessibility is somewhat difficult to measure. There are assurances; however, that transit accessibility goals are met through the triennial **Title VI Report** submitted by the Huntsville Parking and Public Transit Division, and required by the Federal Transit Administration. Such assurances involve passenger opinion surveys, needs-analysis route committees involved in improving and developing new routes, public hearings, and citizen input gathered from these events. Accessibility is furthermore established as the norm through the distribution of specific transit amenities and access of service to a majority of the population fitting the minority population and/or low income profile. System accessibility is measured every three years, and is documented in detail in the

Title VI Report, available for public review in the City of Huntsville's Department of Parking and Public Transit office.

b. CMP Network Accessibility

CMP network accessibility has been measured by referring to transportation related statistics available from the US Census Bureau. Conclusions have been drawn from data presented in the Huntsville Planning Division's "Journey to Work" publications, which measure commuting patterns countywide.The 1990 and 2000 versions of the publication were consulted. The statistics available in these reports are the measure of choice, since most peak-time travel is work-related, and most roadway congestion typically occurs during this time.

Upon evaluating the available statistics, it was determined that overall congestion in the area is not extreme and network accessibility is acceptable. Under free flow conditions, persons can typically commute from one end of the county to the other in about 30 to 40 minutes. **Table 8.1**, which follows, shows some comparisons of Journey to Work Data from 1990 and 2000.

Table 8.1

US Census 2000: Local Journey to Work Statistics

	% Drove Alone		% In Carpools		% Using Public Transit		% Using Other Means		% Walked or Worked at Home		Average Travel Time (Minutes)	
Location	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**
Alabama	79%	83%	15%	12.3%	1%	.5%	1%	.9%	4%	3.4%	N/A	24.8
MadisonCounty	82.4%	83.9%	12.5%	11.3%	.3%	.4%	.8%	.7%	4%	3.6%	21.7	20.9
Huntsville	83.2%	83.8%	11.8%	11.2%	.4%	.5%	.8%	.7%	3.7%	3.9%	20.0	18.0
Madison	90%	87.1%	7.5%	9.9%	.9%	.1%	.6%	.4%	1%	2.6%	19.4	18.2

Data Source: US Census Bureau and City of Huntsville Planning Division

Madison County showed a slight reduction in carpool activity, and a slight increase in persons driving to work alone. Statistics for the City of Huntsville remained relatively unchanged. A slight increase in public transit use was noted, and is equivalent to the State standard. The City of Madison showed a 2.4% increase in carpooling, and a 2.9% decrease in persons driving to work alone. These results indicate that countywide, a 1.5% increase of single occupied vehicles are accessing the transportation network. In the

City of Huntsville, .6% more single occupied vehicles are accessing the transportation network, and in the City of Madison, the number of single occupied vehicles accessing the network decreased by 2.9%.

The mean travel to work time decreased during 2000. Contributing to this improvement is no doubt the construction of Interstate 565, Four Mile Post Extension/Cecil Ashburn Drive, and other regional road widening and construction projects occurring between 1990 and 2000.

A countywide analysis of commuter patterns shows that the number of commuters increased in 2000 by 9.2%, yet commuters experienced a decrease in travel time to work in most subareas. A comparison of total commuters is shown at **Figure 8.12**, and a breakdown of travel time per subarea is displayed at **Table 8.2**. A map of subareas can be found on page 8-22.

Subarea boundaries changed slightly in 2000 based upon the latest census data; however, the boundaries' impact on commuting times per subarea should not be significant nor substantial. Subareas experiencing an increase in land area include Madison, Triana, Gurley, Riverton, East Central, New Market, and Harvest/Monrovia. Subareas experiencing a decrease in land area include Airport, Triana, North, Downtown, and 72 East. Better delineation was made between the Big Cove and East subareas. Even when the Big Cove and East subareas were combined and compared, the area still exhibited a decrease in commuting times. During the past ten years, the Big Cove and East subareas have experienced tremendous growth with the development of the Hampton Cove community. The number of commuters in these combined subareas increased by approximately 127%. The fact that improvements have been made in commuting times in subareas which now have an increased population base is quite impressive. The improvement of these travel times may be the direct result of the construction of the Four Mile Post Extension/Cecil Ashburn Drive which connects the two subareas to the Near South East subarea.

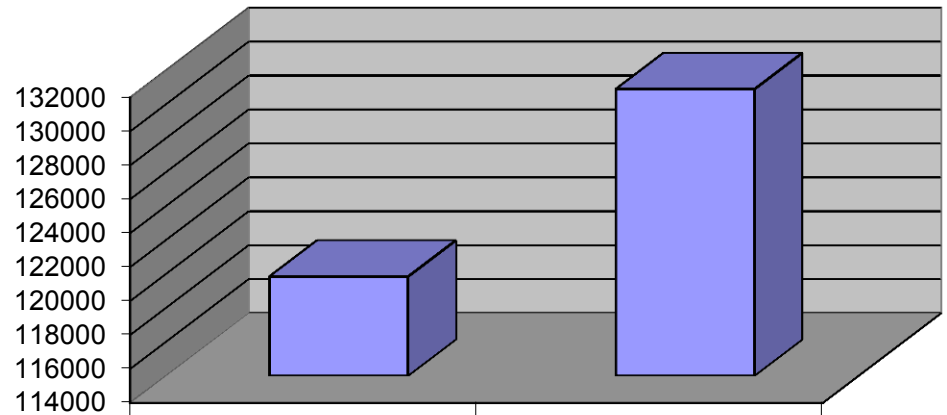
Five subareas show an increase in travel time: Hazel Green, Triana, North West, Toney/Ardmore, and ResearchPark. The North West and ResearchPark subareas show an increase of .2 minutes of travel time – which is very minimal. The remaining three subareas reporting an increase are located near the Madison County limits, in suburban areas. Triana, whose northwest boundary shifted further south and northeast boundary shifted

further north, showed an average 2 minute increase in commuting times.

When comparing the changes in travel time to work, and noting improvements as well as minimal increases in travel time, it is determined that network accessibility during peak hours, (when most congestion occurs) is indeed acceptable.

Figure 8.12

Comparison of Total Commuters 1990 vs. 2000



	Total Commuters 1990	Total Commuters 2000
Total Number of Commuters	119857	130905

Map 8.1: CMP Subareas

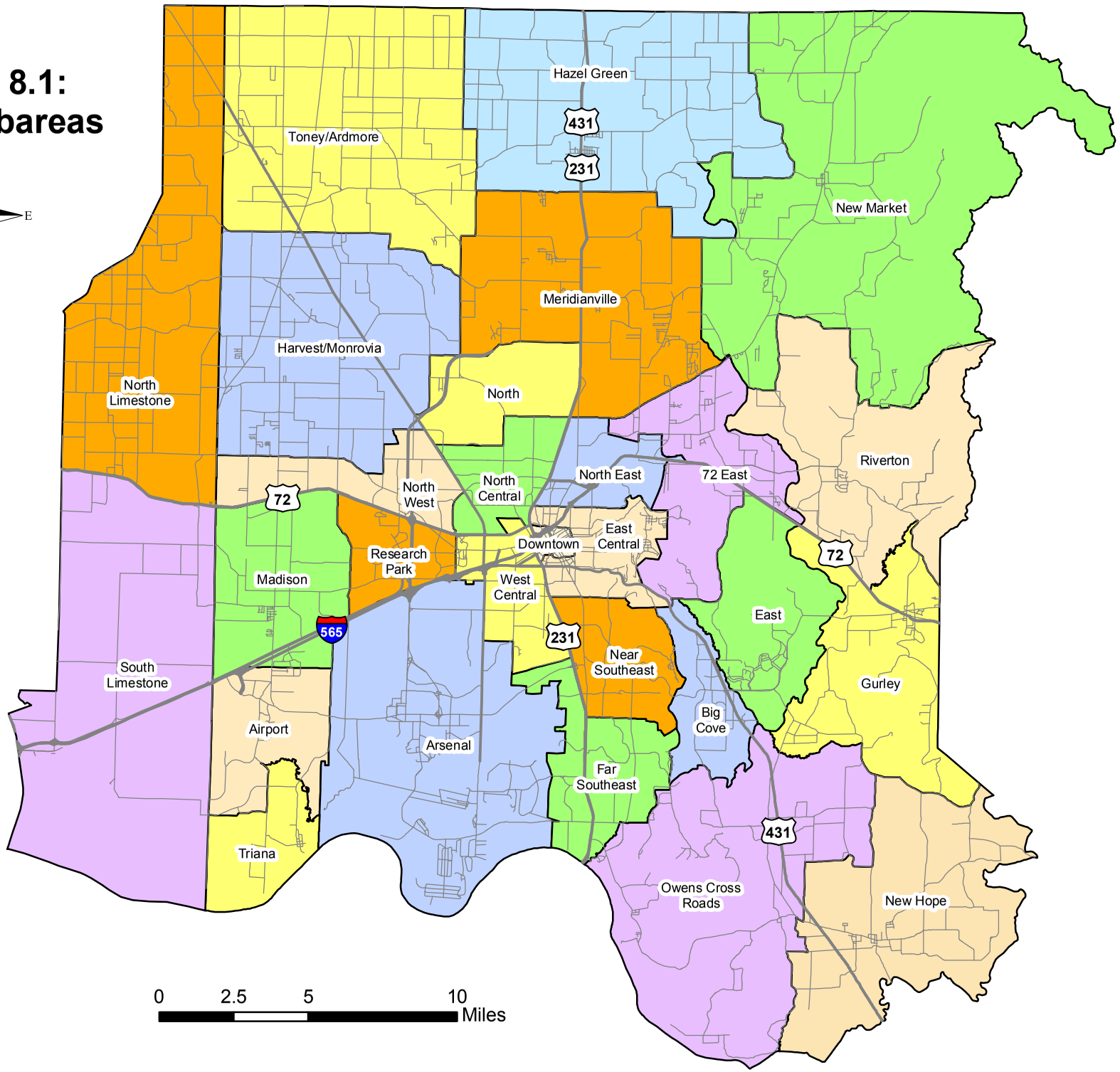


Table 8.2

Comparison of Travel Time to Work per Subarea Place of Residence

Subarea (Place of Residence)	Average Travel Time to Work (Minutes)		Change in Travel Time (Minutes)
	1990	2000	
Airport	19.3	18.4	-.9
Arsenal	12.2	11.4	-.8
Big Cove	26.5	22.5	-4.0
Downtown	15.8	12.2	-3.6
East	24.7	22.7	-2.0
East Central	19.3	16.2	-3.1
Far South East	22.9	20.1	-2.8
Gurley	30.8	27.4	-3.4
Harvest/Monrovia	26.0	23.8	-2.2
Hazel Green	29.6	30.9	+1.3
Madison	19.4	18.2	-1.2
Meridianville	26.4	23.9	-2.5
Near Southeast	19.8	16.9	-2.9
New Hope	32.7	29.3	-3.4
New Market	32.4	31.1	-1.3
North	23.9	21.7	-2.2
North Central	20.2	19.2	-1.0
North East	21.1	18.5	-2.6
North West	16.9	17.1	+.2
Owens Cross Roads	30.6	27.7	-2.9
ResearchPark	17.6	17.8	+.2
Riverton	31.2	27.1	-4.1
Toney/Ardmore	30.6	32.1	+1.5
Triana	20.0	22.0	+2.0
West Central	18.4	17.1	-1.3
72 East	25.5	24.7	-.8
All Subareas	21.7	20.9	-.8

Source: US Census Bureau and City of Huntsville Planning Division

5.Non-Recurring Congestion Measures

The performance measure of choice for quantifying non-recurring congestion is traffic accident statistics within the CMP network. The time of delay, severity of accidents, and the time to clear the accidents may vary widely and are unpredictable; however, the number of traffic accidents at a specific location does give some indication of where traffic flow may be impeded. The top ten intersections with the most traffic accidents have been identified for each studied year, and are displayed at **Table 8.3**. Data was provided by accessing the CARE program, a traffic accident database developed by the University of Alabama and endorsed by the Alabama Department of Transportation. The data provided was from the time period of January 1, 2005 through December 31, 2008. At the time of publication, data for 2009 had not been finalized. High numbers of traffic accidents are oftentimes an indicator of other congestion problems at intersections. Of the intersections comprising the top 10 ten accident locations

during 2004, 2 of these locations have been identified as corridors currently experiencing congested conditions per the latest transportation model. The model also indicates that an additional 2 locations may experience congestion in the future.

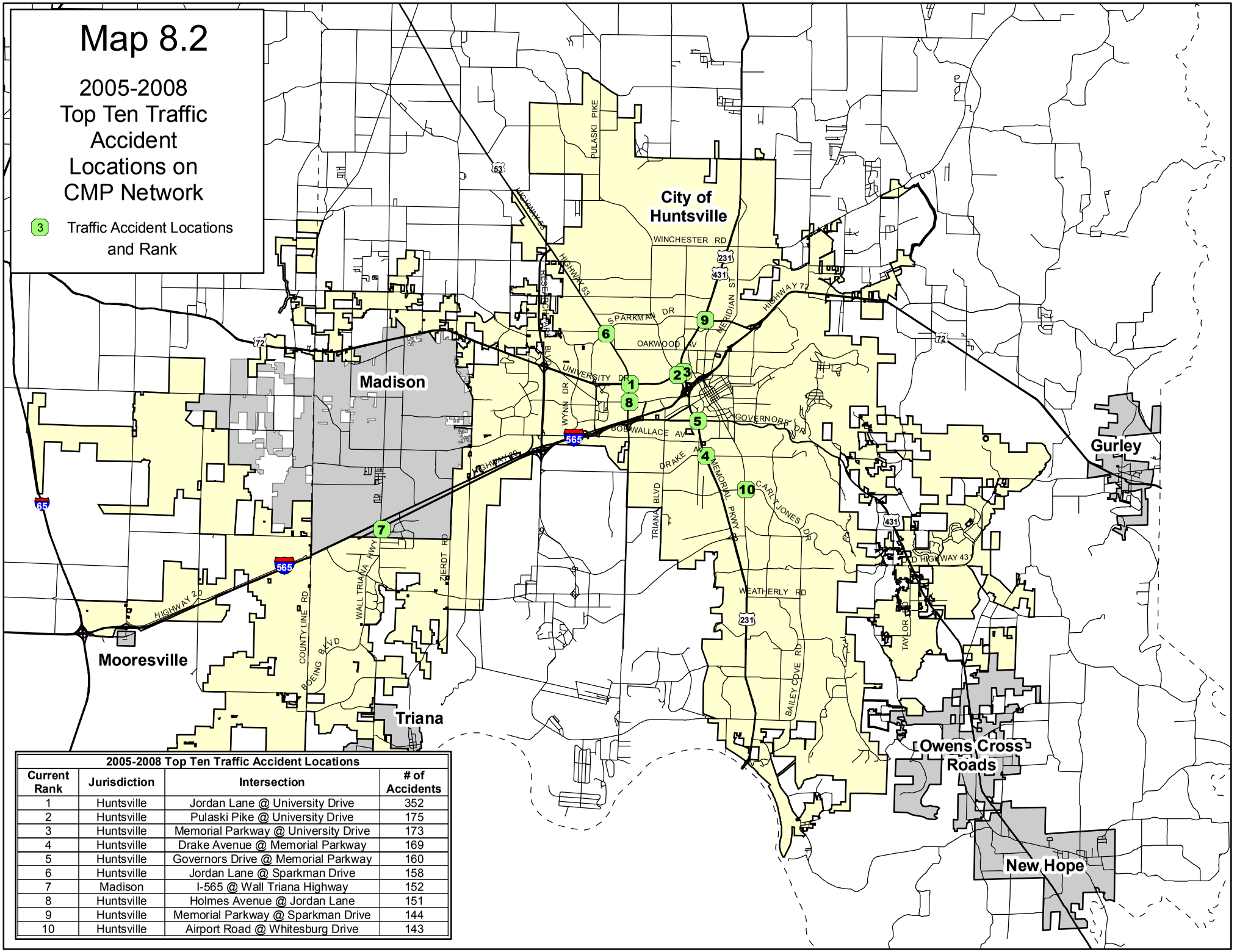
Table 8.3
Top Ten Traffic Accident Locations
January 1, 2005 – December 31, 2008

Current Rank	Jurisdiction	Intersection	# of Accidents
1	Huntsville	University Drive @ Jordan Lane	352
2	Huntsville	Pulaski Pike @ University Drive	175
3	Huntsville	Memorial Parkway @ University Drive	173
4	Huntsville	Memorial Parkway @ Drake Avenue	169
5	Huntsville	Memorial Parkway @ Governors Drive	160
6	Huntsville	Jordan Lane @ Sparkman Drive	158
7	Madison	I-565 @ Wall Triana Highway	152
8	Huntsville	Holmes Avenue @ Jordan Lane	151
9	Huntsville	Memorial Parkway @ Sparkman Drive	144
10	Huntsville	Airport Road @ Whitesburg Drive	143

Map 8.2

2005-2008 Top Ten Traffic Accident Locations on CMP Network

3 Traffic Accident Locations and Rank



2005-2008 Top Ten Traffic Accident Locations			
Current Rank	Jurisdiction	Intersection	# of Accidents
1	Huntsville	Jordan Lane @ University Drive	352
2	Huntsville	Pulaski Pike @ University Drive	175
3	Huntsville	Memorial Parkway @ University Drive	173
4	Huntsville	Drake Avenue @ Memorial Parkway	169
5	Huntsville	Governors Drive @ Memorial Parkway	160
6	Huntsville	Jordan Lane @ Sparkman Drive	158
7	Madison	I-565 @ Wall Triana Highway	152
8	Huntsville	Holmes Avenue @ Jordan Lane	151
9	Huntsville	Memorial Parkway @ Sparkman Drive	144
10	Huntsville	Airport Road @ Whitesburg Drive	143

8.2.3 CMP Technical Ranking

Methods were established in the **Huntsville Area Transportation Study CMP Procedures and Responsibilities Report (Appendix C)** for prioritizing current and anticipated congested corridors. The corridors within the defined CMP transportation network were prioritized based upon the following criteria:

- Extent of current congestion
- Extent of anticipated congestion per the 2035 modeled network
- Current traffic volumes
- Safety
- Multi-modal connectivity
- Prior funding commitments

It is important to note that the model only indicates the locations where average daily traffic volumes may exceed average daily roadway capacity. A consistent method for measuring hourly or peak real-time traffic flow for **all** corridors comprising the CMP network does not currently exist. Therefore, peak hourly flow is not used as a standard of measure, since benchmarks must be established that can be measured consistently from year to year.

Since it is not feasible to identify congestion mitigation strategies for all corridors simultaneously, the top ten corridors were selected. The top ten corridors that have been selected, are presented for congestion mitigation strategy recommendations in **Section 8.2.4** of this report.

The list of the top ten congested corridors follows on the next page:

Table 8.4
CMP Top Ten Corridor Technical Ranking List

Rank	Roadway	Location
1	US 72 East	Maysville Road to Moores Mill Road
2	US 72 West	Hughes Road to Nance Road
	US 72 West	Nance Road to Jeff Road
3	US 231 South	Governors Drive to Bob Wallace
	US 231 South	Bob Wallace to Drake Avenue
	US 231 South	Drake Avenue to Airport Road
4	US 72 West/University Drive	Jeff Road to Providence Main
	US 72 West/University Drive	Providence Main to Enterprise Drive
5	US 231 South	Byrd Spring Road to Weatherly Road
	US 231 South	Weatherly Road to Mountain Gap Road
6	Zierdt Road	Madison Boulevard to Edgewater Drive
7	Old Madison Pike	Voyager Way to Research Park Blvd
	Old Madison Pike	Research Park Blvd to Wynn Drive
8	Jordan Lane	I-565 to Holmes Avenue
	Jordan Lane	Holmes Avenue to University Drive
9	I-565	County Line Road to Wall Triana Hwy
10	I-565	Mooresville Road to Greenbrier Road

8.2.4 Strategy Recommendations

Federal CMP legislation requires the identification and evaluation of strategies to determine the most effective method(s) to alleviate congestion. The legislation further defines the categories of strategies or combination of strategies to be considered. The **CMP Procedures and Responsibilities Report** comprehensively lists each strategy to be considered within screening matrices to assist jurisdictions in selecting appropriate and feasible strategies to correct problematic corridors. The strategies, in order of consideration, are:

- Level One Strategies – Strategies that Eliminate or Reduce Trips
- Level Two Strategies – Strategies that Involve Traffic Operational Improvements
- Level Three Strategies – Strategies that Shift Trips from Single Occupancy Vehicles to Public Transit, Other High Occupancy Vehicles, and Other Modes
- Level Four Strategies – Strategies that Involve Intelligent Transportation Systems
- Level Five Strategies – Strategies that Add Capacity for All Vehicles

Each corridor selected for strategy recommendations has been through a comprehensive screening process. Some solutions may be nontraditional, but may be effective in combating traffic congestion. It is important to remember that the recommendations presented will more than likely require additional study. The following recommendations have been prepared in order to mitigate congested corridors on the CMP Transportation Network.

RANK: 1

CORRIDOR: US 72 East (ARC Corridor V)
BEGIN POINT: Maysville Road
END POINT: Moores Mill Road

FUNCTIONAL CLASSIFICATION: MajorArterial

JURISDICTION: State Controlled Road located in the City of Huntsville

CORRIDOR LENGTH: 1.91 miles

LANE CONFIGURATION: A 4-lane highway divided by a median. This road Is designated as “Corridor V” by the Appalachian Regional Commission.

TRAFFIC CONTROLS: All intersections are under traffic signal control.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Maysville Road to Moores Mill Road	43000	1.27	F	55092	1.10	F

CURRENT LAND USE/DEVELOPMENT TRENDS: This corridor is primarily highway commercial, and has one high employment center located on US 72 East and another located at the corner of US 72 East and Moores Mill Road. This corridor has a portion of land that is undeveloped on the south side; however, landowners intend on developing the property for a commercial/retail use.

TRANSIT SERVICE: None

CORRIDOR FUNCTION: This corridor is used primarily in AM and PM peak hours by employees traveling into and out of Huntsville from East Madison County as well as counties from the east. The corridor connects directly into Interstate 565, making it a primary artery for traffic to access employment, retail, universities, and healthcare.

OTHER PLANNING DOCUMENTS/STUDIES: This corridor has been identified in Section 4 of this document for improvement to an expressway. This corridor is a portion of project #80, listed in Section 4. Preliminary engineering design is currently underway.

RECOMMENDATIONS: The corridor is presently being designed as an expressway, beginning at the intersection of US 72 East and Maysville Road to Shields Road with a split interchange at Moores Mill Road and an interchange further east at Shields Road. At the present time, the Alabama Department of Transportation has the project scheduled for right of way acquisition to begin in fiscal year 2010, and for construction to begin in fiscal year 2011. It is recommended that this project (shown as project #80:U.S. 72 East/ARC Corridor V from Moores Mill and Shield Road to US 72 East in Section 4), proceed as scheduled. Upgrading this corridor to an expressway will alleviate “stop and go traffic” at the Moores Mill Road intersection.

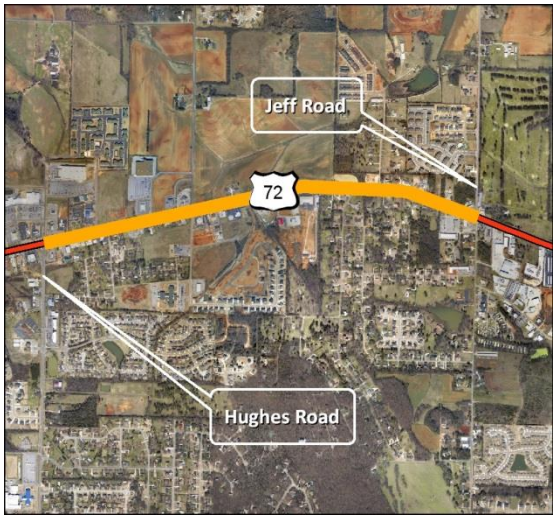
RANK: 2

CORRIDOR: US 72 West
BEGIN POINT: Hughes Road
END POINT: Jeff Road

FUNCTIONAL CLASSIFICATION: Major Arterial

JURISDICTION: State Controlled Road located in the City of Huntsville and the City of Madison

CORRIDOR LENGTH: 1.56 miles



LANE CONFIGURATION:Corridor is 4-lane divided with depressed grassymedian averaging 30 feet in width, with separate right and left turning lanes at most signalized intersections.

TRAFFIC CONTROLS:Signals control traffic at three intersections, and three local residential streets west of Jeff Road/Slaughter Road are under stop sign control.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Hughes Road to Nance Road	45000	1.33	F	68838	1.38	F
Nance Road to Jeff Road	46500	1.37	F	56406	1.13	F

CURRENT LAND USE/DEVELOPMENT TRENDS: The remaining undeveloped frontage along this corridor is expected to become 100% developed by the year 2035 as commercial use. Multi-family residential is likely as the second tier of development to the rear of the commercial tracts.

TRANSIT SERVICE: None

CORRIDOR FUNCTION: This corridor serves as a federal highway and major arterial and with the exception of the I-565 Madison Boulevard corridor, is the only multilane east/west continuous route between Huntsville and Madison and points west. It serves high volumes of commuter traffic to employment centers located in Research Park and Redstone Arsenal, from northwest Madison County and northern Limestone County. This corridor also directly connects the major retail and other commercial properties of both Huntsville and Madison.

OTHER PLANNING DOCUMENTS/STUDIES: This corridor has been identified in Section 4 of this document for improvement. Project #86, listed in Section 4, includes this segment of roadway.The City of Madison is presently constructing intersection improvements at US 72 and Hughes Road utilizing their own funds.

RECOMMENDATIONS: The recommendations for this corridor hinge on a combination of Level 2 and Level 5 strategies. A portion of this project is recommended for improvement, and is part of the larger project listed in Section 4, project #86: U.S. 72/University Drive from Providence Main Boulevard to County Line Road. A multilane divided facility having median control of left turn and cross movement access, in combination with signalization and side street geometric improvements will provide the necessary and additional capacity above that provided by the conventional planned improvements. The City of Madison is constructing intersection improvements at US 72 and Hughes Road, which should provide better mobility at that location. The City of Huntsville is widening Nance Road from US 72 to Capshaw Road, and will need to upgrade the signalization timing during this construction project. It is recommended that the intersection and the corridor be monitored for any further improvements or upgrades that need to be made.

RANK: 3

CORRIDOR: US 231 South (Memorial Parkway)
BEGIN POINT: Governors Drive
END POINT: Airport Road

FUNCTIONAL CLASSIFICATION: Major Arterial

JURISDICTION: State Controlled Road located in the City of Huntsville

CORRIDOR LENGTH: 2.14 miles

LANE CONFIGURATION: 5 continuous lanes are provided in each direction; inner 2 serving as uninterrupted freeway lanes, one uninterrupted continuous transition lane from service road to freeway, and 2 outer lanes along the service road providing access to roadside development and intersecting cross streets at Governors Drive, Bob Wallace, Drake Avenue, and Airport Road.

TRAFFIC CONTROLS:Traffic signals control intersections with service roads at Governors Drive, Bob Wallace Avenue, Drake Avenue, and Airport Road.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Governors Drive to Bob Wallace	108000	1.44	F	56924	.76	B
Bob Wallace to Drake Avenue	93000	1.24	F	59800	.80	C
Drake Avenue to Airport Road	94000	1.25	F	54770	.73	B

CURRENT LAND USE/DEVELOPMENT TRENDS:Corridor frontage is 100% developed, primarily with two industrial sites occupied by the Huntsville Times and Arora Technologies. A major retail shopping center is located between Bob Wallace and Drake Avenue, and another major retail center is located on Airport Road near US 231 South (Memorial Parkway).

TRANSIT SERVICE: This corridor is served by multiple routes – the Airport Road Route being the main route. Other routes provide limited service to the corridor: The Weatherly Road Route provides service from Bob Wallace to Airport Road, The Airport Road Route provides service to US 231 and Airport Road, and the Red and Blue Routes serve Drake Avenue and Memorial Parkway. All routes run hourly except for the Red and Blue Routes, which run every 30 minutes.

CORRIDOR FUNCTION: This corridor serves as a federal highway and major arterial and thus serves both local and inter-state traffic.Centrally located, it is the most heavily north/south corridor in Huntsville. It connects to the only bridge crossing the Tennessee River between Guntersville, Alabama and I-65 near Decatur, Alabama.

OTHER PLANNING DOCUMENTS/STUDIES: None

RECOMMENDATIONS: A detailed assessment of all strategies was conducted. The parallel service road (not the inner freeway lanes) operate at peak hour Level of Service E or F. Level 4 and Level 2 strategies are recommended. ITS strategies coupled with improvements to signal operation should provide an acceptable level of service at projected traffic volumes. The City of Huntsville Traffic Engineering Division recommends that the intersection of Bob Wallace and Memorial Parkway provide a separate right turn lane from east to south, to help mitigate congestion from the service roads to the Memorial Parkway mainline.Additionally, US 231 south of Airport Road is currently under engineering design to upgrade the road to a freeway. Service roads have been constructed on US 231 from Whitesburg Drive to Weatherly Road, and an overpass was recently constructed to allow more free flow traffic. It is anticipated that once these improvements are made, that traffic along the entire stretch of US 231 will experience more free flow, eliminating stop and go traffic on the main corridor. Future traffic counts assume that the Southern Bypass is constructed; thereby, taking traffic from the portions of US 231 and dispersing it throughout the network.

RANK: 4

CORRIDOR: US 72 West
BEGIN POINT: Jeff Road
END POINT: Enterprise Way

FUNCTIONAL CLASSIFICATION: Major Arterial

JURISDICTION: State Controlled Road located in the City of Huntsville

CORRIDOR LENGTH: 2.16 miles

LANE CONFIGURATION:6-lane divided from Enterprise Drive west for approximately 0.8 miles and 7 lanes undivided until Providence Main. From Providence Main to Jeff Road, the corridorturns into a 4-lane divided corridor. University Driveapproaches to all signalized intersections are provided with left turn lanes, and most are provided with right turn lanes.

TRAFFIC CONTROLS:Most public street intersections along this corridor are under traffic signal control.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Jeff Road to Providence Main	42000	1.24	F	59848	1.20	F
Providence Main to Enterprise Way	39000	1.15	F	61528	1.23	F

CURRENT LAND USE/DEVELOPMENT TRENDS:With the exception of a small number of parcels, and two existing residential dwellings at the Providence intersection, this corridor is 100% developed – primarily in commercial activities.

TRANSIT SERVICE: The Huntsville Shuttle provides limited service along this corridor. The hourly route serves University Drive; however, the westward extent of service is Enterprise Way/Wayne Road.

CORRIDOR FUNCTION:This corridor serves as a federal highway and major arterial and with the exception of the I-565 Madison Boulevard corridor, is the only multilane east/west continuous route between Huntsville and Madison and points west. It serves high volumes of commuter traffic to employment centers located in Research Park and Redstone Arsenal, from northwest Madison County and northern Limestone County. This corridor also directly connects the major retail and other commercial properties of both Huntsville and Madison. Project #86, shown in Section 4, includes this segment of roadway.

OTHER PLANNING DOCUMENTS/STUDIES: This corridor has been identified for improvement in Section 4 of this document as Project #86: U.S. 72/University Drive from Providence Main to County Line Road.

RECOMMENDATIONS: Current right of way limitations for this segment may make widening a little challenging. Such improvement is indicated in Section 4 of this document, project #86. However, geometric improvements to side street approaches (Level 2 Strategy), coupled with ITS and traffic signal improvements (Level 4 Strategy) will result in significant corridor capacity improvements. City of Huntsville Traffic Engineers recommend improvements on Enterprise Way between US 72 and Moores Farm for signal improvements and left turn restrictions at the shopping center exits. These projects are shown in Section 4 of this document and Section 8.4.1.1 as Maintenance and Operations Projects “B” and “F.”The City of Huntsville has planned roadway improvements at Jeff Road from US 72 to Capshaw Road. Prior to construction, these signals will be retimed to allow for enhanced mobility of vehicles at US 72 and Jeff Road.

RANK: 5

CORRIDOR: US 231 South (Memorial Parkway)
BEGIN POINT: Byrd Springs Road
END POINT: Mountain Gap Road

FUNCTIONAL CLASSIFICATION: Major Arterial

JURISDICTION: State Controlled Road located in the City of Huntsville

CORRIDOR LENGTH: 2.47 miles

LANE CONFIGURATION:6-lane divided, with a 40' depressed grassy median, from Byrd Springs Road to Whitesburg Drive and from south of Weatherly Road to Mountain Gap Road. The corridor provides additional right and left turn lanes at all major signalized intersections. US 231 between Whitesburg Drive and Weatherly Road is being upgraded to allow for free flow traffic via an overpass and service roads.Construction of theservice roads are complete, and the overpass project will be completed soon.

TRAFFIC CONTROLS:Traffic signal controls are evident at each public street intersection.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Byrd Springs to Weatherly Road	50526	1.01	E	44700	.60	A
Weatherly Road to Mountain Gap Road	50526	1.01	E	44600	.59	A

CURRENT LAND USE/DEVELOPMENT TRENDS: The corridor is completely developed as commercial with the exception of a few parcels of vacant land.

TRANSIT SERVICE: The Weatherly Road Route serves this corridor on an hourly basis.

CORRIDOR FUNCTION: This corridor serves as a federal highway and major arterial and thus serves both local and inter-state traffic. Centrally located, it is the most heavily north/south corridor in Huntsville. It connects to the only bridge crossing the Tennessee River between Guntersville, Alabama and I-65 near Decatur, Alabama.

OTHER PLANNING DOCUMENTS/STUDIES: This corridor has been identified for improvement in Section 4 of this document. Projects #35 and #41, listed in Section 4, includes this segment of roadway.Additionally, the current Transportation Improvement Program includes service road improvements and overpasses on US 231 (Memorial Parkway) at Martin Road, Byrd Springs, and Lily Flagg. Right of way acquisition is underway. Utility relocation and clearing and grubbing is scheduled for fiscal year 2010. The State Department of Transportation has construction scheduled for fiscal years 2014 and 2017. The construction of service roads and an overpass have been completed on US 231 from Whitesburg Drive to Weatherly Road. Additionally, a project to construct service roads and overpasses at Mountain Gap Road and Hobbs Road is identified in Section 4 (project #41 of this document. An access management and intersection improvement project has been identified for a portion of this project, from Hobbs Road to Weatherly Road (project "I").

RECOMMENDATIONS: It is recommended that the construction of grade separation projects (i.e., Strategy 5 – the construction of service roads and associated overpasses) be accelerated for the currently planned locations at Martin Road, Byrd Springs Road, and Lily Flagg. This project is formally listed in this document as project #35: Memorial Parkway (including overpass/interchange) from North of Whitesburg Drive/South of Golf Road @ U.S. 231 North.It is also recommended that funding be pursued to construct the service road and overpass project at Mountain Gap and Hobbs Road. This project is formally listed in Section 4 as project #41: Memorial Parkway (including overpass/interchange) at Mountain Gap/Hobbs Road @ U.S. 431 South. This project will improve traffic flow in the area and will help bring to fruition the goal of unimpeded traffic flow from North Memorial Parkway to Hobbs Island Road, near the Tennessee River.

RANK: 6

CORRIDOR: Zierdt Road
BEGIN POINT: Madison Boulevard
END POINT: Edgewater Drive

FUNCTIONAL CLASSIFICATION: Major Collector

JURISDICTION: City of Madison/City of Huntsville

CORRIDOR LENGTH: 1.06 miles

LANE CONFIGURATION: A 2-lane corridor.

TRAFFIC CONTROLS:The intersection of Zierdt Road and Madison Boulevard is under traffic signal control. All other intersections are under traffic signcontrol.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Madison Boulevardto Edgewater Drive	20908	1.26	F	30200	1.18	F

CURRENT LAND USE/DEVELOPMENT TRENDS: This corridor is primarily residential on the west side, and borders Redstone Arsenal on the east side. This area has seen tremendous residential growth in the recent past which has increased traffic flow on this corridor.

TRANSIT SERVICE: None

CORRIDOR FUNCTION: This corridor is used heavily in AM and PM peak hours by commuters between the high tech industries and their residences within the City of Huntsville and the City of Madison. Of particular importance is the western entrance gate at Redstone Arsenal at Zierdt Road and Martin Road. This gate serves a majority of employees residing west of Redstone Arsenal. Additionally, the corridor is utilized by residents of the Town of Triana, which lies south on Zierdt Road. As employment growth increases are expected on and around Redstone Arsenal due to BRAC, traffic is expected to increase as well.

OTHER PLANNING DOCUMENTS/STUDIES: The project is identified in Section 4 of this document for improvement. Project #95, listed in Section 4, includes this segment of roadway. Additionally, the project is identified in the current Transportation Improvement Program for improvement. Zierdt Road from Madison Boulevard to south of Martin Road is currently under design. The Transportation Improvement Program has right of way acquisition scheduled for fiscal year 2010. The State Department of Transportation has clearing and grubbing scheduled for fiscal year 2013, and construction scheduled for fiscal year 2014.

RECOMMENDATIONS: It is recommended that engineering design continue for project #95: Zierdt Road from Madison Boulevard to South of Martin Road, and that the project bemoved up in the Transportation Improvement Program as funding is available. This will require close coordination with the State, Federal Highway Administration, and Redstone Arsenal to ensure that the project is not impeded. Additionally, City of Huntsville Traffic Engineering has recommended that Redstone Arsenal have equipment to provide manual operation of the traffic signal at the intersection of Zierdt Road and Martin Road.

RANK: 7

CORRIDOR: Old Madison Pike
BEGIN POINT: Voyager Way
END POINT: Wynn Drive

FUNCTIONAL CLASSIFICATION: Minor Arterial

JURISDICTION: City of Huntsville

CORRIDOR LENGTH: 1.21 miles

LANE CONFIGURATION:The corridor is 4-lanes, divided.

TRAFFIC CONTROLS:The intersections of Wynn Drive, Research Park Boulevard, and Voyager Drive are under traffic signal control. Other side streets are controlled by stop signs.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Voyager Way to Research Park Boulevard	13700	.43	A	51359	1.61	F
Research Park Boulevard to Wynn Drive	14300	.45	A	35004	1.10	F

CURRENT LAND USE/DEVELOPMENT TRENDS:This corridor includes Research Park, which has seen some major growth in the recent past, and is anticipated to grow and develop even more in the future. Recent development at the intersection of Research Park Boulevard and Old Madison Pike has been of a mixed use nature, with the construction of Bridge Street – a conglomeration of residential, hotel, retail, and office uses.

TRANSIT SERVICE: This corridor is served by the Bridge Street Route.

CORRIDOR FUNCTION:This corridor is used primarily as a connecting route between residents of the City of Madison, the City of Huntsville, and northwestern parts of Madison County who are employed in Research Park. The corridor also serves a major retail center: Bridge Street. The corridor as a whole serves as the only east-west connector from Madison to Huntsville between US 72 and I-565.

OTHER PLANNING DOCUMENTS/STUDIES: None. Old Madison Pike to the west of Voyager Way to Slaughter Road is scheduled in the current Transportation Improvement Program for improvements in fiscal year 2011.

RECOMMENDATIONS: The Base Year network indicates that this corridor is currently not experiencing a tremendous amount of congestion; however, it is anticipated by 2035. At the present time, it is recommended that the corridor be monitored, with the possibility of Level 2 Strategies (specifically traffic signal timing improvements) be performed if needed. It is also recommended that traffic improvements scheduled on Old Madison Pike west of Voyager Way be completed as planned. This will improve traffic flow coming into Research Park from the west. City of Huntsville Traffic Engineering recommends signal system improvements and system optimization for the intersections of Old Madison Pike from Steeplechase to Jan Davis Drive. Additionally, City of Huntsville Traffic Engineering recommends the construction of a joint bike/pedestrian bridge on Old Madison Pike, which crosses Research Park Boulevard. This project will provide an alternate facility for bike/ped traffic. This project is listed in Section 4 and Section 8.4.1.1 of this document as Maintenance and Operations Project “D.”

RANK: 8

CORRIDOR: Jordan Lane
BEGIN POINT: I-565
END POINT: University Drive

FUNCTIONAL CLASSIFICATION: Major Arterial

JURISDICTION: State Controlled Road located in the City of Huntsville

CORRIDOR LENGTH: 1.03 miles

LANE CONFIGURATION:Nominally, a 5 lane undivided with continuous center two way turn lane, with two left turn lanes at University Drive and atboth ramps to I-565. North and south approaches to the I-565 interchangehave a 7 lane undivided section.

TRAFFIC CONTROLS: All major intersections are controlled by traffic signals. Side streets are controlled by stop signs.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
I-565 to Holmes Avenue	27800	.87	C	37314	1.10	F
Holmes Avenue to University Drive	25800	.81	C	38842	1.15	F

CURRENT LAND USE/DEVELOPMENT TRENDS:Uses along this corridor are primarily highway commercial between Holmes Avenue and I-565, with a short section of residential between University Drive and Holmes Avenue. Land is 100% developed.

TRANSIT SERVICE: Transit service is limited, with a route serving the intersection of Jordan Lane and Holmes Avenue and a route serving the intersection of Jordan Lane and University Drive.

CORRIDOR FUNCTION:Corridor use is shared by locals with some traffic utilization by non-locals utilizing Alabama Highway 53 between I-565 and I-65 at Ardmore, Alabama/Tennessee. The corridor provides excellent access from Redstone Arsenal to I-565 and US 72.

OTHER PLANNING DOCUMENTS/STUDIES: None

RECOMMENDATIONS: Level 1 and Level 3 strategies were deemed not applicable. Level 5 strategies are applicable from I-565 to University Drive, as right of way exists to widen this corridor when growth in traffic volumes justify. The current recommendation is to monitor this corridor for any dramatic increase in traffic which would warrant any improvements to be made. Additionally, the City of Huntsville Traffic Engineering has recommended signal coordinating improvements at I-565 and Jordan Lane, and the installation of a GPS time clock as well as a wireless camera system for field to office observation and traffic signal control at the intersection of University Drive and Jordan Lane.

RANK: 9

CORRIDOR: I-565
BEGIN POINT: County Line Road
END POINT: Wall Triana Highway

FUNCTIONAL CLASSIFICATION: Interstate

JURISDICTION: State Controlled Road located in the City of Madison andCity of Huntsville

CORRIDOR LENGTH: 2.17 miles

LANE CONFIGURATION: A 4-lane divided interstate, with an additional laneavailable for exiting or merging traffic.

TRAFFIC CONTROLS:None.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
County Line Road to Wall Triana Highway	44000	.65	A	121100	1.19	F

CURRENT LAND USE/DEVELOPMENT TRENDS: This corridor primarily consists of vacant land, but provides access “off-ramp” to highway commercial and industrial uses. The construction of an interchange at County Line Road and I-565 is planned, which will spur development along this corridor.

TRANSIT SERVICE: None

CORRIDOR FUNCTION:Interstate 565 provides access to Interstate 65 to the west and US Highway 72 at the eastern part of Madison County.

OTHER PLANNING DOCUMENTS/STUDIES: The project is identified in Section 4 of this document for improvement. The project is listed as #24. Additionally, the project is included in the current Transportation Improvement Program for the construction of an interchange at I-565 and County Line Road.

RECOMMENDATIONS: An interchange at I-565 and County Line Road is under engineering design. The project is scheduled for right of way acquisition for fiscal year 2011, with construction planned for fiscal year 2012. It is recommended that this project proceed as scheduled. This project is listed in Section 4, project #24 as: I-565 interchange @ County Line Road.

RANK: 10

CORRIDOR: I-565
BEGIN POINT: Mooresville Road
END POINT: Greenbrier Road

FUNCTIONAL CLASSIFICATION: Interstate

JURISDICTION: State Controlled Road located in the City of Huntsville and Limestone County

CORRIDOR LENGTH: 2.21 miles

LANE CONFIGURATION:A 4-lane divided interstate, with an additional lane available for exiting or merging traffic.

TRAFFIC CONTROLS:None.

SERVICE CHARACTERISTICS:	2005 ADT	2005 V/C RATIO	2005 LOS	2035 ADT	2035 V/C RATIO	2035 LOS
Mooresville Road to Greenbrier Road	44200	.65	A	115994	1.14	F

CURRENT LAND USE/DEVELOPMENT TRENDS:This corridor primarily consists of vacant land, but provides access “off-ramp” to mostly industrial uses. The construction of an interchange at Greenbrier Road and I-565 is planned, which will spur development along this corridor.

TRANSIT SERVICE: None

CORRIDOR FUNCTION:Interstate 565 provides access to Interstate 65 to the west and US Highway 72 at the eastern part of Madison County.

OTHER PLANNING DOCUMENTS/STUDIES: The project is identified in Section 4 of this document for improvement. The project is listed as project #25. Additionally, the project is included in the current Transportation Improvement Program for the construction of an interchange at I-565 and Greenbrier Road.

RECOMMENDATIONS: An interchange at I-565 and Greenbrier Road has been designed. Right of way acquisition is underway. The State Department of Transportation has construction of the corridor for fiscal year 2014. It is recommended that this project proceed as scheduled. This project is listed in Section 4, project #25 as: I-565 interchange @ Greenbrier Road.

8.2.5 Strategy Effectiveness Evaluations

The previous **Congestion Management System Report on Mobility**, submitted in 2006, highlighted an improvement along a segment that has since been completed. This section will indicate the improvement made and will analyze the effectiveness of the improvement. Since base year traffic counts that were input into the year 2035 transportation model were taken *before* the improvement was completed, the staff will depend upon real-time observations in the field to indicate the improvement's success. This method of analysis and measure of system effectiveness will be applied and the improvement evaluated for effectiveness.

Corridor:
Old Madison Pike from Shelton Road to Research Park Boulevard

Background:
The previous transportation model projected future congestion to be extreme, while the base year model indicated a somewhat acceptable level of service with the exception of a stretch of Old Madison Pike from Slaughter Road to Mariner Way. Observations along Old Madison Pike from Shelton Road to Research Park Boulevard, and the completion of a regional mixed-use retail/office/residential center justified the need for taking some immediate steps to ensure traffic flow is not impeded at this location.

Corrective Action Taken:
Federal funds were leveraged to construct a multi-modal transportation center at the Bridge Street development. Additionally, Shuttle bus service became made available along Old Madison Pike and into ResearchPark. Traffic signals were retimed at the location, indicating operational improvements. Ramp improvements were made by the Alabama Department of Transportation at Research Park Boulevard and Old Madison Pike. The widening of Old Madison Pike from Slaughter Road to ThorntonResearchPark has been planned for several years, and the project is under design. Widening the corridor to handle increased future traffic is tentatively scheduled by the State of Alabama for fiscal year 2010. This widening is a necessity based upon the nature of employment locating to the ResearchPark area. Monitoring of this location is continuing.

Evaluation:
Traffic engineers who have studied the corridor indicate that the action taken to provide Shuttle bus service, revamp the ramps a Research Park Boulevard and Old Madison Pike, and retime the traffic signals along the Bridge Street development has assisted in moving traffic effectively along the corridor. The intersections are performing according to their designed purpose. The planned widening project should continue, due to anticipated traffic flow related to growth in employment along the corridor.

Corridor:
US 431/Governors Drive from Memorial Parkway to Monroe Street

Background:
The previous transportation model projected future congestion, while the base year model indicated a "B" level of service. The City of Huntsville has recently completed a 7-lane corridor widening project along US 432 from Monroe Street eastward to Gallatin Street. This corridor widening project affects traffic signal timing to the points east and west of the corridor improvement.

Corrective Action Taken:
While the base year model showed a "B" level of service, actions were taken by City of Huntsville Traffic Engineers. Traffic signals were retimed along the highlighted corridor to complement the widening improvements which occurred further eastward.

Evaluation:
Traffic engineers who have studied the corridor indicate that the action taken to retime the traffic signals along the corridor have improved traffic flow in the area. This corridor will continue to be monitored for future problems. Future strategies to be considered, if congestion becomes imminent, may include further retiming of traffic signals or ITS strategies, as federal funds are available.

8.2.6 Executive Summary

Since the methodology differs in some portions of the **CMP** which establishes benchmarks for the region, overall system trends have not yet been substantiated. At the present time, census data and other performance measures gives some indication that overall mobility on the transportation network is efficient and accessible, with the exception of several trouble spots which are identified in **Section 8.2.3** and addressed in **Section 8.2.4** of this report. Strategy recommendations have been made for the top ten corridors. The previous **CMS Report on Mobility** identified strategy recommendations which have been implemented. According to traffic engineers working in the jurisdiction where the improvements were made, corrections to the corridors were successful. Once additional strategy recommendations are implemented for other corridors, an assessment will be conducted on the effectiveness of the improvement(s). The overall effectiveness of the congestion management process is dependent upon the data collected, performance of the transportation model, and appropriate analysis of selected performance measures. Ongoing data collection, continuous monitoring, and future reports will serve to comprehensively measure network performance and will provide a more multi-dimensional review and assessment of the state of the local transportation system.

8.3 Safety Management Element

The elimination of hazards that may pose problems within the transportation network will improve the safety of the transportation system.The SAFETEA-LU legislation split the safety and security requirements of TEA-21 into two separate and distinct planning factors to be undertaken by States and MPOs. This was done to further emphasize these planning factors. A full discussion of safety initiatives and identified projects is included in this section.

8.3.1 Strategic Highway Safety Plan

23 CFR 450.322(h) requires States to develop a **Strategic Highway Safety Plan** to focus on implementable policies and methods to make travel on State roads safer for motorists. Additionally, the legislation calls for long range statewide and metropolitan transportation plans to include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects contained in the Strategic Highway Safety Plan.

While States, and to a lesser degree local MPOs, are tasked with strategic safety planning and implementation, other federal organizations have taken an active role in improving safety on the nation's highways. The United States Department of Transportation (USDOT) and the American Association of State Highway and Transportation Officials (AASHTO) have adopted aggressive goals and an aggressive safety plan to reduce fatalities and injuries from traffic crashes.

The AASHTO **Strategic Highway Safety Plan** contains 22 emphasis areas and 92 separate safety strategies that are intended to save 7,000 – 8,000 lives per year. USDOT and AASHTO requested that highway agencies test various emphasis area strategies. AASHTO further requested each State highway agency adopt a statewide

comprehensive safety plan and serve as a "lead State" in one of the primary emphasis areas. The Alabama Department of Transportation has taken on the lead role in the analysis of roadway departure crashes.

The State of Alabama developed its **Strategic Highway Safety Plan** during 2006 with the assistance of almost 100 individuals from 31 agencies and organizations, including representatives from the Technical Coordinating Committee of the Huntsville Area MPO. The Alabama Strategic Highway Safety Plan emphasizes the following areas: Emergency Medical Services, Older/Restricted Drivers, Safety Legislation, Risky Driving, and Run-Off Road Crashes. Countermeasures for each emphasis area were developed as part of the safety plan. While the countermeasures apply to the entire State, no specific projects are identified. Most of the countermeasures fall outside of the MPOs specialization and area of control and are related to driver behavior. The exceptions are proposed roadway improvements that are related to older or at risk drivers and lane departure crashes. These countermeasures either propose comprehensive improvements to signage, signals, and markings or site specific improvements to address issues at high crash sites. Additionally, other organizations within the MPOs jurisdiction already have several programs in place to meet the goals of the **SHSP**.

8.3.1.1 SHSP Emphasis Areas

A review of the State's SHSP indicates that the local MPO and various agencies and organizations within its jurisdictions, have implemented a variety of strategies to assist the State in meeting its implementation goals. Some strategies are wholly State-driven and can only be enacted at the State level. The five emphasis areas that are the focus of the SHSP are:

1. **Emergency Medical Services (EMS)** – The primary concern of EMSis timely access to emergency medical services in rural areas and expertise of EMTs. The ambulance service that serves the Huntsville Urbanized Area, HEMSI, is an accredited organization.Additionally, rural areas are served by a rescue squad and volunteer fire departments, and other municipal fire and rescue departments have active EMT programs. HEMSI stations, fire stations, and their resources are strategically placed within communities throughout the MPO area. Additionally, Huntsville Fire and Rescue has expertise in extrication of traffic accident victims and are dispatched as first responders to traffic accidents. HEMSI reports that their average response within the City of Huntsville is approximately 6 minutes, 49 seconds. For rural areas, average responsetime is approximately 7 minutes, 39 seconds.

2. **Older/Restricted Drivers** - The two primary goals emphasized are to: 1) Enhance traffic control devices for visibility as well as rumble strips, and 2) Make older drivers aware of their cognitive/mental abilities and ways to either get them off the road or to be more aware of their limitations. This can be done with a combination of education and legislation.

3. **Safety Legislation** – The two primary goals emphasized here are to: 1) Reactivate the State Safety Coordinating Committee, and 2) Enact or strengthen State laws to assist in safety efforts. State laws to be strengthened or enacted are as follows:

- Strengthen the Graduated Drivers License Law
- Strengthen the Booster Seat Law
- Statewide Red Light Camera Law (State law required for locals to operate program)
- Child Restraint Law
- Unattended Children Law
- Aggressive Driving
- Cell Phones (Prohibit use while driving)
- Review Enforcement of Interstates by Municipalities (This is currently done by the City of Huntsville and the City of Madisonon I-565)
- Review Distribution of Funds on Citations Issued (provide a portion of the proceeds of citations to local law enforcement agencies)
- School Bus Occupant Protection
- Primary Seatbelt Law for All Passengers
- ATV (Restrict use of all terrain vehicles by under-aged children)
- Restrict Passengers in Rear of Pick Up Truck
- Max Alcohol Violations (Adopt ordinances that close businesses after three violations)
- Underage Alcohol Violations (Strengthen law)
- Discourage DUI (Color coded vehicle tags for violators)
- Diminished Driving Skills (Require driver testing for older adults)
- Physician Reporting (Require MDs to report certain impairments for license renewal for older adults)
- Drivers License Restrictions (Mandate license restrictions for certain medical conditions)
- Age Related Driving Restrictions (Revise licensing renewal time frame)
- Older/Restricted Driver Designation (Use a universal symbol on vehicles to identify older/restricted drivers)

While these ideas will impact safety on roadways, the implementation and enactment of these strategies may prove difficult due to politics involved.

4. **Risky Driving** – Strategies to mitigate risky driving are: Extensive drug/alcohol education for younger persons and more enforcement for those who drink and drive, occupant protection (safety belts), police traffic services (enforce seat belt non-use, do selective traffic enforcement programs), and youth targeted actions due to unnecessary risk taking based upon inexperience. The City of Huntsville Police Department has implemented various strategies to mitigate risky driving. They conduct extensive drug/alcohol education for younger persons. Additionally, one

of their programs involves deploying roadblocks during holidays or other times when people may have a tendency to consume alcohol and drive. The State Highway Office hasmultiple initiatives that can be or have been acted upon locally, such as child restraint safety checks, and also support for special campaigns like click it or ticket, etc…

5. **Lane Departure Component (Run off Road or ROR)** – 40% of all fatal crashes are caused by vehicles running off of the road. Rural roads comprise 42% of the total run off road crashes. Federal and State roads under the jurisdiction of ALDOT comprise 29% of the run off road crashes. To solve this problem, ALDOT proposes the following actions to deal with these key issues:

   a. Risky Driver Aspect – Work in coordination with the Risky Driver Team to increase the effectiveness of the countermeasures applied by both teams.

   b. CountyROR Crashes – Rural roads are typically narrow, and counties typically don't have necessary funding to correct safety problems. There is a federal source of safety funds through SAFETEA-LU. The Huntsville Area MPO has taken advantage of the funds and have constructed Mooresville Road safety improvements in Limestone County, and replaced stop signs and installed traffic signals at various intersections in Madison County.

   c. Interstate Median Crossover Crashes – Investigate locations where this is a problem.

   d. ROR Crashes on Rural Two-Lane State/Federal Routes – ALDOT addresses this problem already through the hazard elimination safety program.Most recommendations for this category deal with the analysis of crash data generated via computer and if the data is effective enough to identify such crashes with accuracy compared to paper copies.

   e. Two-Lane Rural Head-On Crashes – Most recommendations for this category deal with the analysis of crash data generated via computer and if the data is effective enough to identify such crashes with accuracy compared to paper copies. While ALDOT addresses this problem on rural two-lane State/Federal roads through the hazard elimination safety program, usually these more "local" rural roads do not compete well for hazard elimination funding.

   f. Changes to ALDOT Policies and Procedures – ALDOT has incorporated the roadside clear zone concept into its new designs to the extent that funding allows. However, there may be other areas of

roadway design, construction, maintenance and operation where existing policies could be tweaked to provide additional crash reduction without adding significant cost or time to projects. ALDOT policies can be checked by more recent safety literature/software to determine if any updates are presented that would improve the State's policies. The State may consider the development of a design manual. The Alabama Longitudinal Barrier Installation Manual developed for ALDOT by Auburn University is a good example and could be one chapter of such a manual.

8.3.1.2 SHSP Implementation

Implementation of the SHSP is being conducted at two levels. First, the State Safety Coordinating Committee was reactivated by amending the legislation that created it, and secondly, implementation is being conducted by five large teams of coordinated safety volunteers under the guidance of key leaders serving as an Executive Committee.

8.3.2 Additional State Safety Legislation

In addition to the safety legislation identified in **Section 8.3.1.1**, the State of Alabama Bicycle Safety Act of 1995 also known as the "Brad Hudson Law' enforces the use of bicycle helmets of all operators and passengers who are under 16 years of age to wear approved protective bicycle helmets, and requires that all bicycle passengers who weigh less than 40 pounds or are less than 40 inches in height be seated in separate restraining seats.

8.3.3 Local Traffic Operations Related to Safety

The City of Huntsville Traffic Engineering Department has identified specific safety management projects to be undertaken to enhance safety within the city limits. These projects are in addition to any projects identified in **Section 8.2.4.**These additional projects are discussed in **Section 8.4.**

8.4 Maintenance and Operations Projects Addressing Congestion Management & Safety Management: FY 2010-2015

The Traffic Engineering (TE) Division of the City of Huntsville's Department of Urban Development is charged with the responsibility of maximizing and preserving the functional lifespan of the public street and highway network within the City of Huntsville,and plays a strong advisory rolein the case of private streets, and State & Federal highways. By identifying areas of traffic congestion and high accident rates,TE recommends or implements a number of improvement programs and projects to reduce congestion and improve safety. One of TE's primary missions is to identify and implement Programs (systems and processes) that continually improve and upgrade traffic operations along all street systems. In addition the TE Division serves in an advisory capacity during the planning and conceptual stages of new roads or corridors, and in a controlling capacity regarding the geometric design of Huntsville's street and highway improvement projects.

The projects identified were selected to not only increase capacity at congested intersections, and improve the quality of traffic flow along arterial coordinated signal systems, but also to reduce both the existing collision rate and the potential for future collisions between motor vehicles, pedestrians and bicyclists.The projects are subject to further review by the TE Division, and other projects not yet identified may take precedence over the projects formally listed. The implementation of these projects is under the direction of the TE Division.

These projects were selected for the primary purpose of either congestion management or safety improvements or for both. Bicycle and pedestrian improvement projects are always categorized solely as safety improvements. Given the lack of available federal funds to implement most of these improvements, most of these projects will be categorized as visionary projects. There *may* be opportunities in the future where federal or State funds, earmarks, or grants may be applied for eligible projects, but these funds are subject to availability and certain federal and State requirements – all of which are currently unknown. Currently, one project has received federal earmarks for improvement. The project is "H: Church Street Bridge at Big Spring Park."

8.4.1 Project Selection

These projects target the more costly traffic improvements at severely congested intersections and roadway segments. The projects customarily address a relatively small number of locations that experience one or more daily periods of severe congestion, or are found to have a significantly higher-than-average accident rate history. They are often called "*intersection bottlenecks*", "*weakest links in the chain*", or "*hot spots.*"

Candidates for these projects are most often located along heaviest traveled arterial and collector streets. However, in recent years, a growing number are found at public road intersections and at commercial development along two lane rural roads in newly annexed areas.

In many ofthese two lane cases, one or more of the intersection approaches, or one side of the roadway at these intersections or mid block "hot spots" are under the jurisdiction of Madison County, Limestone County or the City of Madison.

These projects include the construction of new signalized systems at intersections of public roads, or where public roads intersect with major access roads to large scale commercial or industrial development projects. In manyof these cases, due to cost or complexity, geometric improvements often require design and construction by others.

Project construction and signal equipment costs normally range from $50,000 to $500,000 or more depending upon the complexity of the project. Preliminary engineering is either provided in-house by TE staff, by consultants selected by TE under the City of Huntsville's Ordinance 74-401 if less than $7,500, or if more extensive plan development is required, design plans are procured and developed under the oversight of the Engineering Division of Urban Development.

Acquisition of right of way and construction of the larger cost geometric improvements is provided under the oversight of the Engineering Division. For those

projects where both the complexity and construction cost does not exceed the maximum permitted under the city's periodic bid process, construction oversight is provided by TE staff.

8.4.1.1 List of Maintenance & Operations Projects Addressing Congestion Management and Safety Management

Map No. (Page 4-2)	Location	Description	Purpose and Need
A	Four Mile Post Rd @ Whitesburg Dr	Signal & major geometric improvements to Four Mile Post Rd approach	This project will improve traffic flow
B	EnterpriseWay@ University Dr	Reduce island width or eliminate to construct additional Northbound approach lane to University Dr.	This project will improve safety and traffic flow
C	Caldwell Rd @ Hwy 431	Construction of West to North right turn lane and acceleration lane on Hwy 431	This project will improve safety and traffic flow
*D	Old Madison Pike @ Research Park Blvd	Construct joint use pedestrian &bicycle bridge and sidewalk approaches across Research Park Blvd	This project will improve safety
E	Explorer Dr @ Pegasus Rd	New traffic signal installation	This project will improve traffic flow
*F	Enterprise Way: Moores Farm to University Dr	Add signal, left turn restrictions island at shopping center exits, a sidewalk, plus 3rd left turn lane to University Dr	This project will improve safety and traffic flow
G	County Line Rd @ HWY 72	Upgrade displays,phasing and timings and geometric improvements	This project will improve safety and traffic flow
H	Church St Bridge @ Big Spring Park	Construct bridge to improve pedestrian access to Big Spring Park and reduce vehicular/pedestrian conflicts	This project will improve safety and traffic flow
I	US 231	Access management and intersection improvements at US 231 between Hobbs Road and Weatherly Road	This project will improve safety and traffic flow

Note * - Project is *part* of improvement recommended for identified corridors shown in **Table 8.4**.

8.5 Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS), a collective group of innovative technologies, were developed and have been deployed globally to improve transportation system efficiency, safety, and security. ITS aims to provide travelers with current information on traffic conditions, provide vehicles with safety equipment, and improve the transportation infrastructure by relieving congestion and

enhancing productivity. ITS can assist emergency responders in securing the transportation network during special events as well as time of emergency.

ITS uses a number of technologies including; information processing, communications, and control systems. The anticipated benefits of coordinating and integrating these technologies with the Huntsville area transportation system include improved safety, reduced congestion, improved mobility, improved economic productivity, and a savings in public investment dollars without negatively affecting the environment.

ITS offers an alternative to the traditional measures used for addressing transportation problems and needs. It applies advanced technologies to transportation systems to make them safer, more efficient, and more customer service oriented. The technology includes systems for communicating transportation options, conditions, and schedule information to transportation consumers; smarter vehicles and smarter roads, flexible traffic control, and enhanced fleet management systems. Creative ideas include new ways to disseminate information to travelers and public/private partnerships; linking various public partners by providing real-time information, innovative financing, and techniques, and leveraging non-transportation investments.

8.5.1 USDOT ITS Initiatives

The United States Department of Transportation's (USDOT) Intelligent Transportation Systems (ITS) program has maintained continual efforts of improving transportation safety, relieving congestion, and enhancing productivity. The USDOT recently introduced a new generation of initiatives aimed at enhancing the operation of transportation systems. These initiatives include:

- Integrated Vehicle Based Safety Systems
- Cooperative Intersection Collision Avoidance Systems
- Next Generation 9-1-1
- Mobility Services for All Americans
- Integrated Corridor Management Systems
- Nationwide Surface Transportation Weather Observation System
- Emergency Transportation Operations
- Universal Electronic Freight Manifest
- Vehicle Infrastructure Integration (VII)

8.5.2 Huntsville Urbanized Area ITS Strategic Initiatives

The City of Huntsville, in cooperation with other regional governments and organizations, has identified ITS strategies for its region, and has developed a Strategic Regional ITS Plan. Two important aspects of the Plan are the Concept of Operations and the Regional ITS Architecture.

The Concept of Operations includes, but is not limited to, the integrated and coordinated operations of incident management, emergency management, and advanced traffic signal and traveler information. The development of the Concept of Operations translates the region's identified transportation operations problems into a set of "core"

strategies for developing the Huntsville Regional ITS operations and management program.

The Regional ITS Architecture defines the specific transportation management and incident management components needed to achieve the regional vision of the City. The following components are applicable to the Huntsville area transportation system:

- Traffic Signal Control Systems - Provides for the control and coordination of traffic signals, surveillance and monitoring of traffic, and the monitoring of hardware and software malfunctions.

- Freeway Management Systems - Provides for the following on limited access facilities: surveillance and incident detection, "intelligent" ramp control, information dissemination, incident management, lane use control, and coordination/integration with all appropriate agencies that are affected by freeway management strategies.

- Transit Management System - Provides for the following with respect to public transit operation: transit vehicle tracking, demand-responsive operations, passenger and fare management, vehicle security, vehicle maintenance, and multi-modal coordination. The City of Huntsville Transit has invested in an automatic vehicle locating (AVL) system that has been installed on all of its fleet, which will enhance safety and security of the transit system.

- Regional Multi-Modal Traveler Information System - Provides multi-modal trip planning, route guidance, traveler advisory functions, confirmation and payment services for travelers, special event information, and pre-trip/en-route trip planning assistance, including roadway conditions, traffic information, travel times, and transit information. This information would be available from eitherhome, workplace, hotels, airports, or high-density shopping areas.

- Emergency Management System - Provides for the integration and coordination of appropriate emergency management agencies (county and local police, fire, E-911) with respect to the transportation infrastructure. Detection and response of incidents, as well as real-time traffic information for timely dispatch of personnel, are emphasized. The Huntsville-Madison County Emergency Management Agency, which coordinates all emergency response plans with all jurisdictions represented on the MPO, has identified critical facilities and transportation system elements in its emergency response plans. Additionally, MadisonCounty is designated as a host county for possible nuclear power plant evacuees from adjacent counties. As a result, capabilities of securing the local transportation system are exercised yearly with emergency response organizations county-wide. Implementation of ITS will assist regional emergency response groups in both safety and security of the transportation system.

- Incident Management Program - Provides for the detection and verification of

roadway incidents, appropriate response to incidents, site traffic management, incident clearance, and motorist information.

- Railroad Grade Crossing Warning System - Provides for the implementation of technologies, which increase roadway and rail safety for at-grade crossings throughout the Huntsville area transportation system.

8.5.3 MPO ITS Implementation

The City of Huntsville is continuing its initiative to implement ITS technologies identified in the strategic plan, and integrate them into the transportation system. This is being accomplished by meetings with regional stakeholders, which include law enforcement and other public safety personnel, to discuss implementation strategies for utilizing technology for increasing the safety and security of the transportation system within the MPO jurisdiction. Specific projects have been identified to bring the system to fruition. Additionally, the City should continue to apply for any funding that may be available for the deployment of ITS technologies that complement the ITS strategic plan.

Congestion management and safety management projects have been identified. A systematic approach of integrating these improvements to the transportation system, along with the implementation of ITS technologies and construction of the transportation improvements identified in **Section 4 - Highway Element**, yields a transportation network that will provide more efficient and safe travel in future years.

8.6 Security Element

ITS is a tool that can be used to address congestion, safety, and security on the transportation network. Even though there is a lack of federal funds to fully implement the ITS program, the Huntsville Urbanized area utilizes several tools to promote security on the transportation network.

8.6.1 Local Strategies Implemented to Secure the Transportation Network

1. The City of Huntsville Department of Parking and Public Transit has recentlycompleted installation of extensive hardware and software designed to enhance the effectiveness and efficiency of fixed route and Paratransit services in addition to providing for enhanced customer safety and security. All vehicles are equipped with AVL (automated vehicle location)/GPS transmitters that communicate with dispatchers and transit operations personnel at 30 second intervals providing real time vehicle location and schedule adherence information. The system includes an emergency switch which can be covertly activated by the driver in a situation that requires notification to dispatchers and supervisors without other people on board being aware that an alert has been

sent. All vehicles additionally have mobile data computers (MDC's) for the purpose of communicating operational information that is specific to the type of service being provided by the vehicle. Drivers of Paratransit vehicles update demand response passengers who are being picked up and dropped off so that dispatchers always know who is on board the vehicles. Paratransit scheduling software also recently installed provides dispatchers with ready access to information specific to any customer who is being transported including emergency contact information.

Some public transit vehicles are equipped with video surveillance systems. The City will be updating the existing systems and will retro-fit vehicles that do not yet have surveillance systems using ARRA stimulus grant money that was recently awarded. This work is scheduled to begin in August, 2009. The Central Transfer Station and office building is equipped with video surveillance. Building surveillance is monitored in several locations throughout the building. The adjacent Public Transit office building is also secured by a key card entry system to all employee areas that are not intended to be accessible to the public unannounced.

2. The transportation network is secured during known events for which congestion and safety may be a factor, such as football games, community festival, and other organized events that attracts large volumes of traffic in a concentrated area.

3. Additionally, the metropolitan area is designated as an evacuation area for Browns Ferry Nuclear Power Plant, which requires periodic exercising of regional law enforcement capabilities to move large volumes of traffic along long evacuation routes and in a coordinated fashion.

4. The Huntsville-Madison County Emergency Management Agency (EMA), which coordinates all emergency response plans with all jurisdictions represented on the MPO, has identified critical facilities and transportation system elements in its **Emergency Operations Plan**. Additionally, the **Emergency Operations Plan** and supporting Standing Operating Procedures identify methods for coordinated evacuation into and out of MadisonCounty. These plans are routinely exercised in the field.

5. The Huntsville-Madison County Emergency Management Agency manages the Emergency Operations Center that is manned by local jurisdictions as well as Redstone Arsenal during critical events. The EMA is also part of a regional mutual aid association. The EMA, local response groups, and the mutual aid association frequently exercises the security of the local transportation network, focusing upon non-recurring events, and involving various modes of transportation.

It is through these security initiatives that the transportation system may be made secure for mobilizing emergency responders, improving military mobilization, managing planned

events as well as non-recurring traffic operations, so that ultimately the homeland can be made secure.

8.7 Conclusion

All three elements addressed in this section are interrelated, and also utilize management and operations strategies to ensure the network is effectively and efficiently managed in terms of congestion, safety, and security. It is through the implementation of these management and operations strategies as well as other initiatives identified in the section that improvements to congestion, safety, and security can be made upon the network. Periodic monitoring of the network will be performed to ensure that implemented strategies and projects are effective and that ongoing activities remain successful.

Section 10

FINANCIAL PLAN ELEMENT

10.0 Introduction

SAFETEA-LU legislation requires MPOs to demonstrate how the long-range transportation plan can be successfully implemented through the development of a financial plan. The financial plan must indicate resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financial strategies for needed projects and programs. This chapter will describe the estimates of funds that may be available to support plan implementation, operating under the premise that similar funding amounts will be available to the MPO for the next 25 years. The chapter will also identify the projects listed in **Section 4, Section 7,** and **Section 8** that exceed anticipated funding revenues, and face the possibility of not being funded within the 25 year period. While the consideration of bicycle and pedestrian facilities have been made as part of the planned projects listed in **Section 4**, other bicycle, pedestrian, and greenway projects have been identified that reach further than the scope of the traditional roadway improvements listed in that section.

10.1 Funding Sources

The implementation of a financially constrained plan for the Huntsville urban area will require a mix of funding sources. These sources include various programs at the federal, state and local levels. Many of the needs identified are located on the state and federal highway system, and therefore, will require substantial financial assistance through the state and U.S. DOT funding programs. In order to determine available resources, historic funding data from ALDOT was examined in addition to ALDOT's expectation of future funding.

Table 10.1, Table 10.2, Figure 10.1, **Figure 10.2,** and **Figure 10.3** show 6-year historic and proposed future funding of projects in the Huntsville Area Transportation Study MPO by funding category. During the previous six years, over $131.6 million of projects was funded across all categories for capacity adding projects as well as operations and maintenance projects. Historically, the largest proportion of funding was allocated for Surface Transportation Projects. In analyzing future projections, it is expected the largest proportion of funding will continue to be from the Surface Transportation Project category. The operations, maintenance, and capital costs for the transit program were derived from analyzing trends from the past two fiscal years.

Table 10.1
Huntsville Urban Area
Highway Capacity, Operation and Maintenance Costs
6-Year Historic and Planned Allocation of Federal Funds Only
(Costs in Thousands)

		CAPACITY			OPERATIONS AND MAINTENANCE		
Funding Category	Huntsville Average Annual Costs *	Average Annual Capacity Costs *	% Costs	25 Year Total Projection	Average Annual O&M Costs *	% Costs	25 Year Total Projection
♦Surface Transportation (Urban>200k)	$4,560	$4,469	98%	$111,720	$91	2%	$2,280
Surface Transportation (OA) (Not Attrib)	$0	$0	60%	$0	$0	40%	$0
Surface Transportation (Any Area)	$4,242	$2,333	55%	$58,328	$1,909	45%	$47,723
National Highway System	$4,315	$2,589	60%	$64,730	$1,726	40%	$43,153
◙♦Appalachian	$173	$1,869	100%	$46,715	$0	0%	$0
◙ Interstate Maintenance	$23	$1,663	10%	$41,583	$21	90%	$525
♦Bridge Optional	$67	$0	0%	$0	$67	100%	$1,667
Safety (All)	$420	$0	0%	$0	$420	100%	$10,496
Equity Bonus	$4,347	$2,608	60%	$65,198	$1,739	40%	$43,465
♦Congressional Special Projects	$442	$146	33%	$3,646	$296	67%	$7,392
TOTAL	**$18,589**	**$15,677**		**$391,920**	**$6,268**		**$156,700**

* Based on a 6-year average of authorized funds.
♦ Percentages are based on actual funds.
Note: The Congressional Special Projects category is solely dependent upon Congressional Funding; therefore, a realistic spending trend is not available for this category. More funding may be available due to special appropriations.
◙ 25 Year Projection was based upon planned projects either in the TIP or in ALDOT's Comprehensive Project Management System. Appalachian includes planned projects on Corridor V. Interstate Maintenance includes I-565 interchange at County Line Road and Greenbrier Road under Capacity.

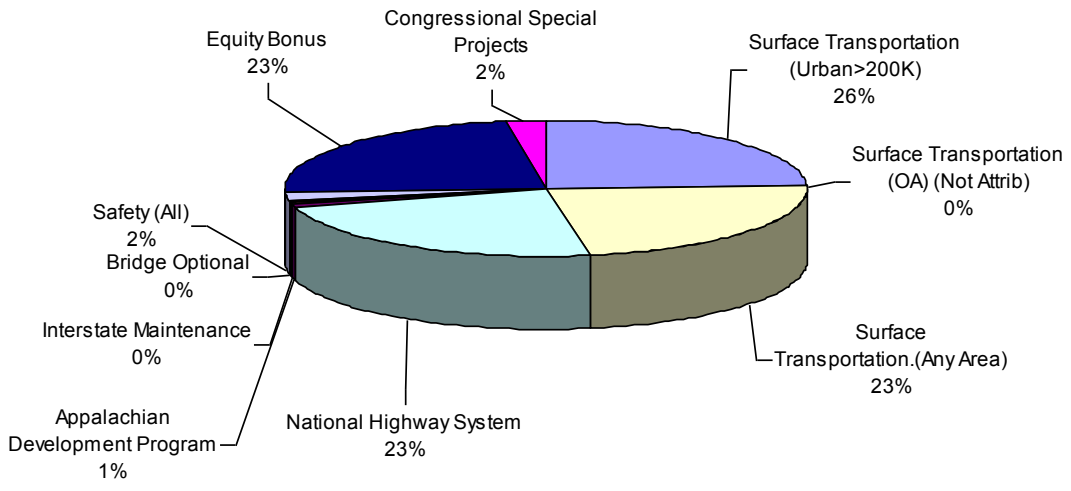
Source: Alabama Department of Transportation

Table 10.2
Huntsville Urban Area
Transit Operations, Preventative Maintenance, and Capital Costs
Historic and Planned Allocation of Federal Funds Only
(Costs in Thousands)

Funding Category	FY 2007	FY 2008	Average Per Year	25 Year Projection
*Section 5307 (Urban)	$1,753	$1,753	$1,753	$43,825
Section 5311 (Non-Urban)	$222	$213	$218	$5,438
Section 5310 (Elderly & Disabled)	$107	$0	$54	$1,338
Section 5316 (JARC)	$20	$39	$30	$738
Section 5317 (New Freedom)	$0	$0	$0	$0
Section 5309 (New Starts, Buses)	$1,231	$2,570	$1,901	$47,513
TOTAL	**$3,333**	**$4,575**	**$3,954**	**$98,850**

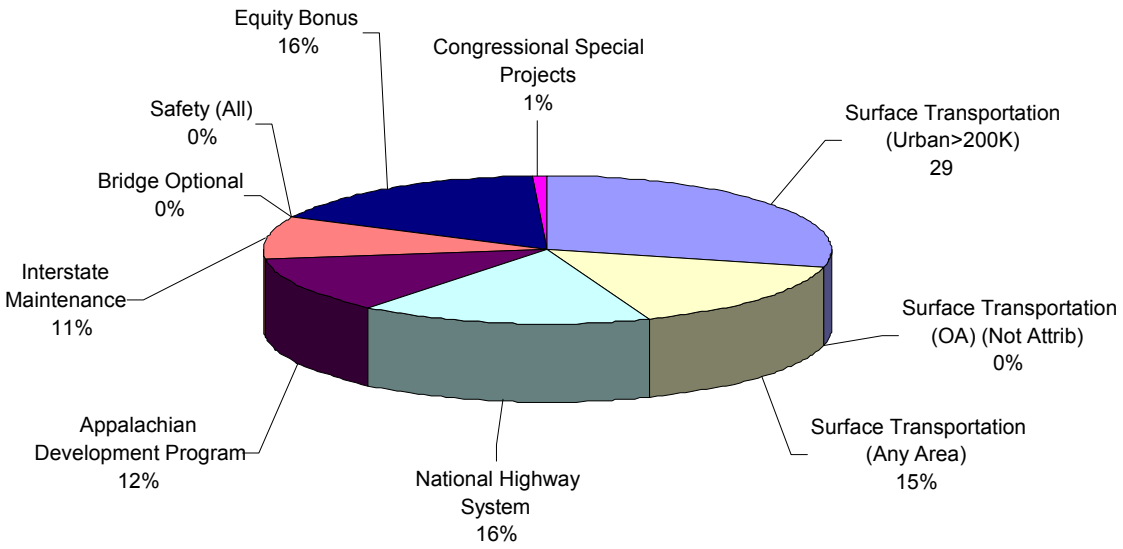
*Section 5307 Funds are based on the Federal Register February 28, 2008.
Source: Alabama Department of Transportation

Figure 10.1: 6 Year Historic Average Allocation of Federal Capacity and Operations & Maintenance Funds (October 2003-September 2008)



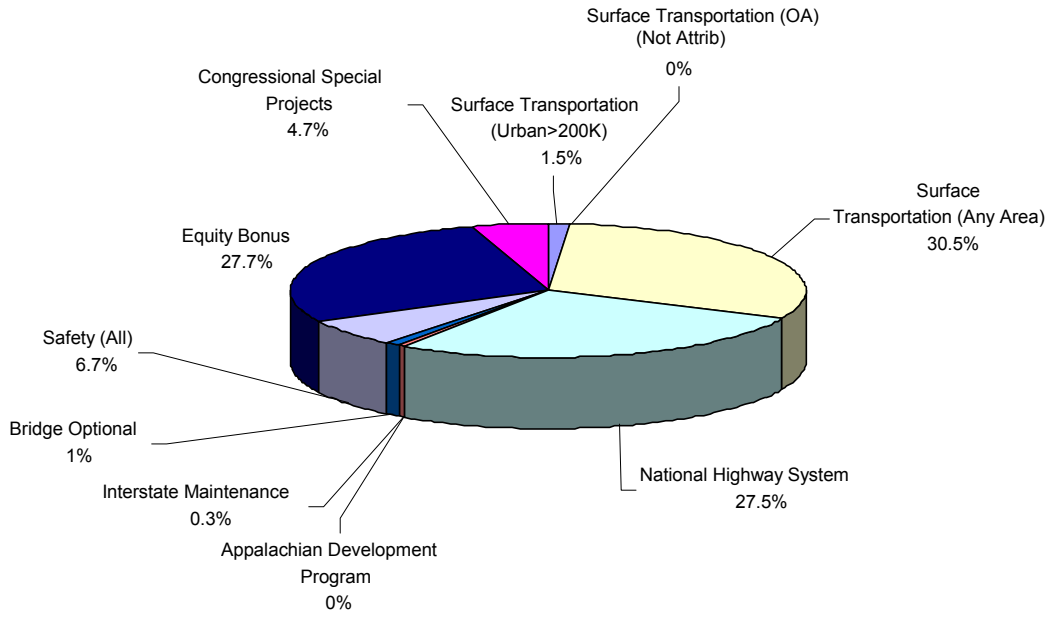
Source: Alabama Department of Transportation

Figure 10.2: 25 Year Projection of Highway Capacity Funds
Federal Funds



Source: Alabama Department of Transportation

Figure 10.3: 25 Year Projection of Operations & Maintenance Funds
Federal Funds



Source: Alabama Department of Transportation

It is assumed that the local MPO will continue to receive funds from the Congressional Special Projects, National Highway Program, Surface Transportation Program, and transit programs during the next 25 years. To effectively determine anticipated revenues per relevant funding programs or categories, the Alabama Department of Transportation staff projected funding based upon each program's average past revenues within a six-year period. The FTA projections were based upon past funding trends and information gathered from the Alabama Department of Transportation, the Huntsville Public Transit Division, and the Madison County Department of Planning and Economic Development. The Alabama Department of Transportation estimates Surface Transportation Any Area (STPAA) funds to be approximately $58.3 million for the next 25 years and maintenance funds to be over $1.9 million per year. The maintenance funds will be used to maintain current and planned roadway facilities in the study area. Even though historic data has been analyzed in order to project anticipated funding, there are instances where funding in certain project categories will increase due to new sources of financing, at the discretion of the Governor, or the leveraging of local funds to complete projects. This has occurred, and the project funding tables shown at **Table 10.3** and **Table 10.4** reflect those modifications.

10.2 Overview of Major Funding Categories

The following is an analysis of anticipated revenues for the long range plan implementation based upon the data presented in **Tables 10.1** and **10.2**, as well as local programs.

10.2.1 Federal Programs

Federal funding amounts shown in this section reflect past funding trends, and assume that funding will at least be level. Various categories of federal funds are available for transportation improvements. These categories may be further broken down into capacity adding and maintenance and operations. Capacity adding funding is dedicated to projects which improve or widen an eligible corridor. Maintenance and operations funding is dedicated to projects which construct improvements such as traffic signal installation, improved signage, intersection improvements, etc. Historically, ALDOT has used maintenance funds for activities such as resurfacing projects.

Appalachian Development Highway System (ADHS) funds are targeted for use on ARC Corridor V (U.S. 72) and Corridor X. During fiscal year 2008, the Alabama Department of Transportation obligated a total of $34.4 million of federal funds on the ADHS. ALDOT is currently programming approximately $15.1 million in ADHS funding through FY 2010 on US 72 East/ARC Corridor V. An additional $37.8 million is planned by the State for upgrades to Corridor V beyond fiscal year 2010. The Appalachian Regional Commission reports that over $178.3 million is required to complete all improvements to ARC Corridor V. The majority of ADHS funding in the State is now programmed for Corridor X. This Plan assumes that once this route is completed, funding will be available to upgrade Corridor V. Current ADHS projects programmed by ALDOT for the Huntsville area total $52,978,000. This amount indicates a combination of federal and State matching funds. Since this is the case, federal funds in the amount of $42,382,000 will be required. It is anticipated that this amount will be available to complete these scheduled projects.

Congressional Special Appropriations may be earmarked by Congress to fund some needed projects. These allocations do not represent a typical flow of revenues, but are mentioned in this section, as some projects may be funded through this method.

National Highway System (NHS) routes in the Huntsville urban area include the following: I-565, U.S. 72, U.S. 231, U.S. 431, and Research Park Boulevard from I-565 to University Drive. NHS funding currently programmed by the ALDOT for FY 2010 totals over $3.7 million, primarily to prepare for construction on Memorial Parkway. For this category, the MPO combined NHS revenues, Equity Bonus, and Congressional Special revenues so that more funds can be leveraged to needed projects. Based upon past precedence, the combined total of federal only NHS funds, Equity Bonus funds, and Congressional Special Project funds anticipated for the Huntsville Urban Area should be well over $133.57 million.

Surface Transportation Program (STP) funds are typically divided into several different categories as designated by Congress. STP funds dedicated to road construction are split into two major categories: STP Any Area (STPAA) and STP Urbanized Area (STPHV). STPAA dedicated projects are funded with federal and state matching money. STPHV dedicated projects are funded with federal and local matching money. It is estimated that over $106 million of federal funds only will be available in the STPAA category, based upon historic data. This includes both capacity and maintenance and operations funds. For capacity adding projects only, a total of $58,328,000 of federal funds is anticipated to be available. It is also estimated that approximately $114 million of federal funds will be available in the STPHV category for both capacity adding projects and maintenance and operations. When capacity adding projects alone are considered, the federal total of $111.7 million is anticipated to be available. The amount in the STPAA category has increased, due to anticipated additional funding availability, through special programs, and the leveraging of other sources of funds. While quite a bit of money is available for locals to use, receipt of STPHV revenues are contingent upon the locality's ability to provide the typical 20% matching funds to finance transportation projects within their jurisdiction.

FTA funds for both the rural and urbanized area programs are shown in **Table 10.2**. Past trends of revenues received by Huntsville Public Transit indicate an annual increase of transit funding of approximately 5%. While the State projects flat funding for the next 25 years, Huntsville Public Transit anticipates a conservative increase in revenues consistent with past funding received, and have projected their future capital needs based upon their methodology. The ALDOT estimated amount to be received during the next 25 years in the urbanized area falls below the transit system's capital needs shown in **Section 6: Public Transportation Element**. To make up for this projected deficiency, additional federal funds will need to be allocated or other creative funding will need to be identified. The rural program assumes consistent funding, and will continue to provide services based upon their future allocations.

The maintenance allocation provides funding for maintenance activities on existing eligible transportation systems as well as new infrastructure constructed due to plan implementation.

10.2.2 State and Local Programs

Project costs not covered by federal programs are the responsibility of state and local governments. Most federal programs require a 20 percent match of state or local funds. State and local funding comes primarily from property taxes, sales taxes, user fees, special assessments, and impact fees. The revenues from property or sales taxes can also be used to pay off general obligation or revenue bonds.

During the past 6 years, there was approximately $12.5 million funded for the construction of corridor improvements in the **Transportation Improvement Program (TIP)** in the State Program. The projection of State revenues is difficult to predict and may vary from year to year; therefore, projected State Program funding is not included in this section.

10.3 Program Costs

The overall list of planned projects was evaluated, and the projects were categorized per funding source as appropriate. The projects receiving the highest priority were those projects that either are in process, in the Transportation Improvement Program, or are exhibited on the Alabama Department of Transportation's Comprehensive Project Management System (CPMS) as being programmed for future years. Once these programmed projects were segregated from the remaining projects, future projects were selected based upon available funds remaining. These projects are listed in **Table 10.3**. At the present time, funding is deficient to construct every single project identified in **Section 4, Section 7,** and **Section 8**. Based upon this fact, **Table 10.4** was developed, which lists visionary projects that may be pursued if and when future funds are available.

10.3.1 Financially Constrained Projects

A breakdown of the financially constrained planned transportation projects per funding category is available in **Table 10.3.** Cost estimates included in **Table 10.3** and **Table 10.4** (visionary projects) are derived from existing sources, such as the State CPMS records, and City of Huntsville, City of Madison, and Madison County engineering estimates. In instances where engineering estimates are not available, the MPO staff estimated the Preliminary Engineering, Right of Way, and Construction costs as follows:

- $1.5 million per lane mile
- $2.5 million per lane mile if elevated
- $2.5 million per lane mile if the road is in an urban environment (a retrofit)

All costs appearing in **Table 10.3** have been adjusted at 4% per year for the anticipated year of expenditure. The cost of projects appearing in **Table 10.4** reflects current

year dollars because it is unknown exactly when those projects may be constructed. It is therefore impossible to estimate inflated costs for a future year when the future year of construction is unknown. The costs for both tables reflect charges for preliminary engineering, right of way, construction, and include the costs for bike lanes and sidewalks where planned.

10.3.2 Visionary Projects

In many instances, projects exceeded anticipated funding revenues. While the MPO staff developed reasonable cost estimates of all project costs using the techniques previously described, the staff had to limit projects based upon expected revenues per source. Since the long range transportation plan must be financially constrained, projects lacking funding are listed in **Table 10.4** as visionary projects. This list of visionary projects will be maintained in the hope that additional funds will be acquired. The MPO is committed to the projects listed in **Table 10.4**; however, those projects cannot be funded until money is available. The improvements identified in **Table 10.4** will serve as a source of pre-viewed projects that could eventually be added to the list of fundable projects exhibited in **Table 10.3**. Projects identified in **Table 10.4** could be added for instance, if any long range transportation plan project is completed substantially under cost, with alternative funding sources, or is effectively eliminated.

10.4 Proposed Sources of Revenues to Cover Shortfalls

According to U.S. Department of Transportation Metropolitan Planning Regulations, the financial plan **must** identify proposed new revenues and/or revenue sources to cover shortfalls. Funding is inadequate to finance all of the NHS and STP projects identified in the **Year 2035 Transportation Plan.** Alternative sources of funds will be needed to cover these shortfalls.

It is anticipated that supplemental funding for the long-range plan may come from the following sources:

1. Local capital improvements programs, bonds, taxes
2. State programs, industrial access funds
3. U.S. Congressional appropriations
4. Public/Private partnerships, including tax increment financing, impact fees
5. Toll Roads/Bridges

There may be some instances where corridors may be required based upon market demand and development. In cases such as this, private funds may be made available to perform needed roadway improvements, based upon specific development-driven growth.

The HPP/NHS category of projects requires a total of approximately $744 million in federal funds for the construction of the Southern Bypass and the Memphis to Atlanta Highway. These projects are listed as High Priority Projects on the National Highway System, and should be actively pursued as additional funding can be identified and appropriated. These projects appear in **Table**

10.4 as **Visionary Projects**, since they can only move forward if Congressional money is formally appropriated to them. At the present time, the projects are at various phases of implementation and funding.

The NHS program shows a deficit of approximately $371.5 million in federal funds for all desired projects to be added to the funding list. These projects include overpasses on Memorial Parkway, the widening of Ardmore Highway to the Tennessee State line, and improvements to I-565 and Research Park Boulevard. These projects will require additional state and federal funds.

The Appalachian Development Program shows a deficit of $76.8 million in federal funds to fund interchanges on Corridor V/US 72 East at Moontown Road, Brock Road, the Eastern Bypass, and Jordan Road. These projects will require additional federal appropriations.

According to **Table 10.4**, the STPAA program has over $393.3 million of projects to be added to the funding program during the planning period. Major projects presented in this category include widening Jeff Road, Martin Road, and Winchester Road; the Eastern Bypass Phase 2; Browns Ferry Road improvements; and the widening of Old Railroad Bed Road, Wall Triana Highway, and Hobbs Island Road. If these projects are to be implemented, other state and local revenues will be needed to fund all of these projects.

Additionally, **Table 10.4** identifies unfunded maintenance and operations projects as well as unfunded enhancement-type projects. The maintenance and operations projects, which primarily focus on geometric improvements and signalization can possibly be funded through Surface Transportation Any Area funds, Safety funds, or special Congressional appropriations. The total of federal funds required for these projects is estimated to be $986,000. Enhancement-type projects, which would include the construction of greenways and signage of bike routes may be eligible for Enhancement funds. The allocation of these funds are based upon the discretion of the State of Alabama and are distributed through grant activities. All of these types of projects compliment the road improvement projects identified in **Section 4**, by providing bicycle and pedestrian facilities such as bike lanes, bike routes, and greenways. Federal funds in the amount of nearly $52.5 million is required to construct these types of projects.

The jurisdictions that comprise the local MPO are dedicated to find alternative methods of financing so the projects listed in **Table 10.4** are funded.

10.5 Summary

The long range transportation plan presented and the projects selected to facilitate the future movement of people and goods within the MPO study area are realistic and exhibit financial constraint. The projects detailed in this document indicate the "best fit" for improvements within the area. Actual implementation of this plan will be incremental since these projects will be programmed into future 5-year **Transportation Improvement Programs (TIPs)** as local priorities and available funds dictate.

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Table 10.3: Estimated Cost and Funding Source of Proposed Roadway Improvements
Capacity Projects and Maintenance & Operations Projects
Federal Funds Only

FUNDING CATEGORY: APPALACHIAN DEVELOPMENT PROGRAM/NATIONAL HIGHWAY SYSTEM

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
81	US 72 East/ARC Corridor V - Moores Mill Road Interchange and Shields Road	Major Arterial	1	4	Planned – FY 2010	$29,600,000
86	US 72 East/ARC Corridor V – High Mountain Road Interchange	Major Arterial	1	4	Planned- FY 2012	$12,782,400
					Total	$42,382,400
					Anticipated Funds	$46,715,000
					Balance	$4,332,600

*All projects in this funding category will not include bike/ped facilities as indicated in **Section 4** and **Section 7**.*

FUNDING CATEGORY: NATIONAL HIGHWAY SYSTEM/EQUITY BONUS/CONGRESSIONAL SPECIAL

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
87	US 72W (University Dr) Providence Main to County Line Rd.	Major Arterial	5	4	Planned	$15,994,800
37	Memorial Parkway Overpass and service roads @ Mastin Lake Rd.	Major Arterial	0.67	4	Planned - FY 2013	$23,994,800
36	Memorial Parkway Overpasses and service roads @ North of Whitesburg Dr. to South of Golf Rd.	Major Arterial	1.5	4	Planned - FY 2009	$45,594,800
38	Memorial Parkway Overpass and service roads @ Winchester Rd.	Major Arterial	1	4	To be Added to a Future TIP	$23,994,800
42	Memorial Parkway Overpass & Service Roads @ Mountain Gap Road	Major Arterial	1	4	Planned	$23,994,800
					Total	$133,574,000
					Anticipated Funds	$133,574,000
					Balance	-0-

*All projects in this funding category will not include bike/ped facilities as indicated in **Section 4** and **Section 7**.*

FUNDING CATEGORY: STATE

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
N/A	To be Determined					Unavailable
					Total	Unavailable
					Anticipated Funds	Unavailable
					Balance	Unavailable

FUNDING CATEGORY: INTERSTATE MAINTENANCE

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
22	I-565 from Interstate 65 to Wall Triana Highway	Major Arterial	9.1	4	Planned – FY 2013	$53,000,000
24	I-565 @ County Line Rd. – Interchange	Major Arterial	1	N/A	Planned - FY 2013	$26,522,100
25	I-565 @ Greenbrier Rd – Interchange	Major Arterial	1	N/A	Planned – FY 2013	$15,060,900
					Total	$94,583,000
					Anticipated Funds	$94,583,000
					Balance	-0-

All projects in this funding category will not include bike/ped facilities as indicated in Section 4 and Section 7.

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA (STPAA)

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
1	Ardmore Highway-Alabama Highway 53,Research Park to Jeff Road	Major Arterial	5	2	CN Planned FY 2009	$25,600,000
94	Winchester Rd. , Phase 3 from Naugher Road to Bell Factory Road	Minor Arterial	1.5	2	CN Planned FY 2015	$6,800,000
63	Old Madison Pike from Thornton Industrial Park to Slaughter Rd.	Minor Arterial	0.5	2	CN Planned FY 2010	$3,040,000
2	Ardmore Highway – Jeff Road to North of Harvest	Major Arterial	2.4	2	This amount planned for FY 2009 for Preliminary Engineering	$7,200,000
27	Jeff Rd (Ph 2) – from Capshaw Rd to Douglass Rd	Major Collector	2	2	CN Planned FY 2015	$9,045,000
33	Martin Rd from Zierdt Rd to Laracy Dr	Minor Arterial	3	2	To be funded	$26,500,000
34	Martin Rd from Zierdt Rd to Rideout Rd	Minor Arterial	2.5	2	To be funded	$12,000,000
35	Maysville Rd Connector from Maysville Rd to Epworth Dr	Minor Collector	.32	N/A	CN Planned FY 2014	$2,000,000
*I	US 231 from Hobbs Rd to Weatherly Dr - Access management and intersection improvements, Maintenance and Operations	Major Arterial	2.2	6	CN Planned FY 2017	$7,500,000
99	Zierdt Rd/Kellner Rd Corridor	Major Collector	3	N/A	CN Planned FY 2015	$8,040,000
					Total	$107,725,000
					Anticipated Funds	$107,725,000
					Balance	-0-

Projects #1, 2, and 63 were designed prior to the FHWA policy regarding bike/ped accommodation. These projects will only include paved bike lanes.

**Project "I" is a maintenance and operations project, funded 50/50 between the City of Huntsville, Alabama and ALDOT.*

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM HUNTSVILLE URBANIZED AREA (STPHV)

Map Number (Pg. 4-2)	Project Description	Facility Type	Length in Miles	Current Lanes	Status	Year of Expenditure Estimated Cost
12	Church Street (Total project limits from Monroe St. to Oakwood Ave.) Phase 2: Pratt Avenue to Oakwood Avenue	Major Collector	1.3	2	CN FY 2009	$18,400,000
13	Dug Hill Rd.US 431 East to Broad Armstrong Dr	Major Collector	1.5	2	CN Planned FY 2009	$3,120,000
96	Zierdt Rd., Phase 1 from Madison Blvd. to South of Martin Rd.	Major Collector	3	2	CN Planned FY 2013	$6,880,000
18	Hobbs Island Rd.- U.S 231 to Parsons Rd. (Part of Hobbs Island Rd from U.S 231 to U.S 431 project)	Major Arterial	3.5	2	Planned- FY 2016	$11,200,000
48	Meridian Street, Phase 1 from Oakwood Ave. to Pratt Ave.	Minor Arterial	0.7	2	CN Planned FY 2009	$1,600,000
93	Winchester Rd. , Phase 2 from Dominion Cir to Naugher Rd	Minor Arterial	2	2	CN Planned FY 2013	$4,320,000
75	Slaughter Road from I-565 to US 72 West	Minor Arterial	5	2	To be funded	$7,240,000
54	Northern Bypass Ph2 – East of Pulaski Pike to US 231	Minor Arterial	3.3	2	To be funded	$15,688,000
55	Northern Bypass Ph3 – US 231 to Moores Mill Rd	Minor Arterial	2.6	0	To be funded	$8,000,000
56	Northern Bypass Ph4 – Moores Mill Rd to Winchester Rd	Minor Arterial	3	0	To be funded	$8,000,000
57	Northern Bypass Ph5 – Winchester Rd to US 72 East	Minor Arterial	11	0	To be funded	$20,672,000
71	Research Park Blvd and Interchanges from I-565 to Ardmore Hwy-AL 53 (Interchange at Blake Bottom Only)	Major Arterial	5.9	4	To be funded	$6,600,000

*All projects in this funding category will include bike/ped facilities as indicated in **Section 4** and **Section 7**.*

Total	$111,720,000
Anticipated Funds	$111,720,000
Balance	-0-

FUNDING CATEGORY: SPECIAL CONGRESSIONAL APPROPRIATION

Map Number (Pg. 4-2)	Project Description	Type Improvement	Project Type	Status	Year of Expenditure Estimated Cost
H	Church St Bridge @ Big Spring Park	Construct bridge to improve park access and reduce vehicular & pedestrian conflicts	Maintenance & Operations	CN Planned FY 2016	$1,930,000
				Total	$1,930,000
				Anticipated Funds	$1,930,000
				Balance	-0-

Table 10.4: Estimated Cost of Proposed Capacity, Maintenance & Operations, and Enhancement Visionary Projects
Required Federal Funds Only

FUNDING CATEGORY: * HIGH PRIORITY PROJECTS/NATIONAL HIGHWAY SYSTEM CORRIDOR PROJECT

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
76	Southern Bypass, Phase 1 from I-565 to Martin Rd.	Major Arterial	Capacity	6.5	0	$172,800,000
77	Southern Bypass, Phase 2 from Martin Rd. to Weatherly Rd. Extension	Major Arterial	Capacity	2	0	$136,800,000
78	Southern Bypass, Phase 3 from Weatherly Rd. Extension to US 231	Major Arterial	Capacity	4.5	0	$129,600,000
45	Memphis to Atlanta Highway from I-65 to I-565	Major Arterial	Capacity	8	0	$120,000,000
46	Memphis to Atlanta Highway from Southern Bypass to Marshall County Limits	Major Arterial	Capacity	15	0	$184,800,000
					Total Federal Funds Required:	$744,000,000

*This category is solely dependent upon Congressional Funding; therefore, an accurate estimation of anticipated funds is not available for this category. Funding of these projects will be made available through special appropriations. It is unknown when these appropriations will be made. Projects in this funding category will not include bike/ped facilities as indicated in **Section 4** and **Section 7**.

FUNDING CATEGORY: APPALACHIAN DEVELOPMENT PROGRAM

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
83	US 72 East/ARC Corridor V Interchange @ Moontown Rd.	Major Arterial	Capacity	1	4	$20,000,000
84	US 72 East/ARC Corridor V Interchange @ Brock Rd.	Major Arterial	Capacity	1	4	$20,000,000
85	US 72 East/ARC Corridor V Interchange @ Eastern Bypass	Major Arterial	Capacity	1	4	$20,000,000
82	US 72 East/ARC Corridor V- Jordan Road Interchange	Major Arterial	Capacity	1	4	$16,800,000
Projects in this funding category will not include bike/ped facilities as indicated in **Section 4** and **Section 7**.					Total Federal Funds Required:	$76,800,000

FUNDING CATEGORY: NATIONAL HIGHWAY SYSTEM

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
3	Ardmore Highway/Alabama Highway 53 from Harvest Rd. to Tennessee State Line	Major Arterial	Capacity	5.7	2	$37,600,000
43	Memorial Parkway Overpass and service roads at Green Cove Rd.	Major Arterial	Capacity	1	4	$28,000,000
44	Memorial Parkway Overpass and service roads at Hobbs Island Rd.	Major Arterial	Capacity	1	4	$28,000,000
39	Memorial Parkway Overpass and service roads at Meridianville Bottom Rd.	Major Arterial	Capacity	1	4	$28,000,000
40	Memorial Parkway Overpass and service roads at Patterson Ln.	Major Arterial	Capacity	1	4	$28,000,000
41	Memorial Parkway Overpass and service roads at Walker Ln.	Major Arterial	Capacity	1	4	$28,000,000
88	US 72/University Drive from County Line Rd. to Mooresville Rd.	Major Arterial	Capacity	5.2	4	$8,800,000
71	Research Park Blvd and Interchanges from I-565 to Ardmore Highway-AL 53 (includes modifications to interchanges at Research Park Blvd/I-565 and Research Park Blvd/University Dr., and construction of an interchange at Research Park Blvd/Ardmore Hwy-AL 53)	Major Arterial	Capacity	5.9	4	$154,758,000
25	I-565-Oakwood Avenue to High Mountain Road	Major Arterial	Capacity	2	4	$6,800,000
42	Memorial Parkway Overpass- Hobbs Road	Major Arterial	Capacity	1	4	$24,000,000
All projects, except project #3, in this funding category will not include bike/ped facilities as indicated in **Section 4** and **Section 7**.					Total Federal Funds Required:	$371,558,000

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
6	Balch Rd. Extension from Browns Ferry Rd. to Madison Blvd.	Minor Arterial	Capacity	2.5	0	$9,200,000
8	Blake Bottom Rd. from Indian Creek Rd. to Research Park Blvd.	Minor Collector	Capacity	0.8	2	$4,400,000
9	Brock Rd. from US 72 East to Ryland Pike	Minor Collector	Capacity	2.5	2	$7,120,000
10	Browns Ferry Rd. from Mooresville Rd. to County Line Rd.	Minor Collector	Capacity	5	2	$13,200,000
11	Capshaw Rd. from Jeff Rd. to Old Railroad Bed Rd.	Major Collector	Capacity	2	2	$9,520,000
14	Eastern Bypass, Phase 2 from Quarter Ln. to US 72 East	Major Arterial	Capacity	3.7	2	$14,400,000
15	Eastview Dr. Extension from Hughes Rd. to Sullivan St.	Minor Collector	Capacity	0.5	0	$1,000,000
16	Eastview Drive Extension	Minor Collector	Capacity	2	2	$6,400,000

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA (Continued)

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
18	Hobbs Island Rd. from US 231 to US 431	Major Arterial	Capacity	11.5	2	$18,400,000
19	Homer Nance Rd. to Jordan Rd. to Winchester Rd.	Major Collector	Capacity	2	2	$4,720,000
20	Hughes Rd. from Old Madison Pike to US 72 East	Minor Arterial	Capacity	3.2	3	$2,480,000
21	Hughes Rd. Extension from US 72 West to Wall Triana Highway	Minor Arterial	Capacity	0.5	0	$1,600,000
28	Jeff Rd., Phase 3 from Douglass Rd to Alabama Highway 53	Major Collector	Capacity	3.2	2	$14,000,000
30	Jordan Rd. Phase 1 from Homer Nance Rd. to US 72 East	Minor Collector	Capacity	2	2	$4,720,000
31	Jordan Rd. Phase 2 from Moores Mill Rd. to Homer Nance Rd.	Minor Collector	Capacity	2.3	2	$5,360,000
49	Mill Rd. from County Line Rd. to Hughes Rd.	Minor Collector	Capacity	2.5	2	$4,160,000
51	Moores Mill Rd. from Winchester Rd. to Northern Bypass	Minor Arterial	Capacity	2	2	$6,480,000
59	Old 431 Highway from Wilson Mann Rd. to Highway 431	Major Collector	Capacity	2	2	$1,600,000
61	Old Big Cove Rd. from South Green Mountain Rd. to Highway 431	Major Collector	Capacity	2	2	$1,600,000
65	Old Railroad Bed Rd. Phase 1 from US 72 West to Capshaw Rd.	Minor Arterial	Capacity	1.8	2	$2,640,000
66	Old Railroad Bed Rd. Phase 2 from Capshaw Rd. to Alabama Highway 53	Minor Arterial	Capacity	8.5	2	$13,600,000
69	Portal Lane Extension from Shelton Rd. to Zierdt Rd. Extension	Minor Collector	Capacity	0.5	0	$1,280,000
72	Ryland Pike from US 72 East to Northern Bypass	Major Collector	Capacity	3.75	2	$8,720,000
73	Shelton Rd. from Madison Blvd. to ¼ mile north of Madison Blvd.	Minor Collector	Capacity	0.25	2	$800,000
79	Sullivan St. from Royal Dr. to Front St.	Major Collector	Capacity	0.5	3	$600,000
98	Zierdt Rd. Extension from North of Madison Blvd. to Old Madison Pike	Minor Collector	Capacity	0.8	0	$2,800,000
74	Shields Rd. from Jordan Rd. to Winchester Rd.	Minor Collector	Capacity	1.5	2	$2,320,000
89	Wall Triana Highway from Mill Rd. to US 72 West	Major Collector	Capacity	3.6	2	$8,800,000
95	Winchester Rd. Phase 4 from Bell Factory Road to Tennessee State Line	Minor Arterial	Capacity	9.5	2	$15,680,000
92	Weatherly Road Extension - Memorial Parkway to S. Bypass	Major Collector	Capacity	1.5	0	$15,200,000
91	Wall Triana Highway - Capshaw Road to Yarbrough Road	Minor Arterial	Capacity	4	2	$12,800,000
70	Powell Road – Powell Road to Browns Ferry Road	Major Collector	Capacity	1.5	0	$4,800,000
67	Patton Road – Aerobee Road to Redstone Road	Minor Arterial	Capacity	5	2-3	$16,000,000

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA *(Continued)*

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
64	Old Madison Pike – Hughes Road to Slaughter Road	Minor Arterial	Capacity	2	2-3	$6,400,000
52	Mt. Lebanon – Grimwood Road to Northern Bypass	Major Collector	Capacity	4.5	2	$14,400,000
50	Moontown Road – Ryland Pike to US 72 East	Major Collector	Capacity	4.5	2	$14,400,000
4	Balch Rd. from Browns Ferry Rd. to Gooch Ln.	Major Collector	Capacity	0.75	2	$7,520,000
32	King Drake Rd. from King Drake Rd. to US 431	Major Collector	Capacity	0.6	0	$2,800,000
60	Old Big Cove Rd. from Hwy 431 to Sutton Rd	Major Collector	Capacity	2	2	$4,720,000
97	Zierdt Rd., Phase 2 from South of Martin Rd. to Beadle Ln.	Major Collector	Capacity	3	2	$9,600,000
5	Balch Rd from Capshaw Rd to Gooch Ln	Major Collector	Capacity	2.2	2	$3,200,000
62	Old Highway 20 from Greenbrier Rd. to County Line Road	Minor Arterial	Capacity	3	2	$9,600,000
26	Jeff Rd, Phase 1 from University Dr. to Capshaw Rd.	Major Collector	Capacity	1.1	2	$2,560,000
17	Greenbrier Rd/Powell Rd. Extension from North of I-565 to US 72 West	Minor Arterial	Capacity	8	2	$24,000,000
80	Swancott Rd. from I-565 to County Line Rd.	Minor Arterial	Capacity	5.5	2	$16,000,000
58	Oakwood Rd. from Adventist Blvd. To Research Park Blvd.	Minor Collector	Capacity	1	2	$2,880,000
53	Nance Rd. from University Dr. to Capshaw Rd.	Minor Collector	Capacity	1.1	2	$2,400,000
7	Beadle Ln. from Swancott Rd. to Zierdt Rd.	Minor Collector	Capacity	2	2	$3,680,000
68	Plummer Rd. from Research Park Blvd. to Indian Creek Rd.	Major Collector	Capacity	0.8	2	$3,200,000
90	Wall Triana Highway from US 72 West to Capshaw Rd.	Major Collector	Capacity	1.4	2	$3,200,000
29	Johns Road- Plummer Road to University Drive	Minor Collector	Capacity	2	2	$6,400,000
47	Meridian Street- Memorial Parkway to Winchester Road	Minor Arterial	Capacity	1.5	2	$4,800,000
All projects in this funding category, except project #93, will include bike/ped facilities as indicated in **Section 4** and **Section 7**.					Total Federal Funds Required:	$393,360,000

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA or SAFETY

Map Number (Pg. 4-2)	Project Description	Type Improvement	Project Type	Current Year Estimated Cost
A	Four Mile Post Rd @ Whitesburg Dr	Signal & major geometric improvements to Four Mile Post Rd approach	Maintenance & Operations	$240,000
B	Enterprise Way @ University Dr	Reduce island width or eliminate to construct additional northbound approach lane to University Dr	Maintenance & Operations	$40,000

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM ANY AREA or SAFETY (Continued)

Map Number (Pg. 4-2)	Project Description	Type Improvement	Project Type	Current Year Estimated Cost
C	Caldwell Ln @ Highway 431	Construction of west to north right turn lane and acceleration lane on Highway 431	Maintenance & Operations	$120,000
D	Old Madison Pike @ Research Park Blvd	Construct joint use pedestrian & bicycle bridge and sidewalk approaches across Research Park Blvd.	Maintenance & Operations	$400,000
E	Explorer Dr @ Pegasus Rd	New traffic signal installation	Maintenance & Operations	$40,000
F	Enterprise Way from Moores Farm to University Dr	Add signal, left turn restrictions island at shopping center exits, a sidewalk, plus 3rd left turn lane to University Dr	Maintenance & Operations	$52,000
G	County Line Rd @ Highway 72	Upgrade displays, phasing and timings and geometric improvements	Maintenance & Operations	$80,000
			Total Federal Funds Required:	$986,000

FUNDING CATEGORY: LOCAL SOURCES OF FUNDS (BONDS, TIFs, CAPITAL BUDGETS, PUBLIC-PRIVATE PARTNERSHIPS, ETC.)

Map Number (Pg. 4-2)	Project Description	Facility Type	Project Type	Length in Miles	Current Lanes	Current Year Estimated Cost
J	I-565 Interchange Near Zierdt Rd	Major Arterial	Maintenance & Operations	0.5	0	$35,975,490
					Total Funds Required:	$35,975,490

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-19)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
■ ***Proposed Share the Road /Bike Route Projects***						
N/A	50	Drake Avenue	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Memorial Parkway to Garth Rd	$480
N/A	69	Garth Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Drake Ave to Four Mile Post Rd	$400
N/A	73	Terry Drake Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Old Big Cove Rd to Taylor Rd	$400
N/A	73	Taylor Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Sutton Rd to Terry Drake Rd	$400
N/A	73	James Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Sutton Rd to Miller Ln	$400

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT (Continued)

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-19)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
■ ***Proposed Share the Road /Bike Route Projects***						
N/A	73A	Miller Lane, Caldwell Lane	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from James Rd to King Drake Rd	$400
N/A	22	Mountain Gap Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Memorial Parkway to Todd Mill Rd	$400
N/A	52	Dug Hill Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from US 431S to King Drake Rd	$400
N/A	52	Dug Hill Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs From US 72 E south to Caldwell Ln	$400
N/A	70	Plummer Road	City of Huntsville	Maintenance & Operations	Install "Share the Road " signage from Indian Creek Rd to Jordan Ln	$400
N/A	70	Grizzard Road	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Jordan Ln to Brookline Dr	$400
N/A	70	Chapman Drive	City of Huntsville	Maintenance & Operations	Install "Share the Road "signage from Rueben Dr to Gladstone Dr	$400
N/A	15	County Line Road	City of Madison	Maintenance & Operations	Install "Share the Road "from US 72W to Madison Blvd	$400
N/A	24	Gillespie Road	City of Madison	Maintenance & Operations	Install "Share the Road "signage from County Line Rd to Hughes Rd	$400
N/A	N/A	Kellner Rd	City of Huntsville	Maintenance & Operations	Install "Share the Road" signage from Wall Triana Highway to beginning of Kellner Rd Extension	$400
N/A	N/A	Palmer Road	City of Madison	Maintenance & Operations	Install "Share the Road "signage from County Line Rd to Balch Rd extension	$400
N/A	19	Sullivan Street	City of Madison	Maintenance & Operations	Install "Share the Road "signage from Dublin St to Mill Rd	$400
N/A	25	Zierdt Road, Shelton Road Ext.	City of Madison	Maintenance & Operations	Install "Share the Road "signage from Madison City Limits to Old Madison Pike	$400
N/A	69	Bailey Cove Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Four-Mile Post Rd south to Hobbs Island Rd	$400
N/A	53	Bell Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Redstone Rd south to Green Cove Rd	$400
N/A	31	Johns Road, Enterprise Way, Explorer Blvd	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Old Monrovia to Old Madison Pike	$400
N/A	64	Oakwood Ave, High Mountain Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Maysville Rd to Chase Rd	$400

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-19)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
■ ***Proposed Share the Road /Bike Route Projects***						
N/A	51	Maysville Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from US72E South to Pratt Ave	$400
N/A	69	Green Cove Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Bailey Cove west to Bell Rd	$400
N/A	60	Monroe Street, Green Cove Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Monroe St south on Church/ Gallatin, south on Bonita/Hastings/ Homewood/Chateau/ Queensbury/Cadillac/ Todd Mill/ Chaney Thompson Rd to Green Cove Rd	$400
N/A	30	Four Mile Post, Cecil Ashburn Way, Sutton Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs Whitesburg east to Old 431 South	$400
N/A	50	Old Madison Pike	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Wynn Drive east to 9th Ave to Seminole Dr	$400
N/A	51	Cedar Street, Gladstone Drive	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Cedar St, north on Alpine, east on Holly Ave, north on Triana Blvd, northeast on Hall Ave, south on Derrick St, east on Clinton Ave, north on Maysville Rd to Gladstone Dr	$400
N/A	74	Chase Road, Jordan Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Meridian St east to Homer Nance Rd	$400
N/A	76	Winchester Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Pulaski Pike east to Moores Mill Rd	$400
N/A	60	Bankhead Parkway	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Maysville Road east to Nolen Ave	$400
N/A	22	Mountain Gap Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Bailey Cove west thru Memorial Parkway to English Dr west to St. Alban Dr	$400
N/A	60A	Farrow Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Slaughter Rd east to Explorer Blvd to Voyager Way	$400

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-19)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
■ ***Proposed Share the Road /Bike Route Projects***						
N/A	70	Old Gurley Road, Harris Hill, Mastin Lake Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from US 72E west to Maysville Rd south to Quietdale Ave, west to Max Luther Dr to Blue Spring Road, north on Millbrook to Broadview/Pulaski Pike, north to Grizzard Rd , north to Mastin Lake Rd	$400
N/A	74	Dan Tibbs/ Stringfield Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Indian Creek Road east to Blue Springs Rd	$400
N/A	40	Patton Road, Chadwell Drive	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Patton Rd , east on Telstar Cr, east on Centaur Blvd, north on Squaw Valley, east on Grunden Dr, north in Conger Rd, north on McCalley Pl, east on Village Dr, south on Triana Blvd, east on Johnson Rd, east on Airport Rd, south on Balmoral, east on Breckenridge Dr to Chadwell Dr	$400
N/A	69	Wade Mtn. Preserve-Aldridge Creek	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Hollow Rd south on Meridian/Greene/Franklin and Hastings, east on Drake, south on Garth, east on Four Mile Post to Bailey Cove, south to Mountain Gap	$400
N/A	74	Governors House Drive-Stringfield Road	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Sparkman Dr, east on Technology Dr, north on South Loop Rd, east on Putnam Dr, north on Jordan Ln, east on Sparkman Dr, north on Aspen Dr, north on Grizzard Rd, north on Rosedale Dr to Stringfield Rd	$400

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Bike Rt. Number (Pg. 7-19)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
■ ***Proposed Share the Road /Bike Route Projects***						
N/A	49	Village Drive, Holmes Avenue	City of Huntsville	Maintenance & Operations	Install Bike Route signs from Village Dr, north on McCalley Pl, east on Archer Dr, north on Lemley Pl, east on Drake Ave, north on Alpine Dr, west Gesman Pl, north on Atlantic St, west on 10th Ave and north on 14th St to Holmes Ave	$400

■ All Proposed Bike Lane and Proposed Share the Road/Bike Route Projects are shown on **Map 7.1** and in **Tables 7.1** and **7.2**. The cost of all bicycle facilities that are associated with proposed road improvements are included in the cost of the road improvement as either a financially constrained projects or visionary project. As mentioned in **Section 7**, additional bicycle facility projects have been identified that do not correlate directly with proposed road improvement projects. These projects are eligible for future enhancement grant monies.

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
∞ ***Greenways (Shared Use Paths)***					
4 & 5	Balch Road Greenway	City of Madison	Enhancement Unclassified	2.89 mile path from Browns Ferry Road to US 72. Coincides with road project #4 and a portion of #5: Balch Road widening from Browns Ferry Road to Gooch Lane, and Balch Road from Gooch Lane to Capshaw Road	$1,025,418
16	Mill Creek Greenway & Trail	City of Madison	Enhancement Unclassified	1 mile, asphalt, 2 mile natural trail from Hughes Rd to Brownsferry Rd. Greenway project compliments road project # 16: Eastview Drive Extension from Hughes Road to Sullivan Street	$440,000
78	Sullivan Street Greenway	City of Madison	Enhancement Unclassified	.5 mile path from Royal Street to Front Street. This also correlates to Bike Route 50 shown on Map 7.1	$232,475
88	Wall Triana Highway Greenway	City of Madison	Enhancement Unclassified	3.6 mile multi-use path from Mill Rd to US 72	$1,277,336
95 & 96	Zierdt Rd Greenway	City of Huntsville	Enhancement Unclassified	8.75 mile, 12-ft wide asphalt multi-use path from Slaughter Rd to Wheeler National Wildlife Refuge. Includes greenway at Zierdt Road from Madison Blvd to South of Martin Rd and Zierdt Road from South of Martin Rd to Beadle Lane.	$3,104,640
97	Zierdt Rd Greenway, PH 2	City of Madison	Enhancement Unclassified	.8 mile , 12 ft wide asphalt multi-use path on Zierdt Rd from ¼ mile north of Madison Blvd to Old Madison Pike	$283,853

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
∞ ***Greenways (Shared Use Paths)***					
15	Eastview Drive Greenway	City of Madison	Enhancement Unclassified	2.1 mile greenway from West of Slaughter Rd to Hughes Rd. Includes project #15: Eastview Drive from Slaughter Road to Hughes Road	$745,114
63	Old Madison Pike Greenway	City of Madison	Enhancement Unclassified	2.77 mile greenway from Browns Ferry Rd to Slaughter Rd. Includes project of Old Madison Pike from Hughes Road to Slaughter Road. Also is shown as Bike Route 50 on Map 7.1.	$982,840
48	Mill Road Greenway	City of Madison	Enhancement Unclassified	1.07 mile greenway from Sullivan St to Hughes Rd. Includes the parameters of project #49: Mill Road from Hughes Road to County Line Road.	$379,653
68	Portal Lane Greenway (PH 2)	City of Madison	Enhancement Unclassified	.5 mile greenway (multi-use path) from Shelton Rd to Portal Ln Extension	$177,408
72	Shelton Road Greenway	City of Madison	Enhancement Unclassified	.81 mile greenway from Old Madison Pike to Madison Blvd. Includes the parameters of project #73: Shelton Road from Madison Boulevard to ¼ mile north of Madison Blvd.	$287,400
N/A	Bradford Creek Greenway Phase II	City of Madison	Enhancement Unclassified	1 ½ mile, asphalt multi-use path, from Palmer Park to Westchester Rd	$904,000
N/A	Aldridge Creek Greenway II	City of Huntsville	Enhancement Unclassified	1.0 mile from Four Mile Post Rd to Mira Vista Drive.	$354,816
N/A	Barren Fork/ Miller Branch Greenway	City of Huntsville	Enhancement Unclassified	5.75 mile, 12-ft wide asphalt multi-use path from Martin Rd to Wheeler National Wildlife Refuge	$2,040,192
N/A	Betts Spring Branch Greenway	City of Huntsville	Enhancement Unclassified	2.5 mile, 12-ft wide asphalt multi-use path from Zierdt Rd to Martin Rd	$887,040
N/A	Big Cove Greenway	City of Huntsville	Enhancement Unclassified	8.0 mile, 12-ft wide asphalt multi-use path from Flint River to Monte Sano State Park	$2,838,528
N/A	Big Spring Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Big Spring Park to Monte Sano Mountain	$1,241,856
N/A	Blevins Gap Greenway	City of Huntsville	Enhancement Unclassified	4.5 mile, 12-ft wide asphalt multi-use path from Big Cove Creek to Bailey Cove Rd	$1,596,672
N/A	Blue Creek Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Big Spring Park to Monte Sano Reserve.	$1,241,856
N/A	Blue Spring Creek Greenway	City of Huntsville	Enhancement Unclassified	2.5 mile, 12-ft wide asphalt multi-use path from Pinhook Creek to Pulaski Pike.	$887,040
N/A	Broglan Branch N. Greenway	City of Huntsville	Enhancement Unclassified	1.5 mile, 12-ft wide asphalt multi-use path from Stoner Park to Sparkman Dr	$532,224

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
∞ ***Greenways (Shared Use Paths)***					
N/A	Broglan Branch S. Greenway	City of Huntsville	Enhancement Unclassified	1.25 mile, 12-ft wide asphalt multi-use path from Holmes Ave to Huntsville Spring Branch.	$443,520
N/A	Chapman Mountain Greenway	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use from north section of Monte Sano State Park to Alabama A&M University.	$1,064,448
N/A	Dallas Branch Greenway	City of Huntsville	Enhancement Unclassified	.5 mile, 12-ft wide asphalt multi-use path from Pinhook Creek to abandoned L&N railroad corridor.	$38,016
N/A	Dry Creek Greenway	City of Huntsville	Enhancement Unclassified	6.25 mile, 12-ft wide asphalt multi-use path from Providence Main to Pulaski Pike	$2,217,600
N/A	Huntsville Spring Branch Greenway	City of Huntsville	Enhancement Unclassified	10 mile, 12-ft wide asphalt multi-use path from Tenn. River to Holmes Ave.	$2,956,800
N/A	Indian Creek Greenway Ph II-III	City of Huntsville	Enhancement Unclassified	1.5 mile, 12 ft-wide asphalt multi-use path from Creekwood Park to Providence Elementary School.	$532,224
N/A	Knox Creek Greenway	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Wall Triana Hwy to Limestone Creek.	$1,241,856
N/A	Limestone Creek Greenway	City of Huntsville	Enhancement Unclassified	14 mile, 12-ft wide asphalt multi-use path from AL Hwy 20 to Nick Davis Rd	$4,967,424
N/A	McDonald Creek Greenway	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use path from Redstone Arsenal boundary to Alabama Space and Rocket Center.	$1,064,448
N/A	Pinhook Creek Greenway PH 1	City of Huntsville	Enhancement Unclassified	3.0 mile, 12-ft wide asphalt multi-use path from Holmes Ave to Lakewood Elementary School.	$1,064,448
N/A	Pinhook Creek Greenway PH 2	City of Huntsville	Enhancement Unclassified	1.25 mile, 12-ft wide asphalt multi-use path from Medaris Rd to Wade Mountain.	$443,520
N/A	Smithers Mountain Greenway	City of Huntsville	Enhancement Unclassified	4.0 mile, 12-ft wide asphalt multi-use path from Edmonton Heights Park to Spragins Hollow Rd	$1,419,264
N/A	Spacewalk Greenway PH 1	City of Huntsville	Enhancement Unclassified	5.5 mile, 12-ft wide asphalt multi-use path from Blevins Gap to Monte Sano State Park	$1,951,488
N/A	Spacewalk Greenway PH 2	City of Huntsville	Enhancement Unclassified	5.0 mile, 12-ft wide asphalt multi-use path from Blevins Gap to Madison County Nature Trail	$1,951,488
N/A	Spacewalk Greenway PH 3	City of Huntsville	Enhancement Unclassified	3.5 mile, 12-ft wide asphalt multi-use path from Space Walk Phase II to Ditto Landing	$1,241,856
N/A	Tennessee River Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from west of Ditto Landing along the river east to Flint River	$2,128,896
N/A	Wade Mountain Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from Spragins Hollow Rd to Pulaski Pike at Dry Creek	$2,128,896

FUNDING CATEGORY: SURFACE TRANSPORTATION PROGRAM: ENHANCEMENT *(Continued)*

Map Number (Pg. 4-2)	Project	Jurisdiction	Project Type	Project Description	Current Year Estimated Cost
∞ ***Greenways (Shared Use Paths)***					
N/A	Wallace Mountain Greenway	City of Huntsville	Enhancement Unclassified	6.0 mile, 12-ft wide asphalt multi-use path from Spacewalk III terminus to Flint River	$2,128,896
N/A	Weatherly Mountain Greenway	City of Huntsville	Enhancement Unclassified	1.5 mile, 12-ft wide asphalt multi-use path from Hemlock Drive to Mountain Gap Rd	$532,224
N/A	Gooch Lane Greenway	City of Madison	Enhancement Unclassified	1.6 mile greenway from Balch Rd to Hughes Rd	$567,704
N/A	Highland Avenue Greenway	City of Madison	Enhancement Unclassified	1.55 mile greenway from Old Madison Pike to Eastview Dr	$549,960
N/A	Portal Lane Greenway	City of Madison	Enhancement Unclassified	1.04 mile greenway from Hughes Rd to Shelton Rd	$369,008
				Total Federal Funds Required:	$52,480,025

∞ All Greenway Projects are shown on **Map 7.1**. Greenways that are associated with proposed road improvements are indicated by map number. All Greenways (Shared Use Paths) are visionary projects and are not included in the total cost of road improvement projects. As mentioned in **Section 7**, additional greenway projects have been identified that do not correlate directly with proposed road improvement projects. These projects are eligible for future enhancement grant monies.

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