SHOALS AREA METROPOLITAN PLANNING ORGANIZATION

2045 LONG RANGE TRANSPORTATION PLAN

Prepared by the Northwest Alabama Council of Local Governments (NACOLG)

October 2020

Shoals Area Metropolitan Planning Organization (MPO)

2045 Long Range Transportation Plan (LRTP)

Northwest Alabama Council of Local Governments
103 Student Drive
Muscle Shoals, AL 35661
(256) 389-0500
Contact: Mr. Joseph E. Holt
Director, Transportation Planning
Email: jholt@nacolg.org

This document is posted on the Internet at http://www.nacolg.org

Date adopted:
October 28, 2020

This Long Range Plan was financed in part by the U.S. Department of Transportation, Federal Highway Administration, Federal Transit Administration, the Alabama Department of Transportation, and local participating governments, in partial fulfillment of Task 4.1 of the FY2020 Unified Planning Work Program and requirements set forth in 23 USC 134 and 135, FAST Act Sections 1201 and 1202, December 2015. The contents of this report do not necessarily reflect the official views or policies of the U. S. Department of Transportation.

Shoals Area Metropolitan Planning Organization Officers

FISCAL YEAR 2021

Policy Committee

- Chairman Joe Hackworth – Commissioner, Lauderdale County
- Vice-Chairman Mike Lockhart – Mayor, City of Muscle Shoals

Technical Committee

- Chairman William Foster, City of Tuscumbia
- Vice Chairman Jeremy Robinson, Colbert County Engineer

Northwest Alabama Council of Local Governments (NACOLG)

- Keith Jones, Executive Director
- Jesse E. Turner, Director of Planning and Transportation
- Joseph E. Holt, Transportation Planning Director

RESOLUTION 21-01
Shoals Area Metropolitan Planning Organization
Adopting the 2045 Long Range Transportation Plan (LRTP)

WHEREAS, the Northwest Alabama Council of Local Governments (NACOLG) is the organization designated by the Governor of the State of Alabama as recipient of Shoals Urbanized Area planning funds for the Shoals Area Metropolitan Planning Organization (MPO), and who is responsible, together with the State of Alabama, for implementing the applicable provisions of 23 USC 134 and 135 (amended by the FAST Act, Sections 1201 and 1202, December 2015); 42 USC 2000d-1, 7401; 23 CFR 450 and 500; 40 CFR 51 and 93; and

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

WHEREAS, consistent with the declaration of these provisions, the Northwest Alabama Council of Local Governments (NACOLG) and Shoals Area MPO Planning Staff in cooperation with the Bureau of Transportation Planning and Modal Programs of the Alabama Department of Transportation has prepared a 2045 Long Range Transportation Plan; and

WHEREAS, pursuant to its duties, functions and responsibilities, the Shoals Area Metropolitan Organization, in session this 28th day of October 2020, did review and evaluate the aforementioned 2045 Long Range Transportation Plan, summarized on the attached pages: and now

THEREFORE, BE IT RESOLVED by the Shoals Area Metropolitan Planning Organization (MPO) that the same does hereby endorse and adopt the 2045 Long Range Transportation Plan (LRTP).

ADOPTED THIS 28th DAY OF OCTOBER 2020

SIGNED:

_____ Joe Hackworth, Chairman, Metropolitan Planning Organization

ATTEST:

_____
Secretary, Shoals Area MPO

Table of Contents

List of Figures

List of Tables

Executive Summary

This Long-Range Transportation Plan (LRTP) is intended to serve as a vision of current and future transportation needs within the Shoals Metropolitan Planning Area (MPA). Every five (5) years, the Shoals Area Metropolitan Planning Organization (MPO), in accordance with the Code of Federal Regulations (CFR) Title 23, Part 450.324 and the Moving Ahead for Progress in the 21st Century Act (MAP-21) (Pub L. 112-141, July 6, 2012) along with the Fixing America's Surface Transportation (FAST) Act, signed into law on December 4, 2015 is tasked with updating the Long-Range Plan for a twenty-five (25) year planning horizon. This Long-Range Plan updates the previous LRTP from a horizon year of 2040 to a horizon year of 2045. The goals of this, and every update of the LRTP, is to: 1) identify current transportation needs, 2) forecast future transportation needs, and 3) establish strategies and projects that address these needs.

The staff of the Shoals Area MPO, in cooperation with the Alabama Department of Transportation (ALDOT), Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA), has spent the past five (5) years developing and analyzing a Travel Demand Model (TDM) that mimics current traffic volumes and patterns and projects what these volumes and patterns will be twenty-five (25) years in the future. In cooperation with ALDOT's Local Transportation Bureau, the MPO Policy Board, MPO advisory committees, and the general public, the Shoals Area MPO staff has identified projects, both funded and visionary, that are intended to address the current and future transportation needs within the Shoals MPA. The projects identified will serve as a guide for the future transportation planning efforts of the Shoals Area MPO.

An important addition to this update of the LRTP is the inclusion of a listing of bicycle and pedestrian projects. These projects were identified as a part of the development of a comprehensive Bicycle and Pedestrian Plan (BPP) for the Shoals MPA. In recent years, ALDOT, FHWA, and FTA have placed more importance on the inclusion of bicyclists and pedestrians in transportation planning efforts. The inclusion of these projects in this plan indicates the commitment of the Shoals Area MPO to a truly multi-modal transportation system for all users.

The following pages will describe, in detail, the steps taken by the Shoals Area MPO in order to complete this update of the LRTP, as well as listings of projects intended to keep the Shoals MPA's roadway network healthy and congestion free, now and into the future. This is by no means a static document and will be updated if, and when, new projects are identified, or new sources of funding become available.

The Shoals Area MPO and its advisory committees will continue to carry out the transportation planning process for the Shoals MPA and will continually evaluate the performance of this document in order to serve the general public in the best way possible.

1.0 INTRODUCTION

1.1 Purpose

This report documents the year 2045 long-range transportation plan for the Shoals Area Transportation Study. The purpose of the long-range transportation plan is to (1) identify current transportation needs, (2) forecast future transportation needs, and (3) establish strategies and projects that address the needs. The federal regulations (23 CFR Part 450.322) related to this topic state that the strategies and projects should "lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods." While the plan is required to consider all modes of transportation and transportation funding, the governing body, the Shoals Area Metropolitan Planning Organization (MPO), only has oversight of federal highway and transit funds. This fact, of course, limits to a certain extent what strategies are included in the plan and it also prevents any non-federal highway or transit funded projects from being included.

1.2 Laws and Regulations

The laws that require Metropolitan Planning Organizations (MPOs) to develop long-range transportation plans are Section 134 of Title 23 of the United States Code and Section 5303 of Title 49 of the United States Code. The rules that govern metropolitan planning organizations are published in the Code of Federal Regulations (CFRs) as Title 23, Chapter 1, Part 450, Subpart C. Section 450.322 specifically relates to the development of long-range transportation plans. The regulations reflect the changes resulting from the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) (Pub. L.112-141, July 6, 2012) and the Fixing America's Surface Transportation (FAST) act, signed into law on December 4, 2015.

1.2.1 Scope of the Planning Process

MAP-21 has defined eight planning factors as the Scope of the Planning Process to guide the transportation planning within an MPO area. The FAST Act, in 2015 included two additional planning factors (ten total) 23 CFR 450.306. The ten federal planning factors are as follows:

A. support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
B. increase the safety of the transportation system for motorized and non-motorized users
C. increase the security of the transportation system for motorized and non-motorized users
D. increase the accessibility and mobility of people and for freight
E. 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
F. enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
G. promote efficient system management and operation
H. emphasize the preservation of the existing transportation system

I. improve resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation
J. enhance travel and tourism

1.2.2 Livability Principles and Indicators

Increasingly, federal and state agencies are using Performance Measures as a way of ensuring greater accountability for the expenditure of public funds in an ever-growing number of programs and activities across a variety of disciplines. Within the transportation sector and the planning processes associated with transportation infrastructure development, ALDOT has adopted the Livability Principles and Indicators as a sustainability measurement against future actions.

All planning tasks must be measured against these Livability Principles:

1) Provide more transportation choices
2) Promote equitable, affordable housing
3) Enhance economic competitiveness
4) Support existing communities
5) Coordinate policies and leverage investment
6) Value Communities and neighborhoods

As a measure of sustainability of these principles, the MPO will provide the following Livability Indicators:

- Percentage of workforce using transit service
- Transit trips per capita
- Percentage of jobs and housing located within a ½ mile of transit
- Vehicle miles traveled per household
- Percentage of household income spent on housing and transportation
- Transportation costs per household
- Percent of housing units located within 0.5 miles of primary employment centers
- Percentage of LRTP funding that will be used to improve existing facilities
- Percentage of TIP funding that will be used to improve existing facilities
- Percent of transportation projects where more than one federal funding source is utilized
- Percentage of housing units within a 0.25 mile of retail services, and parks
- Automobile greenhouse gas emissions per household

A description of the principles and the indicators can be found in Appendix C.

1.2.3 Goals, Performance Measures, and Targets

Goals

The national performance goals for the federal highway programs as established in MAP-21 (23USC §150(b)) are as follows:

- **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion Reduction** - To achieve a significant reduction in congestion on the National Highway System.
- **System Reliability** - To improve the efficiency of the surface transportation system.
- **Freight Movement and Economic Vitality** - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced Project Delivery Delays** - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Performance Measures

MAP-21 requires the U.S. Department of Transportation (USDOT) to develop performance measures for four areas: national highway performance program, highway safety improvement program, congestion mitigation and air quality program, and national freight movement. It also requires that the USDOT develop standards for the performance measures.

Performance Targets

As part of the performance measure requirements, the state Departments of Transportation (DOTs), transit agencies, and the MPOs are required to develop targets related to the adopted transportation performance measures. The MPO adopted the targets set forth by ALDOT. Table 1 includes the Safety Performance Measure (PM1), Bridge/Pavement Performance Measures (PM2), FHWA System Performance Measures (PM3), and FTA State of Good Repair Performance Measures. Safety targets (PM1) represent five-year rolling averages and are set annually. This table is from 2019. Bridge/Pavement Performance Measures (PM2) for Interstate have 4-year targets, while Non-Interstate have 2-year and 4-year targets. System Performance Measures (PM3) has 2-year and 4-year targets for the percentage of Person-Miles Traveled on the Interstate that area Reliable and Percentage of Person-Miles Traveled on the Non-Interstate NHS that are reliable has a 4-year target. Truck Travel Time Reliability (TTTR) has targets for both 2-year and 4-year.

Table 1

ALDOT PERFORMANCE MEASURES & TARGETS

FHWA Safety Performance Measures (PM1) (Annual Targets)	**Calendar Year 2020 Targets**	
Number of Fatalities	932	
Rate of Fatalities (per 100 million Vehicle Miles Traveled)	1.33	
Number of Serious Injuries	8469	
Rate of Serious Injuries (per 100 million Vehicle Miles Traveled)	12.08	
Number of Non-motorized fatalities and serious injuries	394	
FHWA Bridge/Pavement Performance Measures (PM2)	**2-Year Target 2020**	**4-Year Target 2022**
% of Pavements of the Interstate System in Good Condition	n/a	> 50.0%
% of Pavements of the Interstate System in Poor Condition	n/a	< 5.0%
% of Pavements of the Non-Interstate NHS in Good Condition	> 40.0%	> 40.0%
% of Pavements of the Non-Interstate NHS in Poor Condition	< 5.0%	< 5.0%
% of NHS bridges in Good condition by deck area	≥ 27.0%	≥ 27.0%
% of NHS bridges in Poor condition by deck area	≤ 3.0%	≤ 3.0%
FHWA System Performance Measures (PM3)	**2-Year Target 2020**	**4-Year Target 2022**
% of Person-Miles Traveled on the Interstate that are Reliable	96.4%	96.4%
% of Person-Miles Traveled on the Non-Interstate NHS that are Reliable	n/a	93.6%
Truck Travel Time Reliability (TTTR) Index on the Interstate	1.20	1.21
Congestion Mitigation and Air Quality (CMAQ)* On-Road Mobile Source Emissions (kg/day)		
Total Emission Reductions: PM2.5	20.830	42.413
Total Emission Reductions: NOx	168.590	312.667
Total Emission Reductions: VOC	17.207	32.429
Traffic Congestion		
Annual Hours of Peak Hours Excessive Delay (PHED) per capita	n/a for this period	
% Non-Single Occupancy Vehicle Travel (SOV)	n/a for this period	
FTA State of Good Repair Performance Measures	**2018**	
% of Rolling Stock (Revenue vehicles) meet or exceed Useful Life Benchmark (ULB)	Reduce inventory by 10%	
% of Equipment (over $50K) meet or exceed Useful Life Benchmark (ULB)	Reduce by 10%	
% of FTA-funded Facilities with condition rating below 3.0 (average) of FTA Average TERM Scale	No more than 20% of facilities rate less than average	

*only applicable to Regional Planning Commission of Greater Birmingham

1.2.4 Consistency with Other Agencies and Plans

The development of the LRTP included involvement and coordination between several different agencies and organizations. Significant contributions were made toward this plan by the Federal Highway Administration (FHWA); the Federal Transit Administration (FTA); the Alabama Department of Transportation (ALDOT); the municipalities of Florence, Killen, Leighton, Muscle Shoals, St. Florian, Sheffield, and Tuscumbia; the Counties of Colbert and Lauderdale; the Florence/Lauderdale Port Authority; the Northwest Alabama Regional Airport; and several employers and civic groups located in the planning area.

The LRTP is consistent and supportive of land use plans, growth management plans, safety studies, environmental studies, and other plans and studies developed by other agencies and municipalities concerning transportation related issues in the planning area. This includes the Transportation Improvement Program (TIP) and the State Transportation Improvement Program (STIP).

1.2.5 Amendment Process

The LRTP will be amended periodically to adjust funding, time frames, or other factors relevant to the projects. New projects will be added if appropriate and if funding is available. Other projects may be moved into the Transportation Improvement Program (TIP) if funding is available; or deleted if funding is not available.

Amendment means a revision to a long-range statewide or metropolitan transportation plan, TIP, or STIP that involves a major change to a project included in a metropolitan transportation plan, TIP, or STIP, including the addition or deletion of a project or a major change in project cost, project/project phase initiation dates, or a major change in design concept or design scope (e.g., changing project termini or the number of through traffic lanes). Changes to the projects that are included for illustrative purposes only do not require an amendment. An amendment is a revision that requires public review and comment, re-demonstration of fiscal constraint, or a conformity determination (for metropolitan transportation plans and TIPs involving *non-exempt* projects in nonattainment and maintenance areas). In the context of a long-range statewide transportation plan, an amendment is a revision approved by the state in accordance with its public involvement process.

The Federal Highway Administration (FHWA)-Alabama Division and the Alabama Department of Transportation (ALDOT) have agreed that a formal TIP amendment is required for a *highway-oriented* project when one or more of the following criteria are met:

- Affects air quality conformity, regardless of the cost of the project or the funding source.
- Adds a new project, or deletes a project, that utilizes federal funds from a statewide line item, exceeds the thresholds listed below, and excludes those federally funded statewide program projects.
- Adds a new project phase(s), or increases a current project phase, or deletes a project phase(s), or decreases a current project phase that utilizes federal funds, where the revision exceeds the following thresholds:

- $5 million or 10 percent, whichever is greater, for ALDOT federally funded projects and Transportation Management Area (TMA) attributable projects.
- The lesser amount of $1 million or 50 percent, of project cost for non-TMA MPOs.
- $750,000 for the county highway and bridge program.

- Involves a change in the Scope of Work to a project(s) that would:
  - Result in an air quality conformity reevaluation.
  - Result in a revised total project estimate that exceeds the thresholds established between ALDOT and the Planning Partner (not to exceed any federally funded threshold contained in this MOU).
  - Results in a change in the Scope of Work on any federally funded project that is significant enough to essentially constitute a New Project.
  - Level of Effort (LVOE) planned budget changes, exceeding 20 percent of the original budgeted amount per ALDOT region.

Administrative modification means a minor revision to a long-range statewide or metropolitan transportation plan, Transportation Improvement Program (TIP), or Statewide Transportation Improvement Program (STIP) that includes minor changes to project/project phase costs, minor changes to funding sources of previously-included projects, and minor changes to project/project phase initiation dates. An administrative modification is a revision that does not require public review and comment, re-demonstration of fiscal constraint, or a conformity determination (in nonattainment and maintenance areas). An Administrative Modification is a minor STIP/TIP revision that:

- Adds a project from a level of effort category or line item, utilizing 100 percent state or nonfederal funding, or an MPO TIP placement of the federally-funded, Statewide Program, or federal funds from a statewide line item that do not exceed the thresholds established by the Planning Partner.
- Adds a project for emergency repairs to roadways or bridges, except those involving substantive or functional adjustments, or location and capacity changes.
- Draws down, or returns funding, from an existing STIP/TIP Reserve Line Item, and does not exceed the threshold established between ALDOT and the Planning Partners.
- Adds federal or state capital funds from low-bid savings, de-obligations, release of encumbrances, from savings on programmed phases, and any other project-cost modification sent to and approved by FHWA or FTA, to another programmed project phase or line item.

If Colbert and/or Lauderdale Counties are designated nonattainment, based on the current National Ambient Air Quality Standards (NAAQS), the LRTP would have to be amended. An air quality conformity determination report would have to be added to the LRTP. In addition, the LRTP project list might have to be adjusted in order to demonstrate conformity. After the LRTP has met the conformity requirement, any future LRTP amendments would have to prove conformity before adoption.

1.3 MPO Structure

Transportation planning within the Shoals study area falls under the auspices of the Shoals Area MPO. The Shoals Area Transportation Study was created in 1974 upon execution of an agreement between the cities of Florence, Sheffield, Tuscumbia and Muscle Shoals, Colbert County, Lauderdale County, the Northwest Alabama Council of Local Governments, and the State of Alabama Highway Department (now the State of Alabama Department of Transportation). The MPO is made up of the Policy Committee, the Technical Advisory Committee and the Citizens Advisory Committee. The Policy Committee membership is outlined in the MPO bylaws. The Technical Advisory Committee is appointed by the Policy Committee. Following is a list of the policy committee members:

- the mayor of the City of Florence
- the mayor of the Town of St. Killen
- the mayor of the City of Sheffield
- the mayor of the City of Tuscumbia
- the mayor of the City of Muscle Shoals
- a member of the Colbert County Commission
- a member of the Lauderdale County Commission
- the Executive Director of the Northwest Alabama Council of Local Governments
- the North Region Engineer of the Alabama Department of Transportation
- the State Local Transportation Engineer of the Alabama Department of Transportation (non-voting)
- the division administrator of the Federal Highway Administration (non-voting)
- the chairman of the Technical Coordinating Committee (non-voting)
- the mayor of the Town of St. Florian (non-voting)
- the mayor of the Town of St. Leighton (non-voting)

This committee oversees all decision-making responsibilities relative to the transportation planning process in the Shoals Study Area.

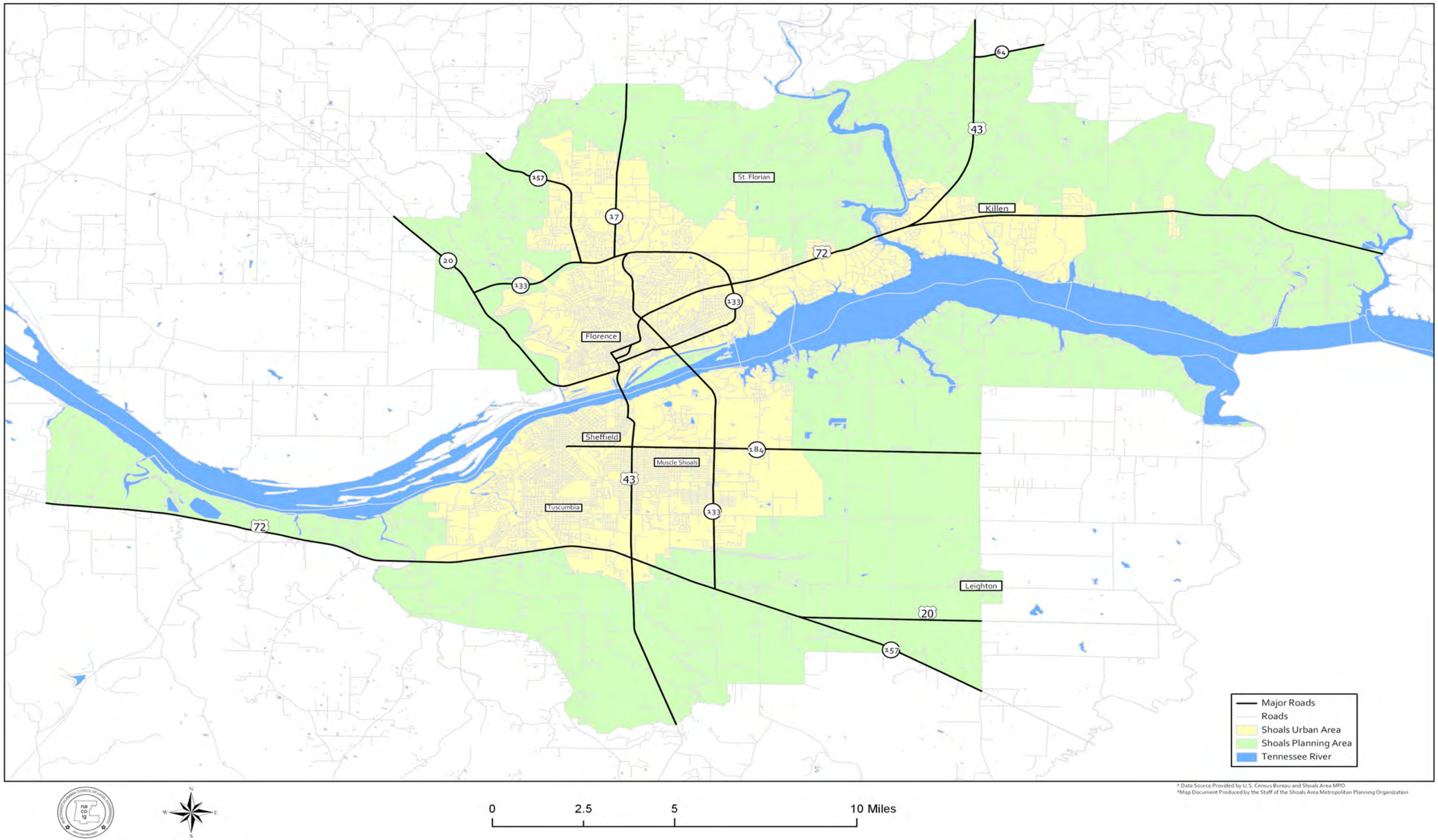
The Metropolitan Planning Organization Policy Committee receives input and advice from the Technical Coordinating Committee (TCC). This committee consists of members who work in areas related to transportation planning and who, in many instances, work directly in some planning capacity such as city planning and engineering. This committee is vital to the success of the overall transportation planning process as these professionals are the individuals that must integrate the end product of their collective efforts into their own work responsibilities on a daily basis. This is also the first line of the decision-making responsibility in the planning process.

1.4 Study Area

There are two boundaries that are defined in a transportation study area, the urban area boundary, and the study area boundary. The urban area boundary is defined largely by the U. S. Census Bureau. The study area boundary is defined by the MPO in cooperation with the Alabama Department of Transportation. The study area is defined as the urban area boundary plus the area that is projected to become urbanized within the next twenty years. Included in the Shoals Area

Transportation Study are the Cities of Florence, Muscle Shoals, Sheffield, and Tuscumbia, the Town of Killen, and portions of Colbert and Lauderdale Counties as shown in Figure 1.1.

Figure 1.1 Study Area



1.5 Traffic Analysis Zones

The study area is divided into individual cells called traffic analysis zones (TAZ). A traffic analysis zone is defined as a subdivision of a study area of homogeneous land use within a distinct border for the compilation of land use and traffic generation data. The TAZ system developed by the Shoals Area MPO was employed for this analysis. 178 internal zones and 20 external zones are included within the study area boundary. The TAZ structure is illustrated in Figure 1.2.

1.6 Title VI

The Shoals Area Metropolitan Planning Organization (MPO) is committed to ensuring public participation in the development of all transportation plans and programs. It is the overall goal of the MPO that the transportation planning process be open, accessible, transparent, inclusive, and responsive. The MPO will be compliant with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990 by July of 2016. The Shoals MPO is compliant with and will follow all other Title VI laws, processes, and procedures to include the following:

- Civil Rights Act of 1964, 42 USC 2000d, et seq. which prohibits exclusion from participation in any federal program on the basis of race, color, or national origin.
- 23 USC 324 which prohibits discrimination on the basis of sexual orientation, adding to the landmark significance of 2000d. This requirement is found in 23 CFR 450.334(1).
- Rehabilitation Act of 1973, 29 USC 701 Section 504, which prohibits discrimination on the basis of a disability, and in terms of access to the transportation planning process.
- Americans with Disabilities Act of 1990 which prohibits discrimination based solely on disability. ADA encourages the participation of people with disabilities in the development of transportation and paratransit plans and services. In accordance with ADA guidelines, all meetings conducted by the MPO will take place in locations which are accessible by persons with mobility limitations or other impairments.
- Executive Order 12898 or referred to as Environmental Justice, which requires that federal programs, policies and activities affecting human health or the environment will identify and avoid disproportionately high and adverse effects on minority or low-income populations. The intent was to ensure that no racial, ethnic, or socioeconomic group bears a disproportionate share of negative environmental consequences resulting from government programs and policies.
- Limited English Proficiency (LEP) Plan which is required by Title VI of the Civil Rights Act of 1964, Executive Order 13166, and FTA Circular C 4702.1B, October 2012. The Shoals Area MPO has completed a Four Factor Analysis of the Shoals Area Metropolitan Planning Area (MPA) to determine requirements for compliance with the Limited English Proficiency (LEP) provisions. Based on the analysis, the MPO has identified a population within the MPA that may require MPO assistance in participating in the planning process. A Limited English Proficiency (LEP) Plan has been developed and can be accessed within the Public Participation Plan at https://www.nacolg.org/images/pdf/Shoals--FY-2019--Public-Participation-Plan.pdf.

1.7 Connection to the Transportation Improvement Program (TIP)

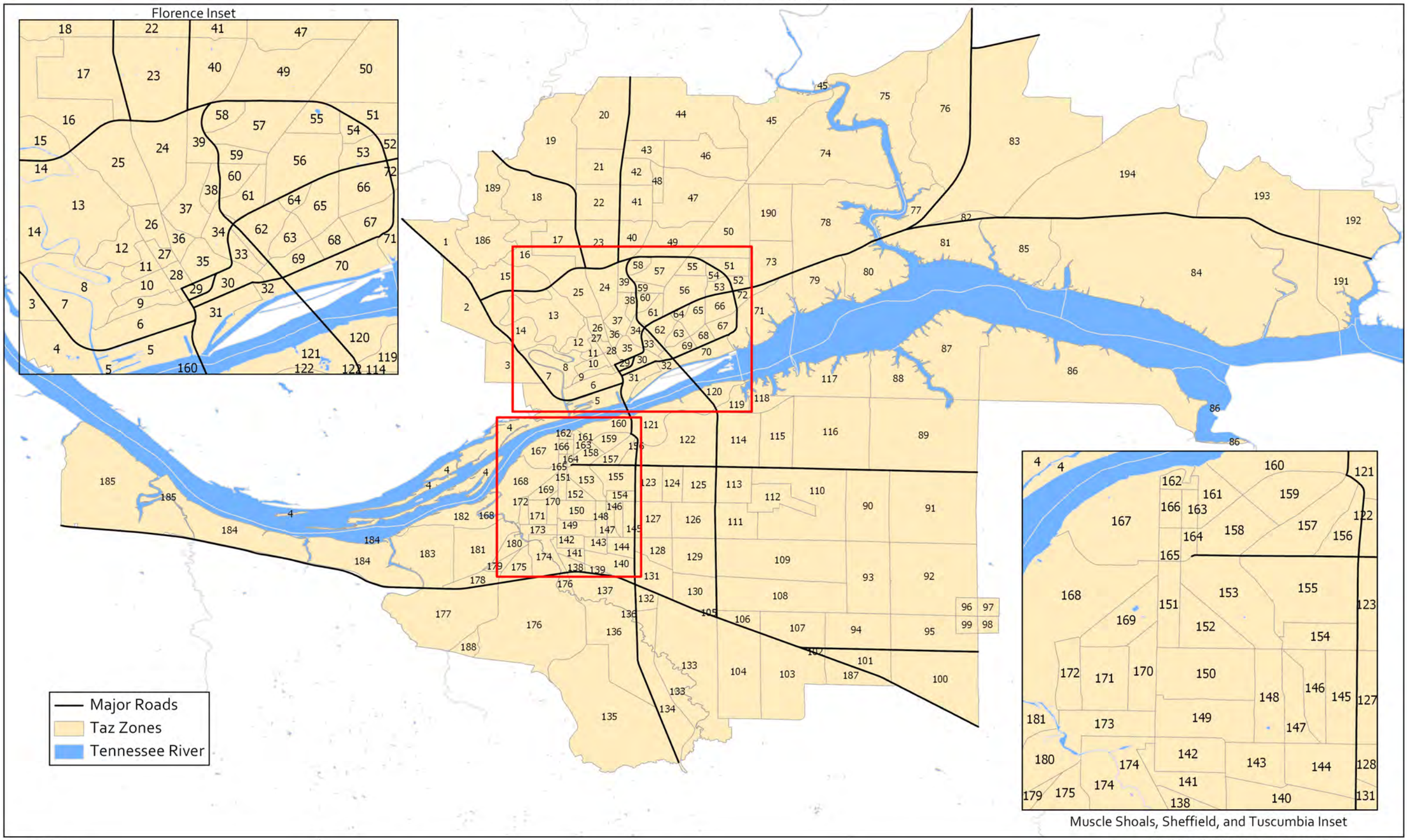
Transportation Improvement Programs (TIPs) are considered the funded, short-range element of the transportation planning process. Projects on the TIP are taken from the financially constrained long-range transportation plan. The only exceptions are maintenance and operations projects that were not scheduled at the time the plan was adopted. Any project that adds capacity to the transportation network must be on the plan and have an identified funding source before it can be added to the TIP.

TIPs schedule the different phases of a transportation project over a four-year period. For road construction projects, the phases generally are engineering, right-of-way acquisition, utility relocation, and construction. The engineering phase will generally include environmental document preparation and design. The construction phase may be divided into multiple elements that could include grade and drain, base and pave, or bridge construction. In contrast, projects on the long-range transportation plan are listed in more general terms and do not include an estimated start date for each project phase.

1.8 Documentation Process

Long-range transportation plans are developed by MPOs every 5 years and cover at least a 20-year span. The current long-range transportation plan was adopted by the MPO in October 2015. The base year of this long-range transportation plan is 2015 and the horizon year is 2045. Responsibility for transportation planning for the MPO, including the long-range transportation plan, rests with the staff of the Northwest Alabama Council of Local Governments (NACOLG).

Figure 1.2 Traffic Analysis Zones



* Data Source Provided by U.S. Census Bureau and Shoals Area MPO
*Map Document Produced by the Staff of the Shoals Area Metropolitan Planning Organization

2.0 VISION STATEMENT, GOALS, AND OBJECTIVES

2.1 Vision Statement

The vision of the Shoals Metropolitan Planning Organization (MPO) is to promote, enhance, and maintain a safe, efficient, and environmentally friendly transportation system that enhances the quality of life and economic prosperity throughout the planning area.

2.2 Goals

The following goals were developed to help define the vision statement and to help guide the MPO in the project selection process for the 2045 Long-Range Transportation Plan (LRTP):

- Provide a safe and efficient transportation system
- Improve the accessibility, connectivity, and mobility of the transportation system for the movement of people, goods, and services for all modes in and throughout the planning area
- Provide a transportation system that will preserve, protect, and enhance the natural and human environment
- Maintain quality performance of the transportation system through efficient congestion management and operations
- Provide meaningful opportunities for public involvement in the transportation planning process

2.3 Objectives

Contrary to goals, objectives are more precise intentions that are measurable. The Shoals Area MPO developed the following objectives for each mode of the transportation system:

<u>Highway and Streets (collector and above)</u>

- Development of highways and streets that are consistent with local land use and development plans
- Increase the connectivity of the existing network, locally and regionally
- Development of highways and streets that relieve traffic congestion and travel times
- Development of highways and streets that reduce crash potential and severity
- Include sidewalks and bicycle facilities in the design of highways and streets to accommodate and encourage pedestrian and bicycle travel
- Develop visually attractive highways and streets

<u>Public Transit</u>

- Establish programs and services that encourage transit ridership
- Serve the elderly, low income, and populations at a disadvantage to reasonable access of needed services
- Maximize transit's coverage area to the extent feasible

- Facilitate the integration and coordination of transit services by all transit service providers
- Operate safe and efficient transit services that minimize costs, travel times, and travel distances
- Implement land use strategies that promote transit participation and coverage

Bicycle and Pedestrian

- Improve the transportation system to accommodate pedestrian and bicycle access along roadways through design and facility standards
- Increase pedestrian and bicycle safety through public education programs
- Provide access for pedestrians and bicycles between neighborhoods, schools, employment centers, retail areas, central business districts, churches, and cultural centers
- Promote the use of pedestrian and bicycle facilities to relieve traffic congestion

Intermodal System including Rail Transportation, Air Transportation, and Freight Movements

- Develop a transportation system that reduces travel times and congestion on the transportation network
- Improve the transportation system to increase accessibility and provide compatibility with multiple modes of transportation
- Identify opportunities to expand intermodal facilities in the planning area
- Designate truck routes that minimize exposure to neighborhoods, historic, and cultural resources
- Work with officials from all modes of transportation to enhance, promote, and safely move people goods and services in and through the planning area

Environment

- Develop transportation systems that maintain or improve air quality
- Develop transportation systems that preserve and complement the area's natural features
- Plan, design, and develop transportation systems that protect cultural and historic resources
- Develop and educate public officials and the general public on environmental policies involving transportation projects in the planning area

Financial

- Minimize implementation and operation costs of transportation projects
- Develop transportation projects that enhance state, local, and regional economies
- Actively explore new sources of revenue

3.0 EXISTING TRANSPORTATION SYSTEM

3.1 Roadway Classifications and Descriptions

All transportation networks have some form of classification to categorize the hierarchy of movement in the system. The roadway network developed for the Shoals study area was based on the functional classification system prepared by the Alabama Department of Transportation with assistance from the MPO. The components of this network are principal arterials, minor arterials, and collectors. The distribution of mileage in these classifications was as follows:

Principal Arterials	137.06 miles
Minor Arterials	95.85 miles
Major Collector Roads	337.52 miles
Minor Collector Roads	82.98 miles
Local Roads	361.65 miles
TOTAL	1,015.06 miles

Each type of roadway provides separate and distinct traffic service functions and is best suited for accommodating particular demands. Their designs also vary in accordance with the characteristics of traffic to be served by the roadway. The following is a brief description of each roadway type.

Arterials are important components of the total transportation system. They serve as feeders to the interstate system as well as major travel ways between land use concentrations within and beyond the study area. Arterials are typically roadways with relatively high traffic volumes and traffic signals at major intersections. The primary function of arterials is moving traffic. Arterials provide a means for local travel and land access.

Collectors provide both land service and traffic movement functions. Collectors serve as feeders between arterials as well as provide access to the local streets. Collectors are typically lower volume roadways that accommodate short distance trips.

3.2 Roadway Capacity

Roadway networks are evaluated by comparing the traffic volumes along each facility to the facility's capacity. Roadway capacity is defined as the ability of the facility to accommodate traffic. Service flow volume is the level of traffic flow (vehicles per day) that can be accommodated at various levels of service. The current level of service scale (LOS), as developed by the Transportation Research Board in the *Highway Capacity Manual, Seventh Edition*, ranges from a level of service "A" to a level of service "F". Abbreviated definitions of each level of service are as follows:

Level of Service A	Free traffic flow
Level of Service B	Reasonably free flow
Level of Service C	Stable traffic flow
Level of Service D	High-density stable traffic flow

Level of Service E	Capacity level traffic flow
Level of Service F	Forced or breakdown traffic flow

Generally, the desired operation of a roadway should be no lower than level of service “C". Level of service "D" may be acceptable under certain circumstances. A level of service "E" or "F" is considered unacceptable.

The methodology used to evaluate roadway segment capacity in this project was a tabular analysis relating roadway classification, number of lanes, levels of service, and daily service volumes. The estimated 24-hour capacities of the facilities included in the area network are shown in Table 3.1. Figure 3.2 summarizes the deficient roadway segments.

3.3 Existing Traffic Volumes

Traffic volumes, as indicated by traffic counts at various locations on the roadway network, reflect current travel patterns and how well the network is serving the travel demand. The traffic counts are collected throughout the study area annually by ALDOT. Existing average annual daily traffic counts, which were conducted in 2018, are shown in Figure 3.1.

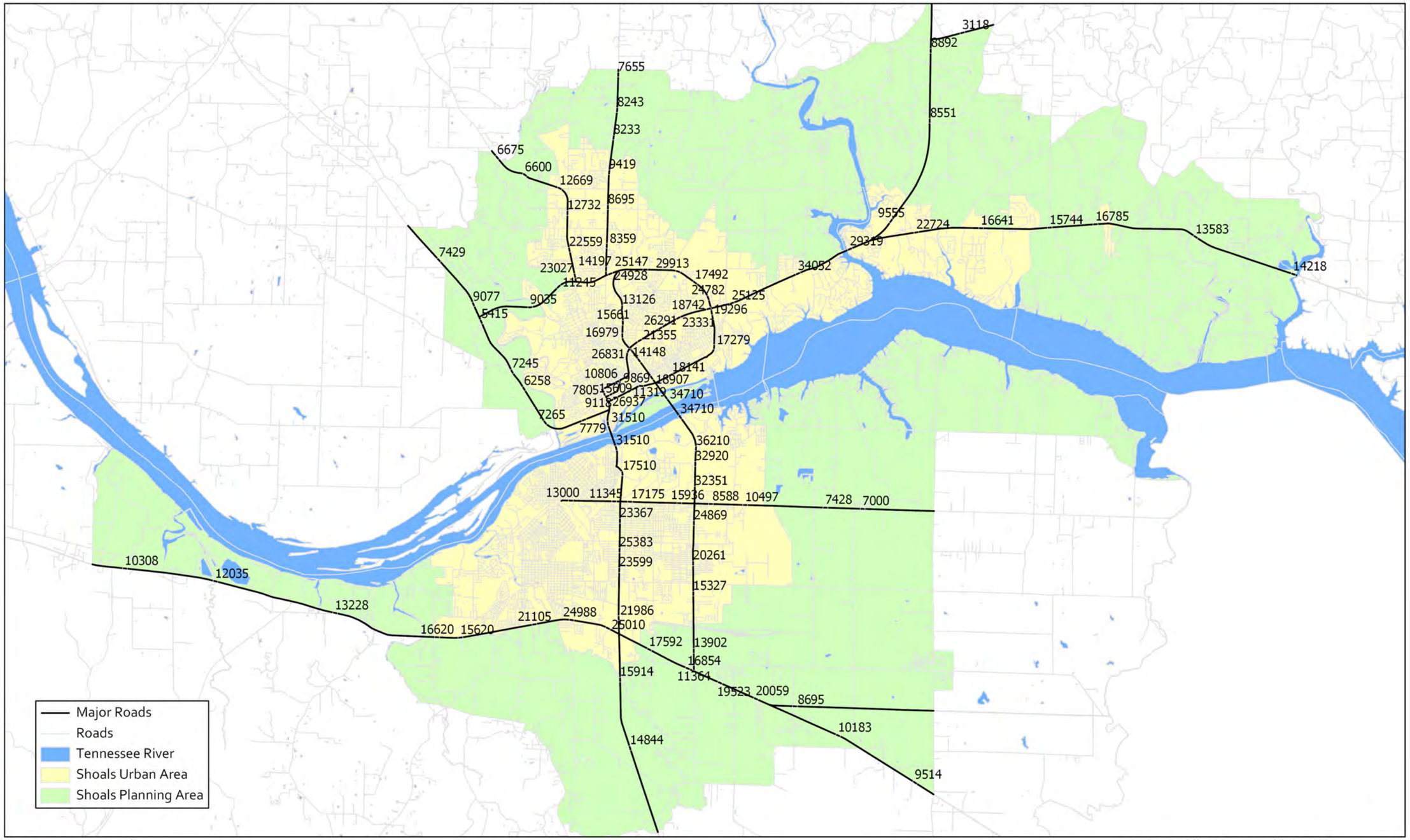
Table 3.1 ALDOT Approved Capacities

Link Type	Functional Classification	Number of Lanes	Daily Capacity
11	Freeways	4	68,000
12		6	102,000
13		8	136,000
14		10	170,000
21	Expressways	4	50,000
22		6	75,000
23		8	100,000
31	Divided Principal Arterials	2	22,000
32		4	33,900
33		6	50,000
34		8	73,600
35	Undivided Principal Arterials	2	17,800
36		4	31,000
37		6	45,800
38		8	63,100
41	Divided Minor Arterials	2	21,000
42		4	31,900
43		6	45,600
44		8	
45	Undivided Minor Arterials	2	17,800
46		4	27,400

Link Type	Functional Classification	Number of Lanes	Daily Capacity
47		6	
48		8	
51	Divided Collectors	2	20,800
52		4	28,500
53		6	42,000
54	Undivided Collectors	2	16,600
55		4	26,200
56		6	38,700
61	One-Way Principal Arterials	2	17,100
62		3	25,600
63		4	
71	One-Way Minor Arterials	2	14,100
72		3	19,500
73		4	26,000
81	One-Way Collectors	2	11,300
82		3	15,600
83		4	20,800
91	One-Way Ramps	1	9,000
92		2	18,000
93		3	27,000
98	Time Barriers		
99	Centroid Connectors	2	14,000

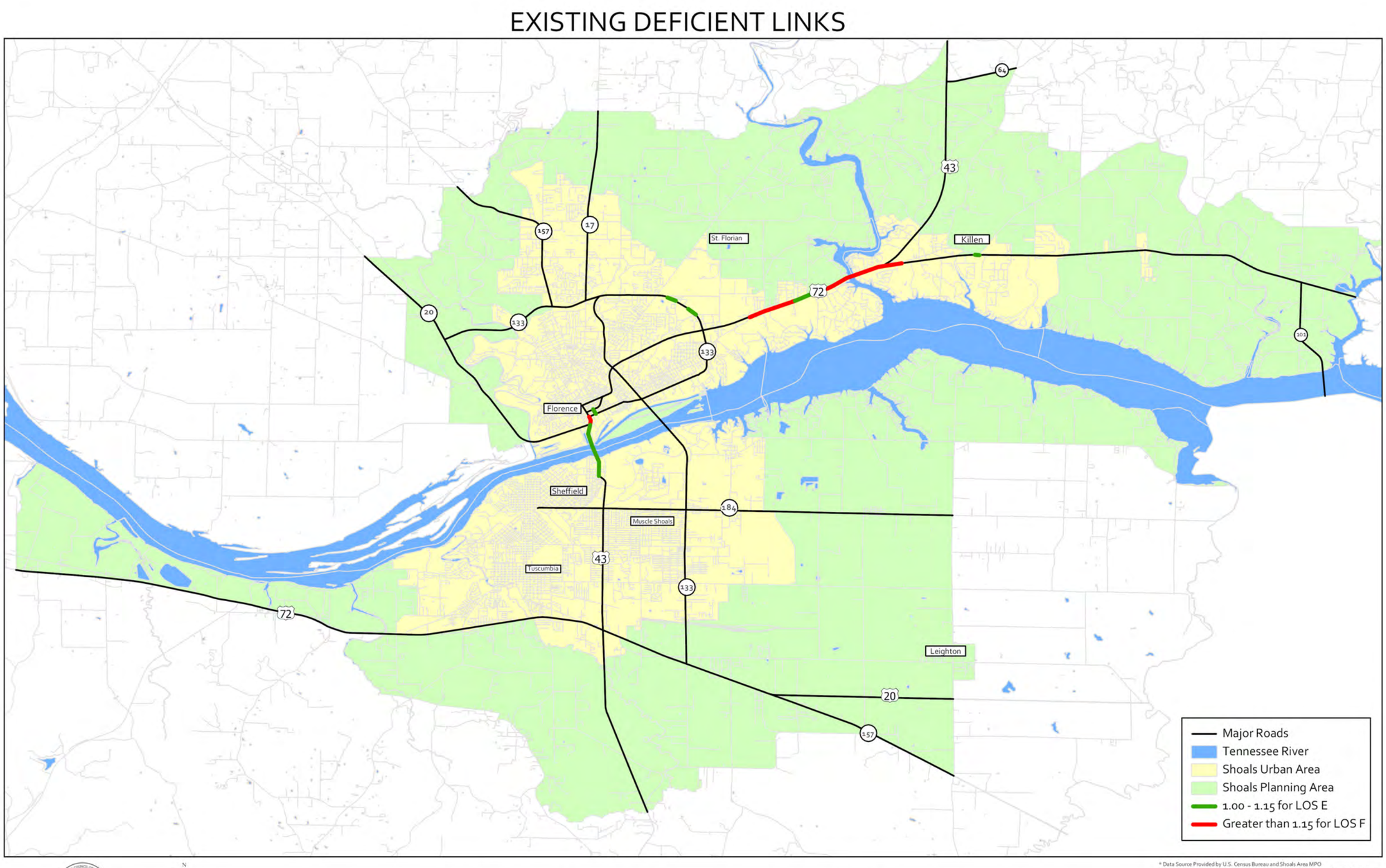
Figure 3.1 Existing Traffic Volumes

EXISTING TRAFFIC VOLUMES



* Data Source Provided by U.S. Census Bureau and Shoals Area MPO
*Map Document Produced by the Staff of the Shoals Area Metropolitan Planning Organization

Figure 3.2 Existing Deficient Links



3.4 Public Transit

The NACOLG Transit operates public transportation in the Shoals Urban Area including the cities of Florence, Muscle Shoals, Sheffield, Tuscumbia, Killen, St. Florian, and Leighton as well as portions of the unincorporated areas of Colbert and Lauderdale counties. To maximize efficiency, NACOLG operates a joint Section 5307 Urbanized Area Formula Program and Section 5311 Rural Area Formula Program. NACOLG has a fleet of 59 total vehicles, consisting of mini-buses, commuter vans, and modified vans. Twenty-nine vehicles were funded through Section 5307 Urbanized Area capital funds. The program is managed by the staff of NACOLG Transit at NACOLG's offices in Muscle Shoals, Alabama.

NACOLG Transit provides demand response public transportation Monday through Friday from 7:00 AM until 5:00 PM. Service is provided with advance scheduling at least a business day before by 3:00 PM and up to two weeks in advance. In addition, NACOLG provides service to public and private social service organizations through direct service contracts. A shopping shuttle in the City of Florence operates three days per week serving the low-income residential communities and all of the major shopping centers in the City of Florence. The shuttle route is subsidized by the City and the Housing Authority. The City of Florence subsidizes evening transportation three times per month for handicapped citizens who attend support groups. Transit services for 7 routes are coordinated with social service agencies throughout the urbanized area. These routes operate twice a day, five days a week. Contracted routes are scheduled according to the demand of the agencies and operate as early as 6:00 a.m. and as late as 11:00 p.m. All contract routes are open to the general public and rides are scheduled on demand.

Job Access/Reverse Commute (JARC) transportation is administered by NACOLG Transit. Service contracts with local taxi companies in Lauderdale and Colbert Counties allow NACOLG to provide service to JARC clients 24 hours a day, 7 days a week. This service provides low-income/TANF eligible persons with transportation to and from work and daycare.

3.5 Pedestrian and Bicycle Facilities

As funding for transportation projects continually becomes more limited, it is important to consider the low cost, high impact projects associated with bicycle and pedestrian facilities. In planning for these facilities, the Shoals Area MPO commissioned a Bicycle and Pedestrian Plan to be completed to outline key recommendations and improvements to the bicycle and pedestrian network that could have a positive impact on the overall transportation network within the MPO. Existing surface connectivity between and within the MPO municipalities is excellent and these recommendations will facilitate and enhance that connectivity by developing a multimodal aspect to the MPO region.

The vision of the Shoals Area MPO Bicycle and Pedestrian Plan is to provide choices with respect to alternative transportation modes such as by bicycle or on foot. These transportation choices will be accomplished by making available new and improved facilities that will conveniently and efficiently accommodate bicycles and pedestrians in a suitable environment. The plan can be found at https://www.nacolg.org/documents

3.5.1 Goals and Objectives of the Bicycle and Pedestrian Plan

To facilitate the implementation of the vision of the Shoals Area MPO Bicycle and Pedestrian Plan, the following goals and objectives are defined using the criteria outlined in the vision.

3.5.1.1 PLANNING AND ENGINEERING

GOAL 1: Create a bicycle-friendly and walkable transportation system within the MPO area.

- The MPO will consider providing accommodations for bicycles and pedestrians on new and existing facilities as a routine part of planning, design and construction activities (including operations and maintenance) on routes identified in this plan.
- Relevant information will be disseminated to organizations, planners, and engineers to provide design standards, data and other materials for bicycle and pedestrian facilities.

GOAL 2: Promote development of bicycle and pedestrian facilities that connect community destinations, public transportation and recreational facilities.

- Encourage and promote the development of bicycle and pedestrian facilities in communities and neighborhoods as new private or public facilities are planned and implemented. This would encourage non-motorized transportation facilities as an alternative form of transportation.
- Encourage and promote the integration of bicycle and pedestrian facility requirements in zoning ordinances and subdivision regulations within the MPO communities.
- Encourage and promote the use of utility easements and abandoned railroad corridors for off-road transportation facilities.

3.5.1.2 EDUCATION AND ENFORCEMENT

GOAL 1: Improve bicycle and pedestrian safety through education and enforcement

- Coordinate and solicit cooperation with current private and public interests promoting bicycle and pedestrian safety to strengthen the education program.
- Encourage the training of adults and children to facilitate safe bicycle and pedestrian facilities.
- Encourage and promote a “Share the Road” concept for all roadway users.
- Encourage and promote the enforcement of laws and rules to provide a safer environment for bicyclists and pedestrians.

3.5.2 ALDOT Requirements

ALDOT received a written directive from FHWA – Alabama Division, June 12, 2009, that stated the MPOs must “include a **policy statement that bicycling and walking facilities will be incorporated** into all transportation projects unless exceptional circumstances exist.” This guidance was reinforced by a USDOT email broadcast March 17, 2010, in which recommendations were forwarded to state DOTs with regard to bicycle and pedestrian policy.

These two directives effectively modified 23 USC 217 guidance in implementing improvements to state routes under ALDOT jurisdiction using federal funds.

This is now ALDOT bicycle and pedestrian policy and it carries over to the short-range TIP subset and new bicycle and pedestrian plans and updates. The MPO will comply with these provisions.

3.6 Intermodal System

The Intermodal System consists of sites providing linkages between one or more modes of transportation. In a true intermodal system, the performance or use of one mode will affect another. The intermodal system should provide an efficient, safe, and convenient process to move goods and people. There is an extensive intermodal system in the Shoals area which includes rail facilities, a navigable waterway and port, and air service.

3.6.1 Rail Service

The Shoals area is served by two railways, Norfolk-Southern Railroad and the Tennessee Southern Rail Company. Norfolk-Southern serves Colbert County with connections to markets to the east, west and south of the Shoals Area. The Tennessee Southern Rail Company is a short line railroad that serves Lauderdale County with connections into middle Tennessee. The rail service in the Shoals Area is freight based with no passenger rail service.

3.6.2 Port Facilities

The Tennessee River provides unique opportunities for commercial and industrial transportation in the Shoals Area. The navigable waterway has created the opportunity for thousands of industrial and service jobs at businesses and industries that utilize the river for transportation. Port facilities are available on both sides of the waterway for use by commercial and industrial interests. Public and private docks are located along the Tennessee River providing an intermodal transportation connection. The Florence – Lauderdale County Port Authority is a public, not-for-profit organization chartered by the Lauderdale County Commission and the City of Florence. The Authority owns the Port of Florence. The Port Authority leases land and equipment to private operators and manages the public dock.

The Port of Florence is a multi-modal port located at mile 256 on the Tennessee River. Tennessee Southern Railroad provides rail access to the port and operator services at the public dock. The railway connects to CSX north of Columbia, Tennessee. Tennessee Southern Railroad also operates the Port Authority's 40-ton overhead bridge crane. Fleeting is provided by Muscle Shoals Marine Service.

3.6.3 Air Services

The Northwest Alabama Regional Airport (MSL) is located north of U.S. Highway 72 Alternate in the southeastern corner of the urban area. Commercial passenger air service is provided by Boutique Air with daily connections to Nashville, Tennessee and Atlanta, Georgia. MSL is the only essential service airport in the State of Alabama under the Department of Transportation's official program designation. Essential Air Service is a U.S. government program enacted to

guarantee that small communities in the United States, which, prior to deregulation, were served by certificated airlines, maintained commercial air service.

The airport has a primary runway which is 6,694 feet long and 150 feet wide and a secondary runway which is 4,000 feet long and 100 feet wide. The primary runway has ILS and GPS approach capabilities which permit operations with only a 200-foot ceiling and one-half mile visibility. General aviation facilities include 5 t-hangars, 18 enclosed hangars, 6 corporate hangars, and 1 large community hangar. There is a total of 59 based aircraft at MSL, consisting of 40 single-engines (38 piston, 2 turboprop), 10 multi-engines (7 piston, 3 turboprop), 2 jets, and 7 helicopters.

4.0 SOCIOECONOMIC DATA

The interrelationship between land use and a transportation system is used to determine the demand for travel on a roadway network. Each land use (residential, retail, non-retail, etc.) generates and attracts traffic dependent on the nature of the development and the amount of land developed. In order to identify this demand for travel, inventories of existing land uses must be accomplished. This information is used in conjunction with the physical location of the adjacent land uses, constraints of the roadway network and other related factors to develop the interrelationship between land use and the transportation system.

4.1 Base Year (2015) Socioeconomic Data

Each traffic analysis zone within the study area was inventoried to determine the existing primary land use within its boundary. Factors used to characterize land use within each TAZ are listed below:

- Households
- Mean Income of Households
- Retail Employment
- Non-Retail Employment
- School Enrollment

There were 100,444 people and 47,947 households within the study area in 2010 decennial census. The average mean income for these households was $49,748. There were 10,331 retail jobs and 43,690 non-retail jobs reported within the study area in 2010. There were 32,803 persons enrolled in school within the study area in 2015. It should be noted that the household and mean income data is collected at the location of the home. The employment data is collected at the work site, and the school enrollment is collected at the school site. The 2015 socioeconomic data by TAZ is shown in Appendix E.

4.2 Socioeconomic Data Forecast

The generation of future traffic is based on a forecast of the socioeconomic data used to develop the base year model. The target year for this plan update calls for a long-range forecast to 2045. The Northwest Alabama Council of Local Governments prepared the data forecast using historic trends in development patterns and census figures. Other considerations included the density of development in each TAZ and the suitability of vacant land for development in each TAZ. The socioeconomic forecasts were projected to the planning district level and then refined to the TAZ level. The base year and forecast year study area totals for each data variables are shown in Table 4.1.

Table 4.1 Socioeconomic Forecasts

Data Variable	2015	2045	% Change
Population	100,444	103,357	2.9%
Households	47,947	51,149	6.6%
Mean Income	$49,748	$49,748	0.0%
Retail Employment	10,331	13,600	31.6%
Non-Retail Employment	43,690	48,217	10.4%
School Enrollment	32,803	35,164	7.2%

It should be noted that the mean income was assumed to remain constant over the 30-year period. It is fully recognized that there will be a significant increase in income in most, if not all, of the traffic analysis zones through the year 2045. However, most of this increase in income will be the result of inflation and not increased buying power. It can be assumed that income growth due to inflation does not yield a corresponding change in the number of trips generated by a household. The trip generation rates used in this model are based on 2015 income data. Therefore, in order to discount the effects of inflation and eliminate the need for adjustments to the trip generation rates, it was decided to hold mean income by traffic analysis zone constant.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Air Quality Conformity

The Clean Air Act (CAA), codified as Title 42 of United States Code (USC) Section 7401, and implemented by the Environmental Protection Agency (EPA) under Title 40 of Code of Federal Regulations (CFR), Parts 51 and 93, establishes tolerance standards on ground-level and atmospheric pollutants and provides for corrective mitigation measures when area monitor readings exceed allowable levels. Air quality in Alabama, as in other states, is adversely affected by pollutant emissions from automobile and truck exhaust systems, and this condition is exacerbated by congestion on urban roadways. This connection between automobile/truck emissions, traffic congestion, and increasing pollutant levels is well established and acknowledged by EPA, Federal Highway Administration (FHWA), and other agencies.

Common pollutants include ozone (O_3) and particulate matter 2.5 ($PM_{2.5}$), among others, and the EPA standards, which determine tolerance violations, are known as the National Ambient Air Quality Standards (NAAQS). Standards are typically established for ground-level ozone in terms of parts per billion (ppb) and for particulate matter, in tons per day. A violating pollutant is measured by a monitoring station in 1-hour and 8-hour increments for a given year to arrive at allowable averages.

Title 40 CFR Part 93 provides the rules and regulations for Air Quality Conformity, stating the procedures and requirements necessary by states and local governments to reach conformity, and Titles 23 and 49 of USC are interpreted through the Federal Highway Administration's (FHWA) 23 CFR 450 to insure conformity compliance is carried through in local planning by the MPO's and other transportation agencies.

Conformity, as commonly defined, is *a process which ensures federal funding and approval goes to transportation activities that are consistent with our air quality goals.* The US Department of Transportation cannot fund, authorize, or approve federal actions to support projects that do not conform to Clean Air Act requirements governing the current National Ambient Air Quality Standards (NAAQS). At the very heart of Air Quality Conformity is the requirement that projects are included in a *conforming* and fiscally constrained transportation plan (Long Range Plan) and a similarly constrained short range program, a Transportation Improvement Program (TIP).

States are required to establish State Implementation Plans (SIP), providing air quality goals for transportation plans and programs. The SIP, as set forth in 23 CFR 450.104, will generally state *that transportation activities will not cause new air quality violations, worsen existing conditions, or delay timely attainment of the air quality standards.* This then, describes the heart of the conformity process.

SIPs are established for the various pollutants monitored in a given area, as required by CAA. Each pollutant is assigned an allowable emission ceiling, referred to as the emissions "budget." This becomes the highest level of emissions allowed under a Long-Range Transportation Plan or TIP, while demonstrating attainment of standards. It is against the budgets that readings from

monitoring stations are measured to determine whether an area or county is non-conforming and thus must begin the mitigation process. Failing to meet conformity rules or exceeding emissions budgets can have varying outcomes, most of them unpleasant. They may include the loss of federal funding, projects underway can be halted, federal permits can be denied, and projected projects can be frozen in place, any of which can seriously and immediately impact a road network. For any and all of those reasons, it is essential that immediate steps are taken by the affected MPO to begin the Air Quality Conformity Determination process.

As of 2013, the counties of the Shoals Urban Area are in conformity, with no reporting violations of ozone (O_3) or particulate matter ($PM_{2.5}$).

5.2 Environmental Mitigation and Climate Change

"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

6.0 LAND USE AND TRANSPORTATION COORDINATION

The Shoals MPO recognizes, in formulating and implementing transportation improvements, the importance of coordinating such improvements with land use and development planning in order to create *Consistency with Other Plans*. The MPO further recognizes that land use policies and decisions are primarily the authority of local municipal jurisdictions. Frequently, the Northwest Alabama Council of Local Governments works in cooperation with municipal and county governments, as well as economic development organizations, on issues relating to transportation, planning, and development.

The Long-Range Transportation Plan provides an opportunity to further the coordination of transportation and land use in the MPO area. The goals for such coordination are (1) to enhance the effectiveness and efficiency of transportation investments in terms of mobility, reduced congestion, safety and environmental quality, (2) to support ongoing and sustainable economic and community development throughout the region, and (3) to enhance ongoing quality of life and livability measures for the counties and communities in the Shoals MPO area.

In preparing the LRTP Update, existing land use information, available from the MPO, was reviewed as were the adopted plans of various jurisdictions. Experiences of MPO members and staff and an overview of new developments were utilized for a perspective on proposed land development trends and "on the horizon" projects including residential, industrial, and commercial development as well as recreation, leisure, and tourism development.

These informal assessments provided an opportunity to understand the "big picture" for the Shoals MPO area and to discuss the importance of coordinating land use and transportation and how such coordination is being provided for at present. This information has been utilized to help reinforce the land use and socio-economic information that is utilized in the transportation modeling process.

Finally, General Land Use/Transportation Guidelines are included in the LRTP to further the coordination of transportation planning with local land use planning and to ensure efficient and economic mobility, mitigate congestion and support economic development and environmental quality.

Although not intended to be an exhaustive land use study or policy statement, this section of the LRTP provides further progress in the coordination between transportation and land use in the MPO area, between MPO activities, and in the transportation impact of land use decisions made by local governments. Continued discussion of this important aspect of LRTP will allow the MPO and member governments to realize the benefits of such coordination to the transportation system and to continued community and economic development of the MPO area.

6.1 General Development Trends in the MPO Study Area

Past, current, and future development trends indicate moderate growth in the MPO area in the next 25 years. A slowdown of the national economy has reduced growth and investment

nationwide, with a resultant drop in population growth anticipated in the Shoals MPO Area. A moderate growth rate of 2.9% has been projected for the study area in this plan. Shoals growth is expected to be driven by local competitive strengths such as a strong manufacturing base, superb recreational assets, and a lower than average cost of living.

Information from the Center for Business and Economic Research (CBER) at the University of Alabama was reviewed to further document the expectations with respect to future development. According to CBER, along with the rest of the United States, the Shoals Area has been affected by the downturn in the global economy. The Shoals area continues to be an attractive market, however, the underlying effects of the national economy has apparently had an impact on new housing starts and industrial development in the last few years and could have a moderating influence on total growth for the life of this plan update. At the same time, given the factors indicated above and the momentum of certain trends, development in the Shoals Area is expected to continue to grow in the long term as it has over the previous decade or so.

Major development projects impacting the MPO area from a regional perspective include the continued growth of industry at the Barton Industrial Park; continued growth and expansion of UNA in Florence, including the construction of new student housing, student commons, and the math and science building, as well as new curricula; and steady extension of highway connectivity north along Highway 43 and continued connections to markets in Huntsville and Birmingham via existing 4-lane highways, Highway 72, Highway 20, and Highway 157. New highway construction is expected to be sparse and unsteady, so preserving these connections remains paramount to protecting transportation infrastructure and economic prosperity. Other developments include continued expansion of local industry and Tier 1 and 2 suppliers in Muscle Shoals Research Airpark and the Florence Industrial Park.

New development in the MPO Area has varied considerably by location from municipality to municipality. Muscle Shoals and Florence have experienced and are expected to continue moderate growth in residential, commercial, and industrial development as in the past. Both Florence and Muscle Shoals have experienced rebounding residential construction, although not as rapid as prior to the recent recession. Commercial development has been steady in both of these locations, with new investment in shopping centers and redeveloped parcels along major highways. In addition, the majority of industrial development has also taken place in the industrial parks of these two cities, with the exception of steady growth in Barton Industrial Park in Colbert County. Meanwhile, Tuscumbia has continued to experience steady growth in its downtown district, accompanied by sporadic growth along Highway 72, and Sheffield has seen a resurgence of its downtown district, with new residential and business redevelopment at the center of its current growth opportunities. The smaller cities of St. Florian, Killen, and Leighton have not experienced much in terms of gains or losses recently.

The potential release of approximately 1,300 acres of the TVA Muscle Shoals Reservation for redevelopment is a major potential for Sheffield and Muscle Shoals, with a significant impact on the entire area. A mixed-use redevelopment plan has been adopted and the first annexation of territory into adjacent cities is expected within the next few years. Subsequently, the property

will be auctioned to private developers for redevelopment in accordance with TVA's Comprehensive Plan for the MSR. The development or reuse of a site like this could have significant influence on transportation and other development trends.

6.2 Overview of Land Use Planning in MPO Study Area

The Shoals area, including Lauderdale and Colbert counties is an attractive and historic region of north Alabama and the Tennessee Valley. The cities in the Shoals MPO are located on or near the Tennessee River and were, for the most part, planned with various versions of a traditional grid pattern and are generally compact in their original form. Although these communities have experienced sprawl along major corridors, there is a certain intact pattern to the land use of the cities and some "common ground" and connectedness of the communities. Florence, Tuscumbia and Sheffield have historic and somewhat traditional mixed use downtowns. These positive features are often cited as an essential element of the charm, quality of life, and livability of these cities. Although Muscle Shoals has a relatively dense residential pattern, the city has grown in a somewhat suburban pattern. This development trend has been evident to a more or less degree in the other cities as well, as the communities have grown in recent years. Still, infill and redevelopment is evident in virtually all of the cities, especially in the downtown districts of Sheffield, Florence, and Tuscumbia in recent years. The overall pattern of development reflects the potential for greater connectedness and coordination of planning from community to community, taking advantage of the core centers and neighborhoods.

Over a number of years, the cities, often with the assistance of the council of governments have established an increasingly involved planning approach. Numerous planning studies and comprehensive plans have been completed and updated, including regional and county studies and plans, municipal plans, downtown plans, corridor plans and special plans and studies. These planning efforts have included a certain consistency and have helped to promote good land use planning in the individual jurisdictions and have promoted intergovernmental coordination in varying degrees.

6.3 Regional and County Plans

Land use planning is clearly the province of local and municipal government with the exception of special authority of the counties for subdivision regulation and other limited land use type authority. Certain regional and county studies and plans have been done which, if not directly, indirectly help address the transportation/land use coordination.

6.4 Comprehensive Economic Development Strategy

The CEDS for the northwest Alabama region reflects a long range vision for economic development in the region and identifies goals where economic development and land use are often related, for example: Transportation goals include increase transportation connections that link neighborhoods, communities and counties; complete infrastructure for county residents; mixed uses that support compact development; multimodal access to goods and services, employment; urban and neighborhood planning processes-master plans; Community Development Goals include infrastructure to support Mixed Use Development as well as assets based and sustainable economic development and the capacity for community development and

civic culture; Business and Industry goals include: access to technology and support, existing industry

Specific projects in the CEDS support transportation and land use coordination including support for planning, for business and industry supports including infrastructure, and for integrated workforce development approaches.

6.5 Municipal Plans Downtown and Special District Planning

Municipalities have the authority for local land use planning and the communities in the Shoals area have been engaged in this type of planning for a number of years. The municipalities of Florence, Sheffield, Killen, Muscle Shoals and Tuscumbia have adopted comprehensive plans at some point in the past or have ongoing or proposed updates in the works or under consideration. These plans address the coordination of transportation and land use in varying degrees, with some common themes. In addition, several of the communities have completed downtown redevelopment or revitalization plans and others have been involved in special district plans such as riverfront plans, corridor plans, etc. The following is a summary of certain aspects of these plans that may be illustrative of some common themes, etc.

Florence Comp Plan-2007: Plan is kept up to date and utilized in the implementation of public improvements and projects, as well as land use and zoning decisions. Includes major components: Green infrastructure; Activity Centers; Commercial Corridors; Downtown; Port of Florence; Industrial Support Centers; Recreation Support Centers; Neighborhoods; Planning and Design Standards; Transportation Network based on mobility and access through roadway and intersection improvements.

Killen Plan: Goals, objectives and land use plan include being a walkable community; focus on activity centers; diversity; common space; sewer system; sidewalks and walkways; cost benefit growth management; historic preservation; access to commercial property; safety and public health; respect for natural beauty; cultural identity; growth inside the town; transportation and access management; highway beautification; focus on retail and service districts; CBD development; traditional residential district; residential/recreation/neighborhood commercial connections.

Planning in Muscle Shoals: Includes an existing land use study; corridor study in 2002 and updated in 2009; land use and zoning provisions along 6th Street with access management and buffers included; access management along 133; new subdivision regulations and updated ordinances; comprehensive plan update proposed; context sensitive design planned on Avalon, 6th Street and other important corridors.

Sheffield Revitalization and Redevelopment Plan and Redevelopment Strategy: Urban design framework includes focus on CBD; urban fabric-streets, parks, public spaces; CBD infill; linkages to larger region; maintain lower densities at edge of Sheffield/increase internal densities. Strategy includes the redevelopment of commercial corridors that connect to CBD and housing reinvestment in neighborhoods.

Goals include incorporating mixed-use principles: single and multi-family residential and commercial mixed-use; form-based coding; BID district; vehicular and parking plans; mixed use commercial and residential redevelopment; restored historic structures; civic uses to bring people downtown; redevelop fringe neighborhoods; housing rehab; develop attractions in the city; recreation uses downtown; redevelop Park West; redevelop civic square in CBD; and encourage multiple events downtown.

The plan includes focusing on activity nodes: thoroughfares and corridors; more consistent connections of nodes/activity centers/neighborhoods; retail/residential development and riverfront mixed use; Montgomery Ave. residential; Hatch Blvd corridor; Hospital east and west neighborhood redevelopment; thoroughfare improvements-design guidelines and way-finding; focus on entertainment district and build housing in CBD; major retail sites-Jackson Highway, Third Street, Montgomery Ave., Avalon Ave.; reinforce traditional grid.

Urban design goals include quality of public spaces; infill development; pedestrian and vehicular circulation; define urban fringe; enriching amenities; redevelopment of major thoroughfares-Hatch Blvd/Jackson Highway; 2nd Street/South Montgomery Ave. and others with design guidelines; protect urban edges from encroachment and bring back neighborhood commercial.

In the works is a plan for the Inspiration Landing Development that links downtown to a 160-acre development on the east side of Spring Creek and 165 acres on the west side. The City is working with others on major grant to relocate the railroad tracks which will impact multi-jurisdictions and enhance access to downtown and inner-city neighborhoods, not only in Sheffield.

Tuscumbia Comp Plan 2005: Goals include preserving and enhancing existing neighborhoods; greenway and pedestrian network; development of U.S. Highway 72 corridor; protect and redevelop CBD; encourage mixed use development; enhance gateways; improve transportation network; support Avalon and George Wallace Boulevard redevelopment. Strategy includes urban design theme for streetscape; link downtown and neighborhoods to U.S. Highway 72 corridor; access management should be part of all commercial projects that front a busy thoroughfare; proposed mixed use areas-between Joe Wheeler Drive and U.S. Highway 72 and Johnson Woods-near Helen Keller Hospital/Shoals Community College; enhance Gateways.

6.6 Corridor Plans

The MPO recognizes that land use and development frequently impact transportation access, capacity, safety, and appearance of roadways most directly along various corridors in the region and the various municipalities. Special corridor plans are used to address these planning challenges and opportunities. One such corridor plan is the U.S. Highway 72 Corridor Plan, recognizing the potential impact of new industrial and related development along this corridor, which ranges from existing commercial development to relatively undeveloped along the corridor. A corridor plan for Gresham and Middle Road in Lauderdale County was completed in 2018. This study focuses on traffic volume and turn movements for these two roads. These roads are in municipalities of Florence and St. Florian. The Pine Street corridor study will be completed in Fiscal Year 2020. This corridor study will study the pedestrian and vehicular traffic from Dr.

Hicks Boulevard to Cypress Mill Road in Florence. The Sheffield Railroad Overpass Study will be completed at the end of Fiscal Year 2020. This study is to determine the most feasible overpass location in the City of Sheffield, which resides in Colbert County. The purpose of this study is to examine current and future conditions with emphasis placed on effective delivery of emergency services, safety and efficiency for all travel modes. Other coordinated efforts include the plans for economic development in conjunction with the I-22 Corridor and the Wilson Dam and Highway 133 studies. Other corridor studies are underway or proposed to address local situations or in conjunction with roadway or specific street projects.

6.7 Other Special Studies and Plans

A number of special studies and plans have been conducted over the years which indirectly impact the coordination of land use and transportation. For example, County Hazard Mitigation Plans, Rural Transportation Plans and GIS mapping have helped to create data and planning processes which may ultimately facilitate improved coordination between transportation and land use, although, not directly. The Statewide Bicycle Pedestrian Plan and Outdoor Recreation Trails Plan contribute to the overall coordination of Land Use and Transportation, especially with respect to multi-modal alternatives. Individual municipalities and the counties, as well as the private sector utilize these special studies to test ideas, investigate feasibility and address transportation and land use coordination in a focused location.

6.8 General Guidelines for Land Use-Transportation Coordination

As municipalities, counties, developers and citizen's work together to improve transportation in the Shoals MPO area, there are certain principles for transportation-land use coordination that can be very beneficial in improving mobility, mitigating congestion and ensuring development opportunities and environmental quality. There seems to be some common recognition of these principles in the various community plans that have been approved or updated in recent years.

Having reviewed the various planning efforts and trends in land use in the Shoals study area, the following are examples of General Land Use/Transportation Guidelines for consideration in order to improve the coordination between land use and transportation in support of the LRTP. As the jurisdictions continue to develop experience and a confidence level with these and other kinds of guidelines the guidelines can be refined, added to, made more or less specific as various applications prove successful. These guidelines should be considered preliminary in that they will improve over time in their usefulness in meeting the goals for coordination of land use and transportation.

- Public Involvement - Ongoing public involvement is a key to the coordination of transportation and land use. Such coordination requires an increasing understanding of how transportation and land use coordination can result in transportation improvements being more effective, improve access, safety, the environment and livability of the communities served by transportation systems.
- Comprehensive Community Master Plans – Adoption and updating of Comprehensive Community Master Plans to facilitate the coordination of transportation and land use.

Consideration of Comprehensive and other community plans in proposing and implementing transportation improvements.

- Downtown and Neighborhood Based Plans – Adoption and updating of downtown and special district plans that include mixed use and multi modal solutions.
- Major Thoroughfare Plans – As part of or as separate efforts, the adoption of major thoroughfare plans for communities and even the counties that can aid in the land use and transportation implementation.
- *Complete Streets* – The adoption of complete streets policies, guidelines, etc. to complement major transportation systems and improve local access, through bicycle, pedestrian, transit and other modes; in coordination with land use.
- Bicycle and Pedestrian Improvements/Walkable Communities including Safe Routes to School – The coordination of land use considerations in the implementation of bicycle and pedestrian improvements to result in more effective solutions to local transportation.
- Access Management – A key feature of local comprehensive plans is the application of access management features especially in coordination with commercial districts and corridors. The application of these features are generally the province of local government and can be a critical aspect of coordinating the interface between transportation and land use.
- Corridor Plans – The use of special corridor plans are an excellent way to ensure better coordination between land use and transportation, including more comprehensive provisions, beyond access management, for existing or new major roads.
- Zoning and Subdivision Regulation Updates – Updated Zoning and Subdivision Regulations that incorporate access management and context sensitive methods, as well as incentives for mixed use development.
- Special Design Based Codes – Form-based codes and/or overlay districts that incorporate land use and transportation coordination provisions and design guidelines.
- Historic Districts – Survey and designation of important historic districts as part of overall land use plan and tools to reinforce revitalization and preservation of special districts.
- Adoption of consistent land use concepts that focus on activity centers, neighborhoods, special districts and corridors.
- Encourage mixed use centers and districts, including residential, wherever practical and appropriate to reduce unnecessary automobile travel demand, whether as in fill or new development sites.
- Encourage infill development, especially housing, and development adjacent to and connected to existing infrastructure as a way of using existing streets and public improvements where possible.
- Support the redevelopment of brownfield (industrial) sites and greyfield (commercial or other sites) as part of land use and transportation plan and overall development strategy.
- Incorporate areas for natural resource and open space protection into land use plans to support priorities for transportation and development.
- Promote connectivity between centers, districts and neighborhoods to avoid unnecessary travel and increase the use of alternative modes of travel like pedestrian and bicycle.

- Promote densities that are consistent with urban, suburban and rural development character, consistent with the desires of the community.
- Incorporate transportation and land use guidelines in locating, planning and design major public facilities in such a way as to reinforce the goals embodies in the guidelines and local land use plans.
- Promote site planning that is consistent with land use, urban design and transportation plans, especially with respect to building placement and proper relationship with streets, sidewalks and connections to adjacent or nearby developments, neighborhoods, and districts.
- Establish consistent streetscape, parking, lighting, signage, and way-finding design guidelines, appropriate for the character of the development and the travel way. The location and design of parking is especially critical to how traffic is served and the overall relationship of parking and building to adjacent developments, districts, and neighborhoods as well as the adjacent travel ways.
- Establish updated design standards for public streets to include not only automobile requirements, but also provisions for sidewalks, street widths, and designs that are consistent with the centers or corridors served by the streets.
- Intergovernmental Coordination – when considering any of the land use and transportation guidelines, continue to consider coordination of major land use and transportation across jurisdictions, including the consideration of establishing consistent land use and/or zoning designations to ensure predictability for the public and private sector.

7.0 TRANSPORTATION MODELING PROCESS

7.1 Travel Demand Models

Travel demand models are developed to predict future traffic on the street and highway system. The models are initially developed using estimates of existing socioeconomic data to duplicate travel for the base year, which, for this study was 2015. How well the model duplicates for the base year is taken as an indication of how well it will predict future travel. If the model cannot produce traffic volumes similar to those observed on existing streets and highways, then the model is reevaluated, and adjustments are made. This adjustment or calibration process continues until the model is adequately simulating base year traffic conditions. The process of building and modifying the model to simulate base year travel is called calibration. After the model is calibrated, forecasts for the future year socioeconomic data are used as input into the model to predict future travel demand.

Roadway travel demand in the study area was analyzed using a standard travel demand modeling process. The standard modeling process is defined by a four-step analysis procedure:

Step 1	Trip Generation
Step 2	Trip Distribution
Step 3	Mode Split
Step 4	Assignment

As the standard transportation demand modeling process in the State of Alabama deals only with private transportation, (i.e., not public transit), Step #3, mode split, is ignored.

7.2 Roadway Network

The network file is an abstract, computerized representation of the actual roadway network. The network file is created by transferring a roadway map to a form that can be processed by the computer program. The roadway network includes all roadways that are classified as a collector or higher grade. At each intersection node numbers are assigned. These node numbers are used to define individual links in the roadway network. The length, carrying capacity, and average speed of each link in the network is coded as part of the roadway network description. TAZ's are connected to the roadway network by imaginary lines through which the trips produced in or attracted to each TAZ may gain access to the roadway system. This entire abstract description of the actual roadway network is coded, entered into the computer, and becomes the network file for the study area.

7.3 Trip Generation

The trip generation program translates estimates of the socioeconomic data into numbers of trips. Given estimates of the socioeconomic data for a TAZ, the trip generation program predicts the number of trips that will be produced by that TAZ and the number of trips that will be attracted to that TAZ from all other TAZ's in the study area.

To perform trip generation, the relationships between observed travel and the socioeconomic data are defined through the use of mathematical equations and ratios. To determine the total number of trips that a TAZ may produce or attract, the number of households or employees within that TAZ are multiplied by the appropriate trip generation rate. Using this process productions and attractions are produced for each TAZ.

The Alabama Department of Transportation has developed a stand-alone program to be used to calculate productions and attractions on a per-traffic analysis zone basis. The purpose of the program is to take seven data files prepared by the user to calculate productions and attractions by zone for each of six trip purposes. The seven data files which must be supplied by the user are:

1. automobile ownership by income range
2. trip generation rate by household by automobile ownership by income range
3. trip purpose percentages
4. trip attraction rates
5. socioeconomic data set
6. percent external-external trips to total trips for five classifications of roadways
7. external zone numbers, counts, and road types

The trip generation program produces production and attraction data files for six trip purposes. These six trip purposes are:

Trip Purpose 1	Home Base Work (HBW)
Trip Purpose 2	Home Base Other (HBO)
Trip Purpose 3	Non-Home-Based (NHB)
Trip Purpose 4	Truck-Taxi (T-T)
Trip Purpose 5	Internal-External (I-X)
Trip Purpose 6	External-External (X-X)

The Alabama DOT trip generation program calculates productions and attractions using the socioeconomic data set and the data files containing the automobile ownership and trip rate information. Calculation of productions is a three-step process. First, the number of households in the zone are subdivided into four automobile ownership groups (0, 1, 2, 3+) according to the percentages included in the automobile ownership file. The income of the zone is used to choose the line of the automobile ownership file to use. Second, the number of households in the zone, previously divided into automobile ownership categories, are multiplied by trip rates to generate productions. Once again, the income of the zone is used to select the line of the trip generation file to be used in the calculation. Third, the productions are divided into the six trip purposes according to the data in the trip purpose percentage file.

Trip attractions are calculated in a one-step process. The trip attraction file contains factors by which to multiply data from the socioeconomic data file to produce trip attractions for the various trip purposes.

The trip generation program allows for the input of external zone counts, roadway types, and percent external-external trips to produce internal-external and external-external production and attraction files.

The trip generation program requires six income ranges. The income ranges selected for use in the State of Alabama are shown below.

$0 - $9,999
$10,000 - $19,999
$20,000 - $29,999
$30,000 - $39,999
$40,000 - $49,999
$50,000 +

The automobile ownership curve is a four-by-six matrix. The columns represent the four automobile ownership categories (0, 1, 2, 3+). The rows represent the six income ranges. The data in each cell of the matrix represents the percent of households in the income range which own that number of automobiles. Each row of the matrix sums to 100%. Table 7.1 shows the automobile ownership curve for the Shoals study area.

Table 7.1
Trip Production Cross-Classification
Matrix #1 - Automobile Ownership Curve

Income Range	Automobile Ownership			
	0 Autos	1 Auto	2 Autos	3+ Autos
$0 - $9,999	34.3%	47.2%	13.7%	4.9%
$10,000 - $19,999	8.2%	51.5%	31.2%	9.1%
$20,000 - $29,999	3.1%	32.1%	46.9%	17.8%
$30,000 - $39,999	1.1%	19.9%	52.1%	26.9%
$40,000 - $49,999	0.5%	11.9%	51.2%	36.5%
$50,000 +	0.0%	4.2%	40.1%	55.7%

The trip generation curve is also a four-by-six matrix. The four columns are the automobile ownership categories and the six rows are the income ranges. The data in each cell of the matrix represents the trips per household in the income range which own that number of automobiles.

Table 7.2 shows the trip generation rate curve for the Shoals study area.

Table 7.2
Trip Production Cross-Classification
Matrix #2 - Trip per Household Curve

Income Range	Automobile Ownership			
	0 Autos	1 Auto	2 Autos	3+ Autos
$0 - $9,999	0.304	2.583	4.179	4.874
$10,000 - $19,999	0.646	4.103	5.508	6.201
$20,000 - $29,999	1.192	5.533	6.384	7.108
$30,000 - $39,999	2.381	10.319	11.112	12.483
$40,000 - $49,999	1.242	8.298	9.088	9.991
$50,000 +	0.593	8.693	9.766	10.330

The trip purpose percent file is a five-item file that contains the percent of total trips that are: home base work, home base other, non-home base, truck and taxi, and internal-external. The first three trip purposes must add up to 100 percent. The trip purpose percentages for the Shoals study area are shown below.

Home Base Work (HBW)	22%
Home Base Other (HBO)	53%
Non-Home Base (NHB)	25%
Truck-Taxi (TT)	15.4%
Internal-External	0%

The trip attraction file is an eleven-item file that contains factors to multiply against the socioeconomic data file to produce trip attractions. The eleven attraction factors and associated weights are shown below.

Home Base Work per Employee	1.230
Home Base Other per Household	0.770
Home Base Other per Student	1.160
Home Base Other per Retail Employee	5.540
Home Base Other per Non-Retail Employee	1.240
Non-Home Base per Household	0.350
Non-Home Base per Retail Employee	3.160
Non-Home Base per Non-Retail Employee	0.620
Truck-Taxi per Household	0.210
Truck-Taxi per Retail Employee	1.940
Truck-Taxi per Non-Retail Employee	0.380

Internal-external attractions at each internal zone are calculated by a ratio of the total employment in each internal zone to the total internal-external productions at the external zones.

A methodology separate from the Alabama Department of Transportation trip generation program was used to determine internal-external productions and external-external productions and attractions for each external zone.

Total base year productions and attractions for each of the six trip purposes are shown in Table 7.3.

Table 7.3
Base Year Productions and Attractions

Trip Purpose	Productions	Attractions
Home Base Work	79,849	79,849
Home Base Other	192,343	192,343
Non-Home Base	90,725	90,725
Truck-Taxi	55,886	55,886
Internal-External	86,697	86,697
External-External	20,540	20,540
Total	526,040	526,040

7.4 Trip Distribution

After trip generation has been completed, the productions and attractions for each TAZ are calculated. Trip distribution is the process by which the trips originating in one TAZ are distributed to other TAZ's throughout the study area. The output from trip distribution is a set of tables called trip tables that show travel flow between each pair of zones.

The method used to distribute trips throughout the Shoals study area was the gravity model. In the gravity model, the number of trips between two areas is directly proportional to the amount of activity in the areas and inversely proportional to the separation between the areas (represented as a function of travel time). In other words, the areas farther from each other will tend to exchange fewer trips. The generalized formula for the gravity model relates the desire for travel to three factors: 1) trip productions; 2) trip attractions; and 3) friction factors. The formula is:

$$\frac{Trips_{ij} = Prods_j * Attrs_j * FF_{ij}}{\sum Attrs_j * FF_{ij}}$$

where
$Prods_i$ = productions at origin zone *i*
$Attrs_j$ = attractions at destination zone *j*
FF_{ij} = friction factor between origin zone *i* and destination zone *j*

The effect of travel time on the exchange of trips between two zones is represented by a friction factor. Simply stated, a friction factor represents the level of accessibility between each zone, with higher value meaning greater accessibility and lower travel time. Each trip purpose must

have a set of friction factors. The maximum time value of friction factors used in the Shoals model was 45 minutes.

7.5 Traffic Assignment

In trip generation, the number of trips by zone were forecast. Those forecast trips were then given destinations by trip distribution. Assigning these trips to specific routes and establishing traffic volumes is the last phase of the forecasting process. In the assignment process the existing trip tables that are produced in the trip distribution step of the modeling process is used to assign base year trips to the base year network. Trips between any two zones will generally follow the path (roadway links) between zones that require the least amount of travel time. In determining time to go from one zone to another, delays due to congestion are taken into consideration.

The equilibrium assignment process which was used in this study considers demand in relation to capacity. The equilibrium assignment technique consists of a series of all or nothing loadings with an adjustment of travel time according to delays encountered in the associated iteration. The assignment from each iteration is combined with the assignment for the previous iteration in such a way as to minimize the travel time of each trip. As a result of these time adjustments, the loadings of different iterations may be assigned to different paths. By combining information from various iterations, the number of iterations required to reach equilibrium is reduced. Equilibrium occurs when no trip can be made by an alternate path without increasing the total travel time of all trips on the network.

7.6 Model Validation

The objective of the travel demand model validation is to determine if the Trip Generation Model, the Trip Distribution Model, and the Traffic Assignment Model, when applied, accurately reflects the 2015 base year traffic conditions. The model would then provide reliable estimates for traffic conditions associated with changes in the network system, and/or future development. The following validation reports were prepared for the 2015 base year travel demand model.

Table 7.4
Model Performance by Functional Classification

Functional Classification	Percent Deviation	Target Percent Deviation (FHWA)
Major Arterial	-8.3%	+/- 10%
Minor Arterial	7.9%	+/- 15%
Collector	-22.8%	+/- 25%

Table 7.5
Model Performance by Traffic Volume Groups

Volume Range	Percent Deviation	Target Percent Deviation (FHWA)
10,000 – 25,000	-10.43%	+/- 25%
5,000 - 10,000	-8.66%	+/- 29%
2,500 – 5,000	4.66%	+/- 36%
1,000 – 2,500	-1.10%	+/- 47%

Percent Root Mean Squared Error (%RMSE) is a measure of accuracy of the traffic assignment measuring the average error between the observed and modeled traffic volumes on links with traffic counts

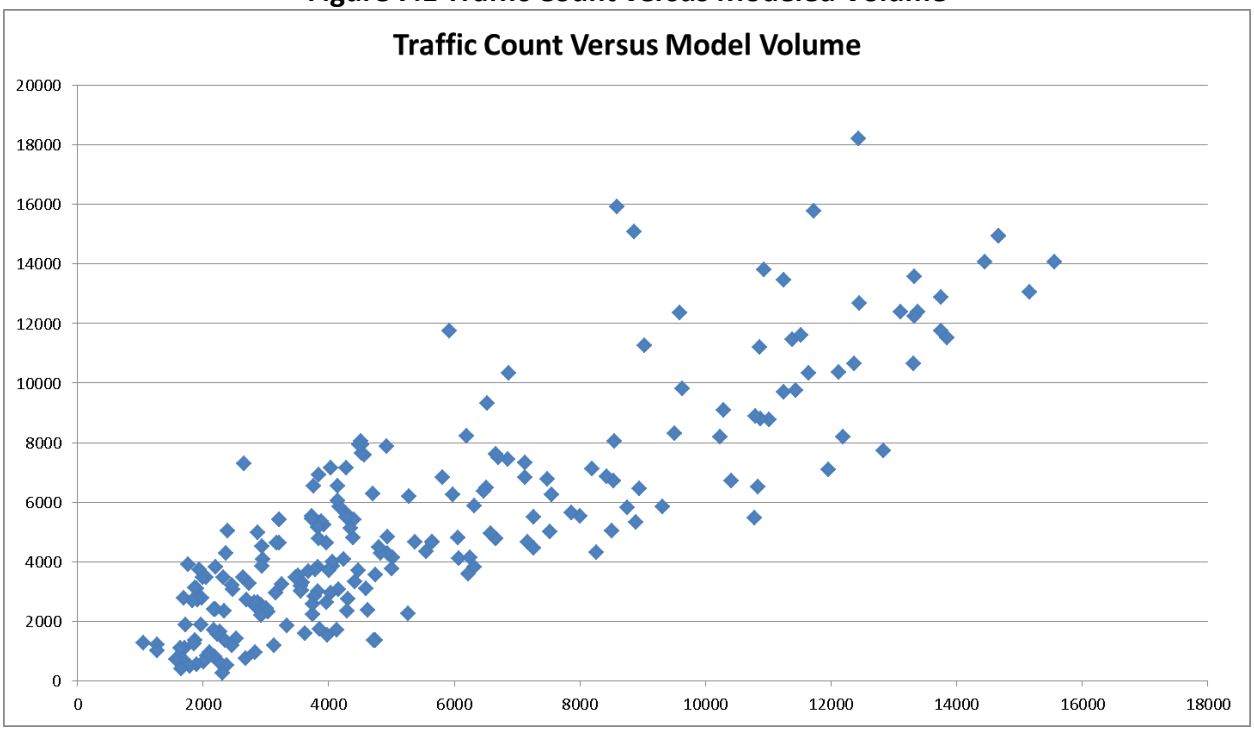
$$\%RMSE = \frac{((Model - Count) / (Number\ of\ Counts - 1))}{(Count / Number\ of\ Counts)} * 100$$

Table 7.6
%RMSE by Facility Type

Functional Classification	Actual RMSE	Target RMSE (FHWA)
Major Arterial	28.97	36.768
Minor Arterial	43.32	43.895
Collector	57.07	77.482
All	28.39	36.767

Scatterplots are useful validation tools that show modeled traffic volumes versus the observed traffic volumes.

Figure 7.1 Traffic Count versus Modeled Volume



8.0 TRAVEL DEMAND FORECASTS

8.1 Future Year Productions and Attractions

The Alabama Department of Transportation trip generation program was used to calculate future year (2045) productions and attractions in the same manner as base year productions and attractions were calculated. 2045 socioeconomic data, presented in an earlier section of this report, was used to calculate the future year productions and attractions. Internal-external productions and external-external productions and attractions were calculated using historical traffic growth patterns at each external zone. The productions and attractions for future year 2045 conditions are shown in Table 8.1.

Table 8.1
Future Year Productions and Attractions

Trip Purpose	Productions	Attractions
Home Base Work	82,382	67,934
Home Base Other	198,469	163,682
Non-Home Base	93,621	77,205
Truck-Taxi	57,669	47,560
Internal-External	123,494	63,079
External-External	29,446	126,886
Total	585,081	585,081

8.2 Future Year Trip Table

Future year 2045 productions and attractions were distributed using the gravity model according to the methodology used to distribute the existing year productions and attractions. Resultant trip tables for each of the six trip purposes for 2045 were produced. These trip tables were then added and then converted to origin-destination format.

8.3 Existing Plus Committed Network (E+C)

Before any roadway improvements are added to the network, the future year 2045 trip table is assigned to the existing plus committed (E+C) network using the assignment methodology and criteria cited previously.

The E+C network includes the 2015 roadway network as presented earlier, plus any significant projects (in terms of capacity addition) included in the Transportation Improvement Program (TIP) through Fiscal Year (FY) 2020. The purpose of this step is to identify where future year deficiencies might occur. Six projects were added to the base year network from the E+C network and are shown in Table 8.2. The results of the 2045 E+C assignments are shown in Figure 8.1.

Table 8.2
Existing Plus Committed Network Transportation Projects

Project Description	Lanes Before	Lanes After
U.S. Highway 43 from U.S. Highway 72 to AL State Highway 64 in Lauderdale county	2	4
Second Street in Sheffield from Woodward Avenue to Jackson Highway/Cox Boulevard	4	3
Cox Boulevard in Sheffield from Second Street to Avalon Avenue	4	3
Avalon Avenue (West) in Sheffield/Tuscumbia from South Montgomery Avenue to the Railroad tracks	2	5
Avalon Avenue (East) in Muscle Shoals from Wilson Dam Road (AL Highway 133) to the airport	2	5
Wilson Dam Road (AL Highway 133) from Avalon Avenue to AL Highway 157	2	5

8.4 Projected Deficiencies

Roadways which show a projected volume/capacity (v/c) ratio of greater than 1.00 should be considered deficient. Emphasis should be placed on those areas where the v/c ratio is greater than 1.15. Based on those ratios, the roadways estimated to be deficient by 2045 are shown in Figure 8.2.

Figure 8.1 Existing Plus Committed Volumes

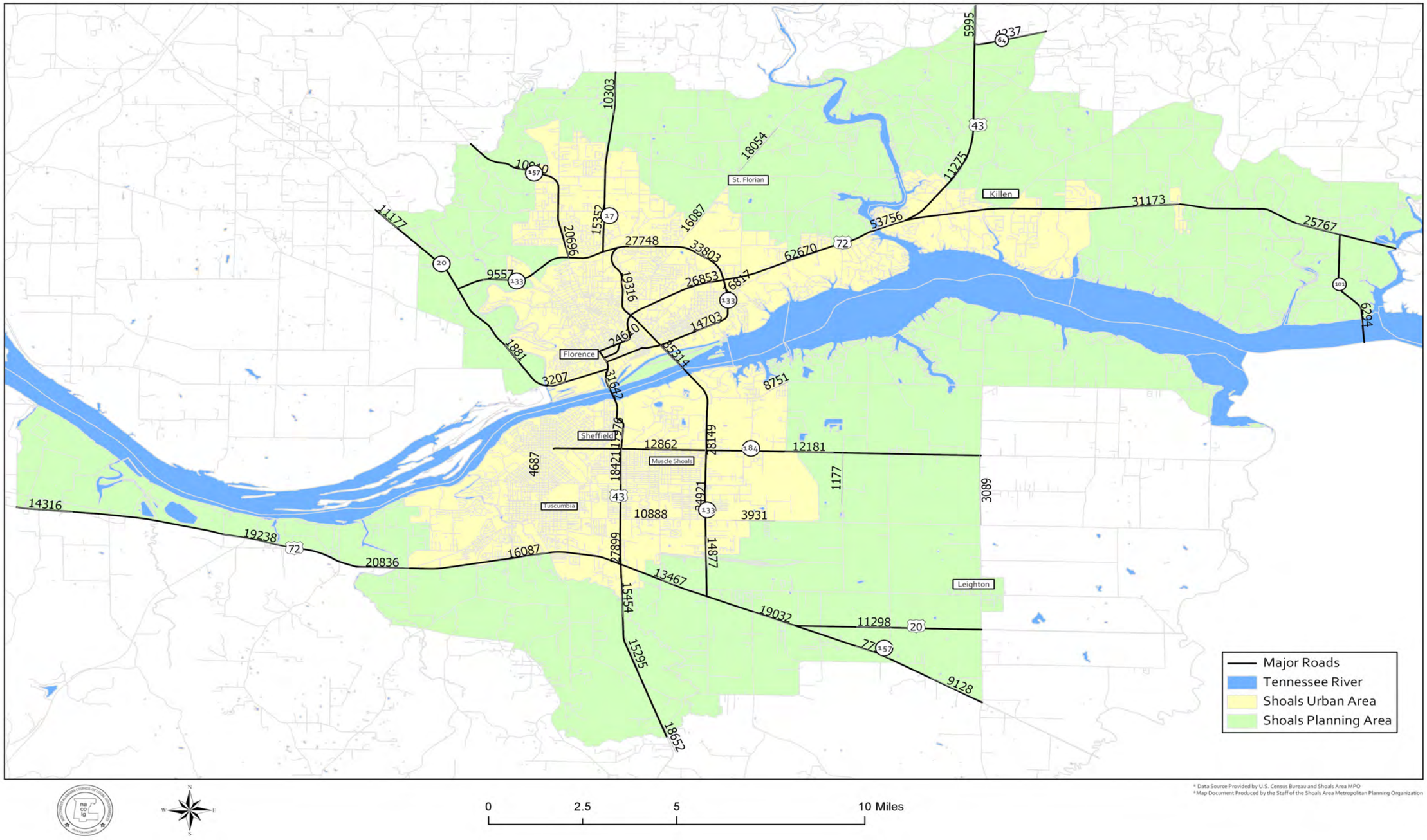
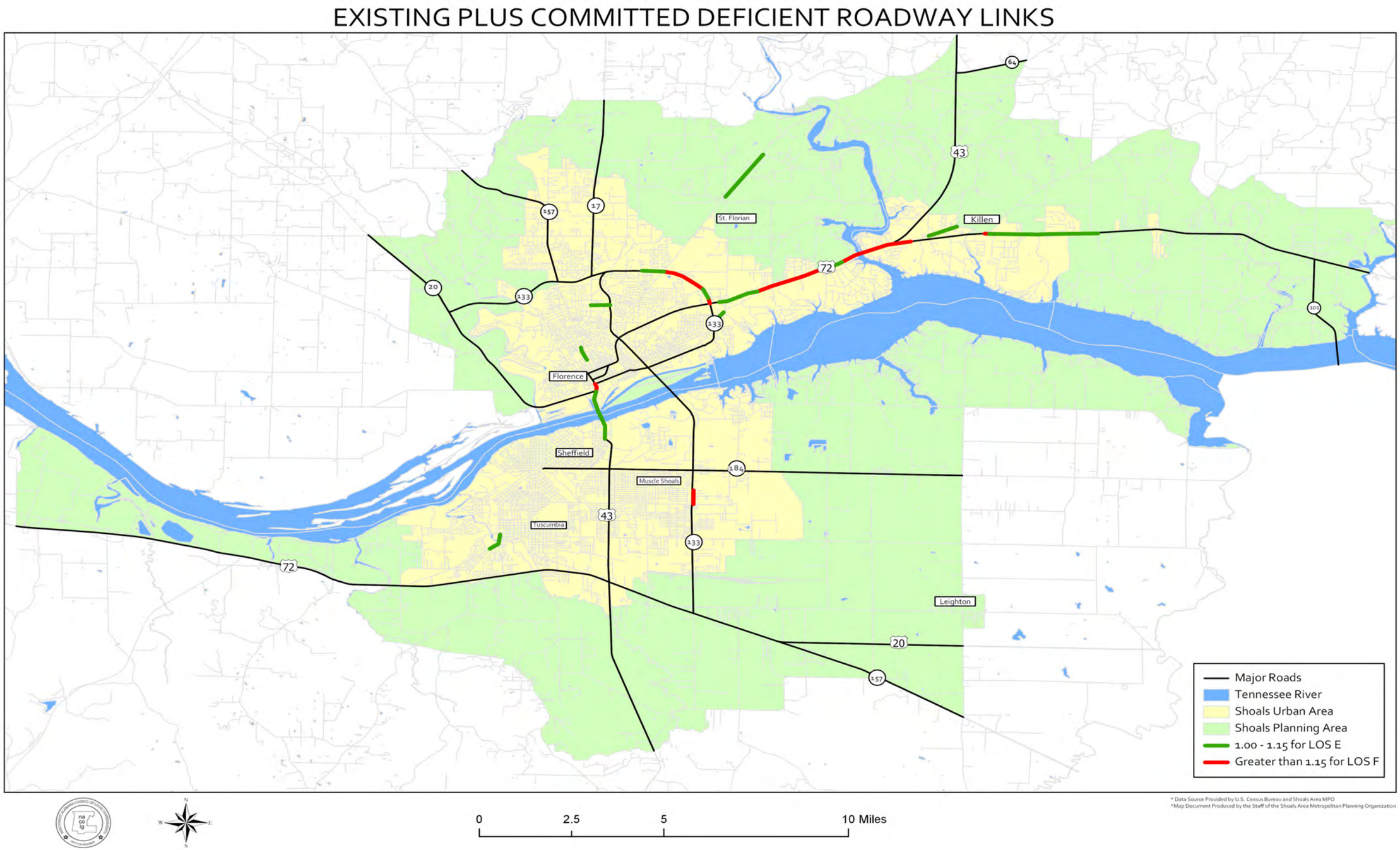


Figure 8.2 Existing Plus Committed Deficient Roadway Links



9.0 FINANCIAL PLAN

MAP-21 legislation requires MPOs to include a financial plan as part of the Long-Range Transportation Plan (LRTP). The MPO is expected to provide reasonable project cost estimates to ensure the MPO and local stakeholders have the financial capacity to implement the planned transportation improvements contained in Section 11 of this plan.

9.1 Revenue Forecasts

The Alabama Department of Transportation (ALDOT) developed the projected revenue forecasts for the 2045 Long-Range Transportation Plan (LRTP). The revenue forecasts were based on ten (10) years of historical funding averages or allotments of funding for roadway projects in the planning area from 2009 to 2018.

The averages or allotments listed above is further divided into either Capacity projects or Highway Maintenance and Operation projects based on the percentage of these types of projects over the ten-year time period. The Alabama Department of Transportation (ALDOT) defines a capacity project as any project that adds a new general-purpose lane on existing roadways or adds new roadways to the network system to increase capacity. Highway maintenance and operation projects are defined as projects that add turn lanes on existing roadways, realign existing roadways, add or upgrade traffic signals, add or replace bridges, or resurface/widen secondary roadways in order to improve safety and maintain the existing roadway network system.

Based upon the uncertainty of future funding amounts through the Highway Trust Fund (HTF), and a large maintenance effort proposed by the state, the Alabama Department of Transportation (ALDOT) has made a decision to spend more dollars on maintenance and operations projects over the next twenty-five (25) years. Because of this, the Alabama Department of Transportation (ALDOT) will be limiting its spending for the next ten (10) years to capacity projects, while dedicating the remaining funds to maintenance and operations projects. The Shoals Area MPO will use its own dedicated Surface Transportation Program funds for both capacity and maintenance and operations projects.

The Alabama Department of Transportation (ALDOT) also provides projected revenue forecasts for transit projects in the planning area for 2045. These revenue forecasts are calculated the same as the roadway revenue forecasts mentioned above. This revenue forecast includes transit operations, preventative maintenance, and capital costs.

Table 9.1 lists the Projected Federal Capacity, Maintenance/Operations, and Transit Funding allocations for 2045. This table was developed by ALDOT. Table 9.2 lists the federal funding amounts and the state or local match for 2045.

Table 9.1
Projected Capacity and Maintenance and Operations Funds

Funding Category	Total Costs (thousands)	Capacity		Operations and Maintenance	
		25 Year Projection (thousands)	% Costs	25 Year Projection (thousands)	% Costs
National Highway Performance Program (NHPP)	$62,310	$9,666	16%	$52,644	84%
Surface Transportation Program - Dedicated (STPOA)*	$40,557	$14,195	35%	$26,362	65%
Surface Transportation Program - State	$174,778	$5,940	3%	$168,838	97%
Bridge Funding	$4,983	$0	0%	$4,983	100%
Interstate Maintenance	$0	$0	0%	$0	0%
ATRIP	$15,793	$8,035	51%	$7,758	49%
Transit	$25,483	$0	0%	$25,483	100%
Congestion Mitigation & Air Quality (CMAQ)	$0	$0	0%	$0	0%
Highway Safety Improvement Program (HSIP)	$6,180	$0	0%	$6,180	100%
Transportation Alternatives Program (TAP)**	$0	$0	0%	$0	0%
TOTAL	$330,084	$37,836	11%	$292,248	89%

*STPOA funding is based off FY 2020 funding and is a 25 year funding limit.
**For non-TMAs, TAP funding was not projected by ALDOT and is at the discretion of the MPO.

9.2 Estimated Implementation Costs

The total estimated cost of each project identified in the Shoals Area 2045 Long Range Transportation Plan was provided by ALDOT and local officials. The total estimated costs of LRTP by funding category and the available funds for each funding category for the 25 year planning period are illustrated in Table 9.2.

Table 9.2
LRTP Project Costs and Available Funds by Program (YOE)

	NHPP	STPOA	ATRIP
Federal Funds	$62,310,000	$40,577,000	$15,793,000
Match	$15,577,500	$10,144,250	$3,948,250
Total Available Funds	$77,887,500	$50,721,250	$19,741,250
LRTP Project Costs	$33,749,688	$42,487,534	$15,801,384
Total Remaining Funds	$44,137,812	$8,233,716	$3,939,866

10.0 TRANSPORTATION PLAN DEVELOPMENT

The MPO followed a five-step process to develop the long-range transportation plan. The steps included data collection, data projection, data review, project selection and plan review and approval.

10.1 Data Collection

The data collection effort involved the compilation of socio-economic data, transportation system inventory, environmental data, historic trends, and financial data. The data was collected by the staff of the Northwest Alabama Council of Local Governments and reviewed by the MPO and the Alabama Department of Transportation for accuracy.

10.2 Data Projections

To plan for the future the MPO must make assumptions of what the study area will be like in the future. To accomplish this, existing data were projected forward to the year 2045. The forecasted data included households, retail employment, non-retail employment, and school enrollment. The forecasted data was allocated to the TAZ level to show future land use and emphasize the growth areas that should be addressed in the plan.

The socio-economic data that were collected and projected were used in the transportation demand modeling process to calibrate the model to base year conditions and to forecast future traffic volumes on the study area roadways.

10.3 Data Review

The data review process involved examining the results from the transportation demand model runs, socio-economic data and environmental factors. The MPO used the results of the transportation demand model to identify segments of the roadway network that were expected to exceed their design capacities by the year 2045. The MPO reviewed the socio-economic data and the environmental factors to determine if there were any transportation deficiencies that were not identified in the transportation demand modeling process.

10.4 Project Selection

When the MPO began selecting projects for inclusion in the transportation plan, projects that would help to alleviate transportation deficiencies were identified in the data review step. Projects that addressed capacity problems, safety concerns, traffic management issues, economic development, and social services activities were selected. The selected projects were analyzed using the transportation demand model to determine their effects on future traffic flow.

The final task in the project selection process was to determine if sufficient funds were available to construct the proposed projects. Based on the Financial Plan described in a previous section of this report it was determined that sufficient funds would be available over the 25 year planning period to construct the projects that were identified for inclusion in the Shoals Area 2045 Long Range Transportation Plan.

11.0 ROADWAY PLAN

Using the five-step process outlined in the Transportation Plan Development chapter of this document and the Financial Plan the roadway plan was developed. The goals of the roadway plan were to relieve traffic congestion and increase mobility throughout the study area while providing a safe and efficient transportation system for the year 2045.

Roadway projects identified in the 2045 Long Range Transportation Plan that had not been completed were brought forward to develop the 2045 roadway plan. The 2045 financially constrained capacity projects are listed in Table 11.1 and illustrated in Figure 11.1. The 2045 financially constrained maintenance projects are listed in Table 11.2 and illustrated in Figure 11.2. Alabama Transportation Rehabilitation and Improvement Program (ATRIP) projects are listed in Table 11.3 and illustrated in Figure 11.3.

11.1 Future Year Daily Traffic Volumes

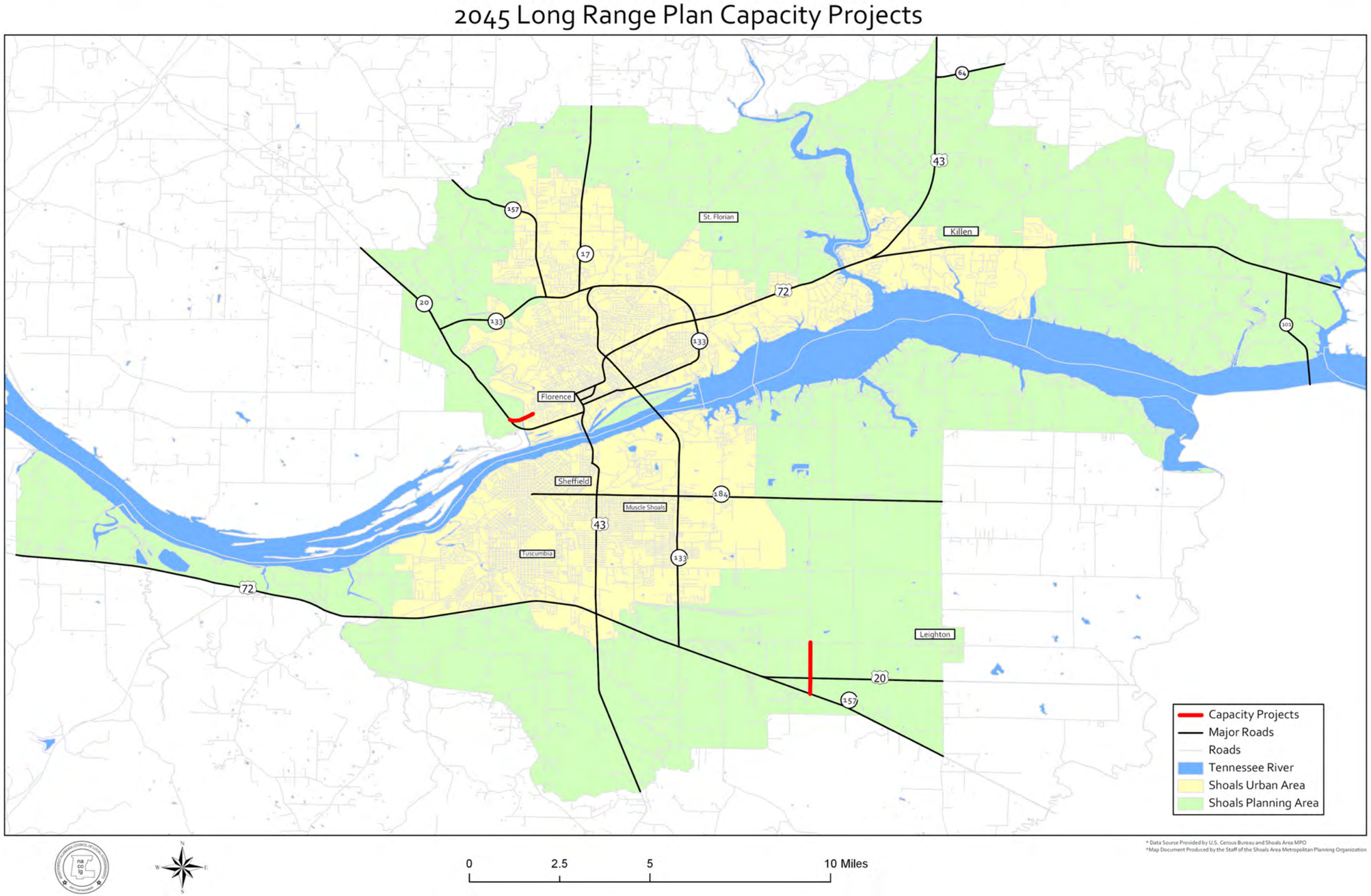
Future year trips were assigned to the roadway plan network using the travel demand model to determine the benefit of the 2045 Roadway Plan. The 2045 forecasted daily volumes are illustrated in Figure 11.4. Based on these future year volumes the projected deficient links were determined and are illustrated in Figure 11.5.

Table 11.1 2040 Long Range Plan Capacity Projects

Capacity Projects													
											Year of Expenditure Cost		
Sponsor	**ALDOT Project Number(s)**	**Map ID**	**Funding Program**	**Project Description**	**Project Type**	**Bicycle/Pedestrian Improvement***	**ALDOT Work Code**	**Length (mi)**	**Project Phasing**	**Purpose and Need**	**Federal**	**State/Local**	**Total**
City of Florence	100065045 - PE; 100065046 - RW; 100065047 - CN;	2	STPOA	West College Street from intersection with West Mobile Street to State Route 20 (Savannah Highway) with bridge and approaches over Cypress Creek	Roadway Capacity	On-Street Facility	ADL	0.50	PE - 2025; RW - 2030; CN - 2035	The purpose of this project is to reduce congestion and improve mobility	$ 6,000,000.00	$ 1,500,000.00	$ 7,500,000.00
Colbert County	100065048 - PE; 100065049 - RW; 100065050 - CN;	3	STPOA	Extend Gnat Pond Road from its Current end to SR 157 - New 2-lane roadway	Roadway Capacity	Widened Shoulders	ADL	1.50	PE - 2037; RW - 2038; CN - 2039	The purpose of this project is to reduce congestion and improve mobility	$ 1,134,541.60	$ 283,635.40	$ 1,418,177.00

*Bicycle and pedestrian improvements must be part of the overall design phase and include the necessary funding unless restrictions apply consistent with FHWA guidance.

Figure 11.1 2040 Long Range Plan Capacity Projects



2045 Long Range Plan Operations and Maintenance Projects													
											Year of Expenditure Cost		
Sponsor	ALDOT Project Number(s)	Map ID	Funding Program	Project Description	Project Type	Bicycle/Pedestrian Improvement*	ALDOT Work	Length (mi)	Project Phasing	Purpose and Need	Federal	State/Local	Total
ALDOT	100038052 - RW; 100038505 - UT; 100002587 - CN	1	NHPP	Bridge removal, reconstruction, and signalization at Mitchell Boulevard AL Highway 20	Bridge Replacement and Operational Improvements	N/A	BRL	0.37	RW - 2016; UT - 2017; CN - 2018	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 7,526,304.00	$ 1,881,576.00	$ 9,407,880.00
ALDOT	100055932 - UT; 100049340 - CN	2	NHPP	Replace bridge and approaches on U.S. 72 over Ashe Street	Bridge Replacement	N/A	BRL	0.20	UT - 2017; CN - 2018	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 4,346,832.80	$ 1,086,708.20	$ 5,433,541.00
ALDOT	100052625 - FM	3	NHPP	Bridge rail retrofit on US 72 over Dry Creek and over Royal Avenue in Florence	Bridge Replacement	N/A	BRL	0.01	FM - 2016	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 68,166.40	$ 17,041.60	$ 85,208.00
ALDOT	100056500 - CN	4	NHPP	Safety improvements to the intersection of State Route 20 and State Route 157	Operational Improvements	N/A	SMS	1.00	CN - 2021	The purpose of this project is to enhance the safety for all modes of travel and improve overall traffic operations	$ 767,296.80	$ 191,824.20	$ 959,121.00
ALDOT	100064618 - FM	5	NHPP	Resurfacing State Route 20 from State Route 157 to County Road 48	Resurfacing	N/A	RSF	4.03	FM - 2016	The purpose of this project is to enhance the safety for all modes of travel and improve overall traffic operations	$ 3,247,533.60	$ 811,883.40	$ 4,059,417.00
ALDOT	100064633 - FM	6	NHPP	Resurfacing State Route 20 from State Route 133 to State Route 2 (US 43)	Resurfacing	N/A	RSF	4.89	FM - 2016	The purpose of this project is to enhance the safety for all modes of travel and improve overall traffic operations	$ 1,980,902.40	$ 495,225.60	$ 2,476,128.00
City of Sheffield	100056076 - RW; 100056077 - UT; 100056078 - CN	8	STPOA	Improvements to Cox Boulevard from Avalon Ave to 2nd Street	Operational Improvements	Sidewalks	SMS	1.10	RW - 2016; UT - 2017; CN - 2017	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,182,396.00	$ 295,599.00	$ 1,477,995.00
City of Florence	100065002 - PE; 100065004 - CN	9	STPOA	Improve Hough Rd. from the existing three lane east to Middle Rd.	Operational Improvements	Widened Shoulders	SMS	0.70	PE - 2029; CN - 2030	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 540,000.00	$ 135,000.00	$ 675,000.00
Lauderdale County	100061914 - CN	10	STPOA	Intersection Improvements to County Road 47 & Church Road	Operational Improvements	N/A	SMS	0.10	CN - 2016	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,317,054.40	$ 329,263.60	$ 1,646,318.00
City of Sheffield	100065005 - PE; 100065006 - CN	11	STPOA	Improve W. Montgomery Ave. from Hook St. to S. Montgomery Ave.	Operational Improvements	Widened Shoulders	SMS	0.90	PE - 2038; CN - 2039	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,150,654.40	$ 287,663.60	$ 1,438,318.00
City of Muscle Shoals	100065007 - PE; 100065009 - CN	12	STPOA	Improve George Wallace Boulevard from Sixth Street to Avalon Avenue	Operational Improvements	Widened Shoulders	SMS	1.00	PE - 2027; CN - 2028	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 352,000.00	$ 88,000.00	$ 440,000.00
Lauderdale County	100059049 - RW; 100059050 - UT; 100059051 - CN	13	STPOA	County Road 16 Bridge Replacement over Cypress Creek in Lauderdale County	Bridge Replacement	N/A	BRL	0.50	RW - 2016; UT - 2017; CN - 2018	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,548,053.60	$ 387,013.40	$ 1,935,067.00

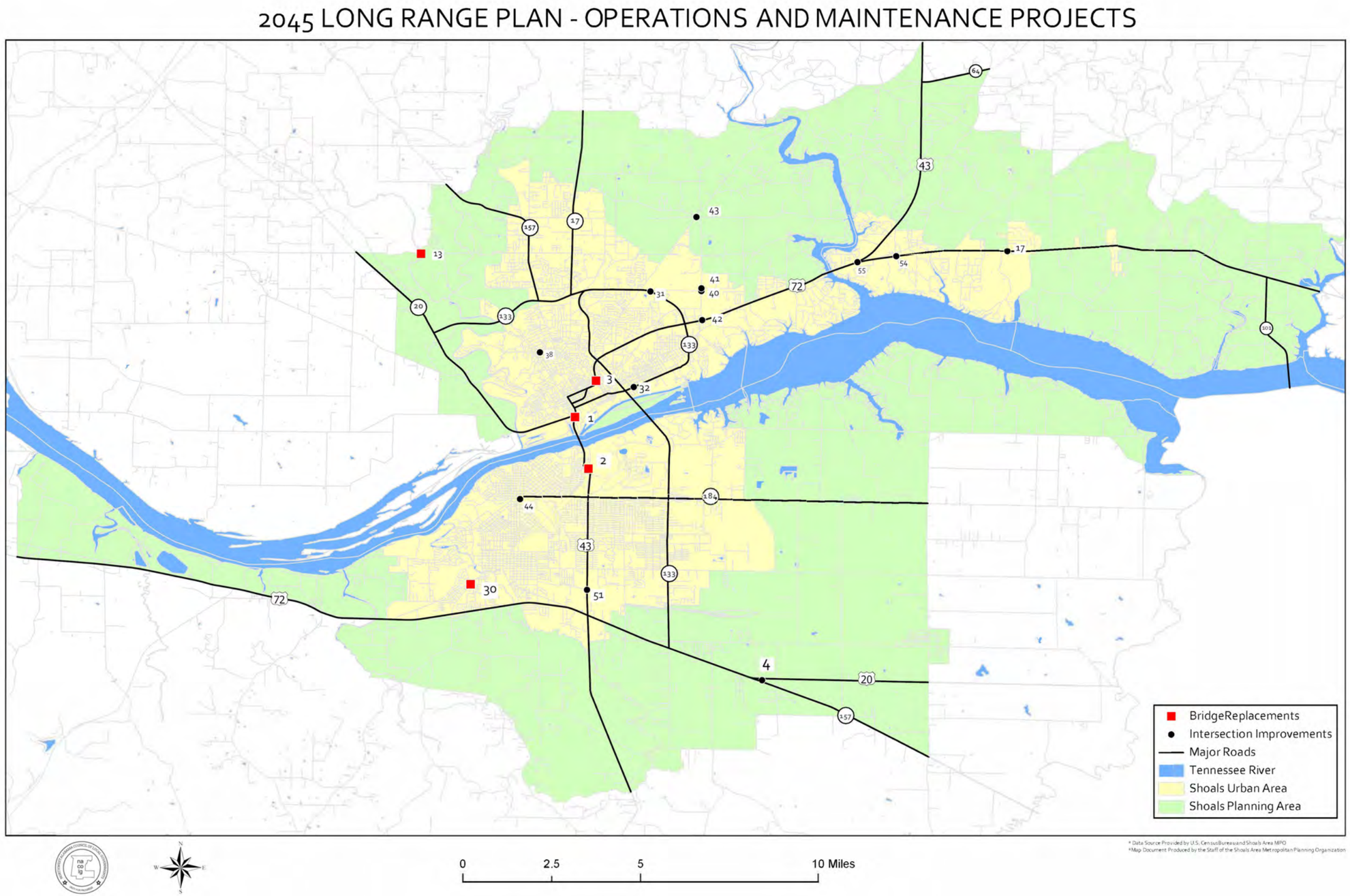
Operations and Maintenance Projects													
											Year of Expenditure Cost		
Sponsor	ALDOT Project Number(s)	Map ID	Funding Program	Project Description	Project Type	Bicycle/Pedestrian Improvement*	ALDOT Work	Length (mi)	Project Phasing	Purpose and Need	Federal	State/Local	Total
Colbert County		14		Pride Landing Rd	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Lauderdale County	100065010 – PE; 100065012 – RW; 100065013 – UT; 100065011 - CN	16	STPOA	Additional Lanes on Middle Road from Florence Boulevard to Kolbe Lane	Operational Improvements	Widened Shoulders	SMS	1.00	PE - 2038; RW - 2039; UT - 2039; CN - 2039	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 3,600,000.00	$ 900,000.00	$ 4,500,000.00
Town of Killen	100065014 - PE; 100065015 - CN	17	STPOA	Intersection Improvements at County Road 103 (Brooks High School)	Operational Improvements	N/A	SMS	0.10	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 600,000.00	$ 150,000.00	$ 750,000.00
Town of Killen	100065016 - PE; 100065017 - CN	18	STPOA	Pedestrian Improvements on County Road 25 at J.C. Mauldin Highway and on Brush Creek Road from U.S. 72 to Poplar Street	Bike/Ped Improvements	Sidewalks	N/A	0.50	PE - 2019; CN - 2020	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 400,000.00	$ 100,000.00	$ 500,000.00
City of Sheffield	100065018 - PE; 100065019 - CN	19	STPOA	Improvements to 2nd Street from Dover Avenue to Jackson Highway	Resurfacing	N/A	RSF	0.46	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 181,866.67	$ 45,466.67	$ 227,333.33
City of Sheffield	100065020 - PE; 100065021 - CN	20	STPOA	Improvements to 19th Street from Atlanta Avenue to Avalon Avenue	Resurfacing	N/A	RSF	1.21	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 245,262.22	$ 61,315.56	$ 306,577.78
City of Sheffield	100065022 - PE; 100065023 - CN	21	STPOA	Improvements to Atlanta Avenue from Avalon Avenue to 12th Street	Resurfacing	N/A	RSF	2.03	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 512,000.00	$ 128,000.00	$ 640,000.00
City of Sheffield	100065024 - PE; 100065025 - CN	22	STPOA	Improvements to Dover Avenue from 2nd Street to 12th Street	Resurfacing	N/A	RSF	0.87	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 176,000.00	$ 44,000.00	$ 220,000.00
City of Sheffield	100065026 - PE; 100065027 - CN	23	STPOA	Improvements to Montgomery Avenue from 6th Street to 12th Street and 12th Street from Montgomery Ave to Dover Ave	Resurfacing	N/A	RSF	0.84	PE - 2025; CN - 2026	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 268,000.00	$ 67,000.00	$ 335,000.00
City of Sheffield	100065028 - PE; 100065029 - CN	24	STPOA	Improvements to 6th Street from 20th Avenue to Dover Ave and NE Hatch Boulevard from Dover Ave to US Highway 43	Resurfacing	N/A	RSF	2.39	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 472,000.00	$ 118,000.00	$ 590,000.00
City of Sheffield	100065030 - PE; 100065031 - CN	25	STPOA	Improvements to Fontana Street from Douglas Street to 20th Avenue, Blackwell Road from Fontana to West 2nd Street, 20th Avenue from Georgia Avenue to 6th Street, Douglas Street from Pickwick Street to West Montgomery, and Pickwick Street from City Limits to Fontana Street	Resurfacing	N/A	RSF	4.38	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 768,000.00	$ 192,000.00	$ 960,000.00
Colbert County	100065032 - CN	26	STPOA	Improvements to Underwood Mountain Road from Frankford Road to the MPO Planning Boundary, Old Highway 20 from AL State Highway 133 to County Line Road, and County Line Road from Leighton Town Limits to AL State Highway 184	Resurfacing	N/A	RSF	11.05	CN - 2020	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,061,184.00	$ 265,296.00	$ 1,326,480.00
Colbert County	100065033 - CN	27	STPOA	Improvements to Elledge Lane from AL State Highway 20 to the Muscle Shoals City Limits, Gate 6 Road from the Wise Entrance to River Road, Gnat Pond Road from Old Highway 20 to Highway 184, Willingham Hill Road from US Highway 72 to Old Memphis Pike, Old Lee Highway from Mulberry Lane to US Highway 72, and Old Memphis Pike from Willingham Hill road to the Tuscumbia City Limits	Resurfacing	N/A	RSF	9.98	CN - 2021	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 958,309.60	$ 239,577.40	$ 1,197,887.00

Operations and Maintenance Projects													
											Year of Expenditure Cost		
Sponsor	ALDOT Project Number(s)	Map ID	Funding Program	Project Description	Project Type	Bicycle/Pedestrian Improvement*	ALDOT Work	Length (mi)	Project Phasing	Purpose and Need	Federal	State/Local	Total
Colbert County	100065034 - CN	28	STPOA	Improvements to River Road from Brick Hatton to Highway 184, Frankfort Road from Little Bear Creek to the Tuscumbia City Limits, Woodmont Drive from Ponderosa Drive to the Tuscumbia City Limits, River Road from AL Highway 133 to Ford Road, Lime Kiln Road, County Line Road from AL Highway 20 to Old Highway 20, Sockwell Lane from Alabama Highway 157 to Alabama Highway 20, 6th Street from Harding Drive to Alabama Highway 133, Spring Valley Road from 3 Mile Lane to Lagrange Road	Resurfacing	N/A	RSF	19.95	CN - 2022	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 2,269,096.80	$ 567,274.20	$ 2,836,371.00
City of Tuscumbia	100065035 - PE; 100065036 - CN	29	STPOA	Improvements to King Avenue from 6th Street to Avalon Avenue, 6th Street from King Street to George Wallace Boulevard, Joe Wheeler Drive from Woodmont Drive to Holmes Boulevard, Wm. F. Gardiner Avenue from US Highway 72 to 6th Street, Old Memphis Road from Old Lee Highway to River Drive	Resurfacing	N/A	RSF	4.41	PE - 2024; CN - 2025	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 304,000.00	$ 76,000.00	$ 380,000.00
City of Tuscumbia	100065037 - PE; 100065038 - CN	30	STPOA	Replace bridge over Throckmorton Branch on Frankfort Road	Bridge Replacement	N/A	BRL	0.05	PE - 2025; CN - 2025	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 460,000.00	$ 105,000.00	$ 575,000.00
City of Florence	100065039 – PE; 100065040 – RW; 100065041 – UT; 100065042 - CN	31	STPOA	Improvements and widening of Gresham Road from Cox Creek Parkway to Middle Road	Operational Improvements	N/A	SMS	1.20	PE - 2034; RW - 2035; UT - 2035; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 2,600,800.00	$ 650,200.00	$ 3,251,000.00
City of Florence	100065149 – PE; 100065150 – RW; 100065151 – UT; 100065152 - CN	32	STPOA	Intersection Improvements at Veterans Drive and Marietta Street	Operational Improvements	N/A	SMS	0.05	PE - 2020; RW - 2020; UT - 2020; CN - 2020	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 196,000.00	$ 49,000.00	$ 245,000.00
City of Muscle Shoals	100065153 – PE; 100065154 - CN	33	STPOA	Improvements to Avalon Avenue from Cox Boulevard to Woodward Avenue	Resuracing	N/A	RSF	0.60	PE - 2020; CN - 2021	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 300,000.00	$ 75,000.00	$ 375,000.00
City of Muscle Shoals	100065043 - PE; 100065044 - CN	34	STPOA	Improvements to Covenant Drive from US Highway 43 to 6th Street, Alabama Avenue from Avalon Avenue to 6th Street, and Sheffield Avenue from Avalon Avenue to 6th Street	Resurfacing	N/A	RSF	4.57	PE - 2034; CN - 2035	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair	$ 1,240,000.00	$ 310,000.00	$ 1,550,000.00
City of Florence		35		Pine Street Traffic Signal and ADA/Pedestrian Improvements (Tuscaloosa St to Dr Hicks Blvd, 7 intersections total)	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			$ 1,950,000.00
City of Florence		36		North Pine Street Realignment, Streetscaping and Ped-Bike facilities (Irvine St to Dr Hicks Blvd)	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			$ 2,400,000.00
City of Florence		37		North Pine Street Realignment, Streetscaping and Ped-Bike facilities (Mattielou St to Irvine St)	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			$ 2,350,000.00
City of Florence		38		Cypress Mill/Pine Street Intersection realignment	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			$ 1,400,000.00
City of Florence		39		North Pine Street Realignment, Streetscaping and Ped-Bike facilities (Cypress Mill to Mattielou St)	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			$ 1,400,000.00

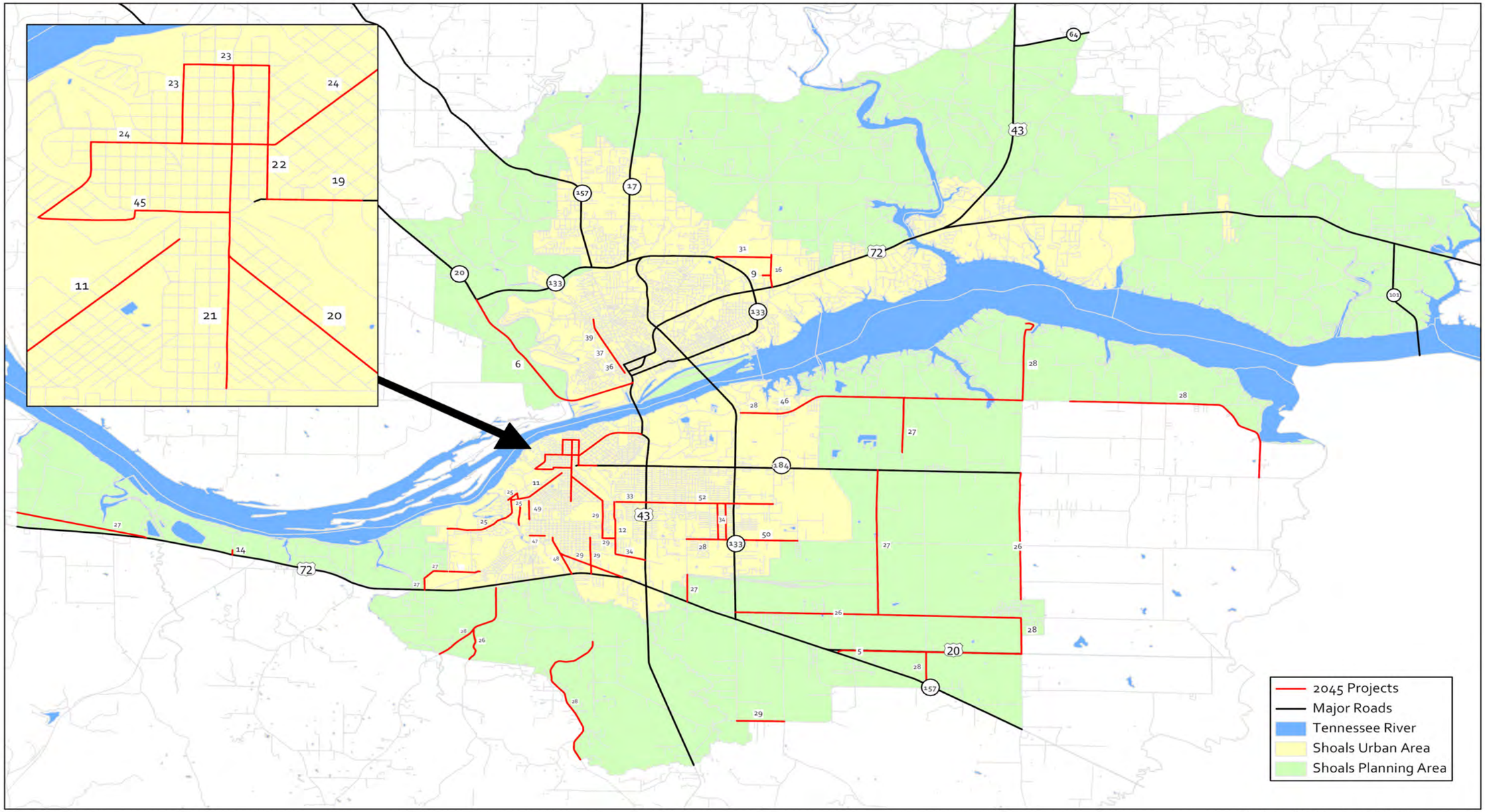
Operations and Maintenance Projects													
											Year of Expenditure Cost		
Sponsor	ALDOT Project Number(s)	Map ID	Funding Program	Project Description	Project Type	Bicycle/Pedestrian Improvement*	ALDOT Work	Length (mi)	Project Phasing	Purpose and Need	Federal	State/Local	Total
Lauderdale County		40		Intersection Improvements at Gresham Road & Middle Road	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Lauderdale County		41		Intersection Improvements and Middle Road widening from Florence Blvd to Kolbe Lane	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Lauderdale County		42		Intersection Improvements and Gresham Road widening from Cox Creek to Middle Road	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Town of St. Florian		43		Intersection Improvements at Old Jackson Hwy and St. Florian Rd	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Sheffield		44		Intersection Improvements at Montgomery Ave and 1st St	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Sheffield		45		Improvements FR Montgomery Ave on 1st St to Frankfort Ave on to Georgia Ave	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Colbert County		46		Widening River Rd from State RT 133 to County Line Rd	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Tuscumbia		47		6th Street From Water St to Hook St	Resurfacing				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Tuscumbia		48		Woodmont Drive From Tuscumbia Fire Dept to Hwy 72	Resurfacing				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Tuscumbia		49		Hook St from N Commons St to Tuscumbia City Limits	Resurfacing				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Muscle Shoals		50		6th Street – From Wilson Dam Rd to Industrial park (3 lane)	Resurfacing				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Muscle Shoals		51		Intersection Improvements to Covenant Drive/John Aldridge Dr.	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
City of Muscle Shoals		52		Avalon Avenue – From Cox Blvd to Airport (3 phases)	Resurfacing				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			

Operations and Maintenance Projects													
Sponsor	ALDOT Project Number(s)	Map ID	Funding Program	Project Description	Project Type	Bicycle/Pedestrian Improvement*	ALDOT Work	Length (mi)	Project Phasing	Purpose and Need	Year of Expenditure Cost		
											Federal	State/Local	Total
Town of Killen		53		Reclassification of Alabama St					Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Town of Killen		54		Intersection Improvements- Hwy 72 and Lock Six Rd	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
Town of Killen		55		Intersection Improvements - Hwy 72 and U.S. 43	Operational Improvements				Visionary	The purpose of this project is to enhance the safety for all modes of travel and promote a state of good repair			
*Bicycle and pedestrian improvements must be part of the overall design phase and include the necessary funding unless restrictions apply consistent with FHWA guidance.													

Figure 11.2 2045 Long Range Plan Operation and Maintenance Projects

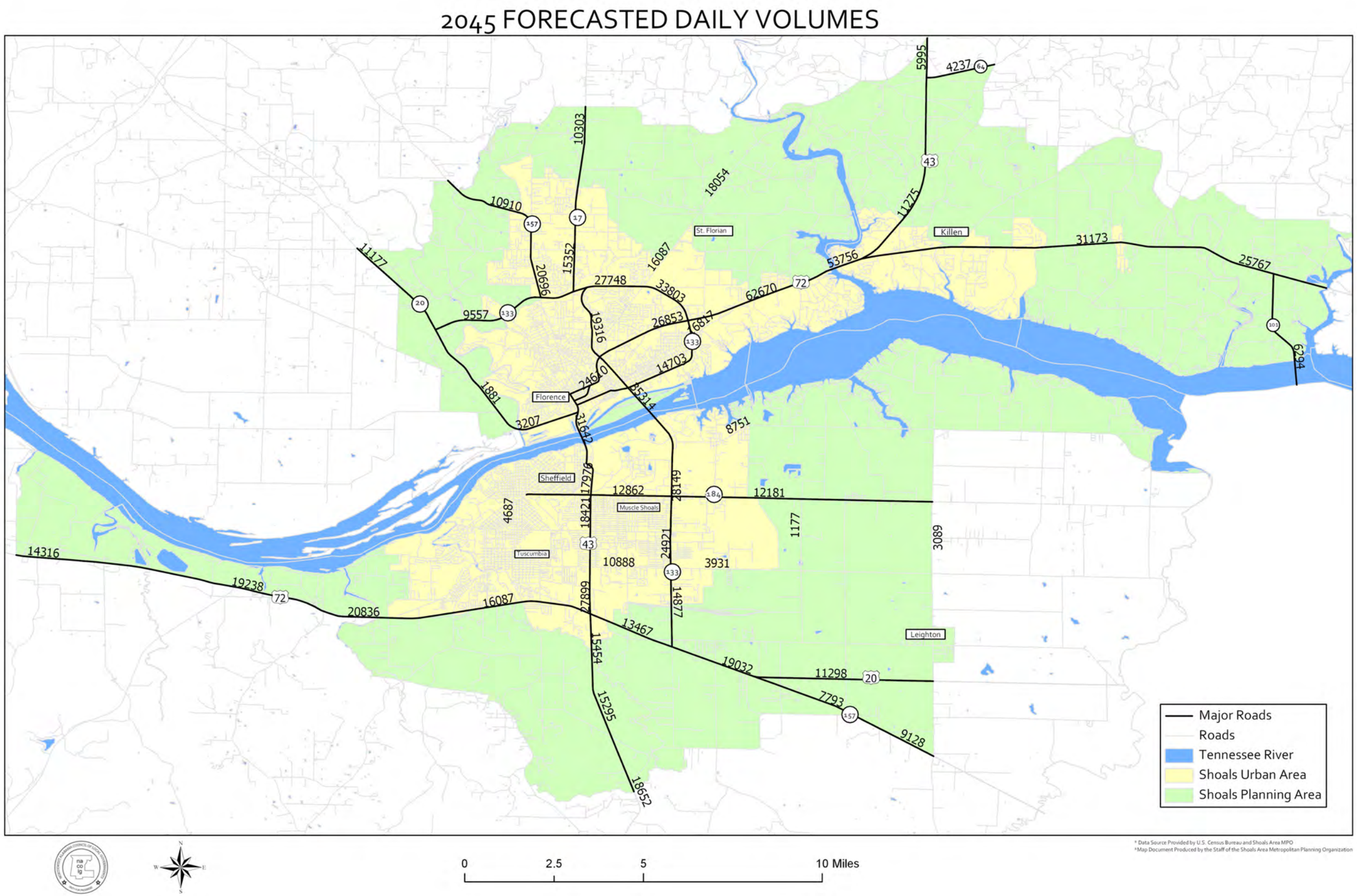


2045 LONG RANGE PLAN - OPERATIONS AND MAINTENANCE PROJECTS



* Data Source Provided by U.S. Census Bureau and Shoals Area MPO
*Map Document Produced by the Staff of the Shoals Area Metropolitan Planning Organization

Figure 11.3 2045 Forecasted Daily Volumes



11.2 2045 Visionary Plan

MPOs are required to develop a financial plan to demonstrate how the long-range transportation plan can be implemented. MPOs are obligated to balance the financial costs of the plan projects against expected revenue. This limitation prevents some needed projects from being included in the transportation plan but it also reduces unrealistic expectations. All projects that could not fit into the transportation plan due to the financial constraints were included in the 2045 Visionary Plan. These projects can be added to the plan by amendment if funding becomes available. The fact that a project is on the Visionary Plan demonstrates the MPO's commitment to the project even though adequate funding is not currently available. The MPO will maintain the visionary plan in the hopes that additional funding will be acquired. The projects that compose the 2045 Visionary Plan are included in Table 11.3.

Although the projects from the MPO's bicycle and pedestrian plan are not listed, they are considered part of the 2045 Visionary Plan. For a complete listing of these projects, please see the current *Shoals Area Bicycle and Pedestrian Plan*.

Table 11.4
2045 Visionary Transportation Plan

Project Description	Project Type	Estimated Cost (YOE)
Widen Florence Boulevard from Indian Springs Drive to east of Harris Drive (Project ID: 100063474 - PE 100053764 – RW, 100031926 – UT, 100031924 – CN)	Roadway Capacity	$14,547,036
Additional lane on State Route 184 from US 72 to State Route 133 (Project ID: 100049485 – PE, 100049486 – UT, 100049487 – CN)	Operational Improvements	$9,948,461

11.3 Pedestrian and Bicycle Policy and Plan

Bicycle facilities enhance urban mobility and improve the quality of life while relieving traffic congestion and expanding road capacity. Bicycle projects are relatively low-cost projects that offer many benefits. Further, the Alabama Code of Law, Sec. 32-5A-263 designates bicycles as legal vehicles which can be operated in the right hand lane on any street (unless specifically prohibited). Based on these factors and 23 USC 217, and policy directives by FHWA dated June 12, 2009 and the US DOT dated March 15, 2010, it the policy of the MPO that bicycling and pedestrian facilities will be incorporated into all transportation projects unless exceptional circumstances exist.

The Shoals Area Bicycle and Pedestrian Plan was completed in 2011 and updated in 2015. Many projects were identified in the plan and can be found in Appendix D.

11.4 Public Transit Plan

The process of preparing the public transit plan portion of the long range transportation plan was performed using the following steps:

1. An analysis of the existing operational conditions of the current public transit system.

2. Soliciting public input regarding the existing public transit operation.
3. Soliciting public input regarding the public transit needs in the study area.
4. Performing a traffic analysis zone (TAZ) level analysis to determine the demand for public transit in the study area.

Public transit helps increase the mobility of an area while decreasing traffic congestion and reducing the demand for parking. Transit projects should be viewed as providing a service to an area instead of being expected to make a profit.

The Shoals Area should continue to expand the current demand response transit system by expanding the hours of operation, providing subscription scheduling and extending the service area approximately four miles outside the corporate limits of each city. As the demand for public transit increases consideration should be given to developing fixed route transit system with complimentary paratransit services for qualified persons with disabilities.

11.5 Intermodal Plan

The intermodal plan for the Shoals study area is based on the current intermodal system, which is made up of facilities along the Tennessee River, an airport and facilities of the Norfolk-Southern Railroad and Tennessee Southern Rail Company. Two projects were identified as intermodal projects during the planning process. A relocation of the Norfolk-Southern tracks, which extend through the southern portion of the study area and an access road to the state docks were identified as intermodal projects during this update. The railroad relocation would reduce the number of at-grade crossing in traffic congested areas. The railroad relocation would potentially improve both auto and rail efficiency in the Shoals Area. The dock access road would extend from Mitchell Boulevard to the state docks. This project would enhance intermodal activity between trucks and barges.

11.5.1 Port Facilities

The Florence Lauderdale Port Authority has identified within their master plan the projects and improvements for their facility as indicated in Table 11.5.

Table 11.5
Florence Lauderdale Port Authority Projects

Proposed Project	Cost Estimate	Completion Stage
New Public Dock	$2,103,000	Engineering 55%
New Warehouse	$1,900,000	Planning stage
Bridge Crane Extension	$2,167,500	Engineering 75%
Property Acquisitions	$1,875,000	Negotiation
Increase Causeway Elevation	$ 360,000	Bid Prep Phase
Channel Improvements	$ 850,000	USACOE Survey Oct '13

Rail Repairs & Expansion	$ 750,000	Prelim Engineering
IA Concrete Paving	$2,715,698	Prelim Engineering
Total Estimate	$12,721,198	

11.5.2 Air Services

The Northwest Alabama Regional Airport (MSL) updated its Master Plan in 2014 with the purpose of conducting an analysis of the present and future requirements of the airport over the next 20 years. The goal of the plan was to have an effective planning tool for future airport development that provides the required guidance while ensuring the development of the airport is accomplished in a manner that is consistent with local, state, and federal guidelines.

The plan forecasts a strong potential for continued jet activity growth at MSL, particularly considering the moderate employment growth expectations for the area as well as significant development opportunities on and around the airport. Therefore, the plan calls for short and long term improvements to the MSL facilities including: terminal building improvements, taxiway extensions, taxiway and apron pavement rehabilitation, taxilane widening, and hangar improvements and construction.

The airport has a 5-year Capital Improvement Program, which is funded through FAA and ALDOT grants. In addition to this, the airport will add two additional hangar projects.

MSL 5-YEAR CAPITAL IMPROVEMENT PROGRAM

Project	Funding Source	Total Cost	FAA	State	Local
2020					
Seal Coat, Crack Seal, and Mark Runway 18/36	Federal	$417,600	$396,720.00	$10,440.00	$10,440.00
Airfield Pavement Management Plan	Federal	$100,000	$95,000.00	$2,500.00	$2,500.00
2021					
Runway 12-30 Safety Area Improvements-Survey, Env, Design	Federal	$200,000	$190,000.00	$5,000.00	$5,000.00
2022					
Runway 12-30 Safety Area Improvements-Construction	Federal	$2,500,000	$2,375,000.00	$62,500.00	$62,500.00
Runway 12/30 Lighting Reconstruction, including Vault Improvements	Federal	$600,000	$570,000.00	$15,000.00	$15,000.00
Airfield Drainage Study	Federal	$50,000	$47,500.00	$1,250.00	$1,250.00
Terminal Area Study	State	$75,000	$0.00	$37,500.00	$37,500.00
2023					
Pavement Rehabilitation Project	Federal	$1,000,000	$950,000.00	$25,000.00	$25,000.00
Taxiway "A" Lighting Reconstruction, including Vault Improvements	Federal	$700,000	$665,000.00	$17,500.00	$17,500.00
Seal Coat, Crack Seal and Mark Terminal Apron, West & East GenAv Apron Areas	Federal	$500,000	$475,000.00	$12,500.00	$12,500.00
Airfield Drainage Repairs - Phase 1	Federal	$150,000	$142,500.00	$3,750.00	$3,750.00
Construct Aircraft Storage Hangar and Site Improvements	State	$750,000	$0.00	$375,000.00	$375,000.00
2024					
Replace Security Fencing & Access Control Measures - (North & West Quadrants)	Federal	$408,000	$387,600.00	$10,200.00	$10,200.00
Reimbursement for Land Acquisition for Development (Terminal Area Expansion) (2 acres of Land, excluding Buildings)	Federal	$150,000	$142,500.00	$3,750.00	$3,750.00
	5-Year Total	$7,600,600	$6,436,820	$581,890	$581,890

12.0 CONCLUSIONS

The Shoals Area Transportation Plan has been carefully designed to accommodate existing as well as future transportation needs. Federal legislation makes it imperative that the study be continued if area governments are to continue receiving federal funds for transportation improvements. With the cooperation and coordination of the continuing study organization, it will be possible to maintain a plan, which meets the needs of the urban area for the next twenty-five years, while retaining the flexibility to accommodate unanticipated growth.

13.0 Appendix

A. **Abbreviations and Acronyms**

AAA - Area Agency on Aging
ADA - Americans with Disabilities Act
ADAP - Alabama Disabilities Advocacy Program
ALDOT - Alabama Department of Transportation
ARC - Appalachian Regional Commission
Bicycle / Pedestrian Scale Development - Development that consists of a mix of land uses (residential, commercial, public) in close proximity, where one could comfortably walk or ride a bicycle from their origin (e.g., residence, place of employment) to their destination (e.g., place of employment, store, government facility, park)
BR - Bridge funding program; also BRON
CA - Capital funds (transit)
CN - Construction - the final phase of transportation project, the actual building of the project
COOP - Continuity of Operations Plan
Cube Voyager - transportation computer modeling program used by the Alabama MPOs
DBE - Disadvantaged Business Enterprise
DPI or DPIP - Innovative/Special funding program, applies to projects specifically named in federal legislation
EPA - Environmental Protection Agency
FHWA - Federal Highway Administration
FTA - Federal Transit Administration
Functional Classification System - a system to distinguish roads according to the type of service they are intended to provide
GIS - Geographic Information System - a computer system that ties together cartographic images with databases, it allows the user to create new maps and databases through various means including overlay and query operations
ISTEA - Intermodal Surface Transportation Efficiency Act of 1991; replaced first by TEA-21 then SAFETEA-LU
ITS - Intelligent Transportation System
JARC - Job Access and Reverse Commute - Federal Transit Administration Section 5317 funding program
LAP - Language Assistance Plan
LEP - Limited English Proficiency
Long-Range Transportation Plan - a transportation plan that outlines the projects that will be required to meet the needs of an area over an extended period of time usually 20 years, updated every 4 to 5 years
LRTP - Long-Range Transportation Plan
MAP-21 - Moving Ahead for Progress in the 21st Century (P.L. 112-151, July 6, 2012)
MPO - Metropolitan Planning Organization, Shoals Area MPO
NACOLG - Northwest Alabama Council of Local Governments
New Freedom - Federal Transit Administration Section 5317 funding program

NHS - National Highway System, a transportation funding category, only projects on designated NHS routes can use these funds; also NHSP
OP - Operating funds (transit)
PE - Preliminary Engineering - the first phase of most transportation projects, the study and design of the project
PEA - Planning Emphasis Areas
Public Participation Plan/Public Involvement Plan (PPP/PIP) - federally required plan that details public involvement procedures and principles of the MPO
ROW - Right of Way - a phase of transportation projects, the purchase of right of way
RPO - Rural Planning Organization, Northwest Alabama RPO
RW - Right of Way - a phase of transportation projects, the purchase of right of way
SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users - (Pub. L. 109–59, August 10, 2005)
Section 5303 - Federal Transit Administration funding program for technical studies
Section 5307 - Federal Transit Administration funding program for urban area transit capital and operating expenses
Section 5309 - Federal Transit Administration funding program for capital transit improvements
Section 5310 - Federal Transit Administration funding program for elderly and disabled transit capital assistance
Section 5311 - Federal Transit Administration funding program for rural area transit capital and operating expenses
Section 5316 - Federal Transit Administration funding program for job access and reverse commute transit, aka JARC
Section 5317 - Federal Transit Administration funding program for new Americans with Disabilities Act transit assistance, aka New Freedoms
Section 5339 - Federal Transit Administration funding program for replacement, rehabilitation and purchase buses, vans, and related equipment, and to construct bus-related facilities
ST - State funding
STAA - Surface Transportation Any Area funding category, represents funds that may be used anywhere in the state, ALDOT has the authority to allocate these funds
STIP - State Transportation Improvement Program
STOA - Surface Transportation Other Area funding category, represents funds that are used in Urban Areas with Populations less than 200,000
STP - Surface Transportation Program, a transportation funding category, Urban Areas are allocated an amount of funds annually based on a certain dollar amount per capita
TAP - Transportation Alternatives Program
TAZ - Transportation Analysis Zone - districts used for computer traffic modeling
TCC - Technical Coordinating Committee
TEA-21 - Transportation Equity Act of the 21st Century
TIP - Transportation Improvement Program - a list of projects slated to begin over a 4-year period, revised/rebalanced every year and updated every four years
TR - Transit project

UMTA - Urban Mass Transit Administration; now FTA
UPWP - Unified Planning Work Program - a set of tasks that the WARC staff is committed to perform over a fiscal year, updated annually
Urban Area Boundary - boundary surrounding a Census Bureau defined urbanized area, established by the MPO with ALDOT and FHWA approval
UT - Utility Construction - a phase of transportation projects, the relocation of utilities

B. **Public Involvement**

AFFIDAVIT OF PUBLICATION

STATE OF ALABAMA
AND COUNTY OF LAUDERDALE

NACOLG
PO BOX 2603
MUSCLE SHOALS,AL 35662

TimesDaily, TimesDaily Online

Before me, a notary public in and for the county and state above listed, personally appeared the undersigned affiant, known to me to be a duly authorized representative of the TimesDaily, TimesDaily Online. The newspaper published the attached legal notice(s) in the issue(s) referenced below, by the Newspaper for said publications does not exceed the lowest classified rate paid by commercial customers for an advertisement of similar size and frequency in the same newspaper(s) in which the public notice(s) appeared.

There are no agreements between the Newspaper and the officer or attorney charged with the duty of placing the attached legal advertising notice(s), whereby any advantage, gain or profit accrued to said officer or attorney:

Affiant

PUBLISHED ON: 09/30/20
TOTAL COST: $89.77
AD SPACE: 47 LINES
FILED ON: 09/30/20

Sworn to or affirmed before me on: 09/30/20

Notary Public, State at Large, My Commission expires:

My Commission Expires 5/30/2023

HOLLIE COLELLA NOTARY PUBLIC ALABAMA STATE AT LARGE

Ad ID 374147

Public Meetings Notice Shoals Area Metropolitan Planning Organization (MPO)

The Shoals Area Metropolitan Planning Organization (MPO) 2045 Draft Long Range Transportation Plan (LRTP) will be made available for public review and comment at the following locations, dates, and times:
Sheffield City Hall – Front Lawn
600 N Montgomery Avenue, Sheffield, AL
Thursday, October 22, 2020 from 9:00 a.m. - 10:00 a.m.
Wilson Park
N Wood Avenue
Florence, AL
Thursday, October 22, 2020 from 3:00 p.m. - 4:00 p.m.
The plan is also available for viewing at www.nacolg.org and the NACOLG office. Persons with disabilities who may need special transportation accommodations to review the Draft LRTP should call 314-0047 at least 24 hours prior to the meeting. Comments must be received by October 28, 2020. Send to NACOLG, Attn. Joseph Holt, PO Box 2603, Muscle Shoals, AL 35661. Phone 389-0517. Email jholt@nacolg.org.
Keith Jones, Executive Director
September 30, 2020

2045 Shoals Area MPO Long Range Transportation Plan
Sheffield, Alabama
Sign In Sheet

22-Oct-20

NAME	ADDRESS	PHONE NUMBER	EMAIL	Comments?
Joey Holt	103 Student Dr Muscle Shoals AL 35661	256.389.0517	jholt@nacolg.org	
James Grisham	1332 Rickwood Cant	256-766-7374	Jhrrrrgs@Bellsouth.net	helpful visit
Ryan Hayes	103 Student D Muscle Shoals AL	256-389-0514	rhayes@nacolg.org	
Mark Denton	1008 Gardens Ave NW	256-577-4031	dentonm@dot.state.al.us	

2045 Shoals Area MPO Long Range Transportation Plan
Florence, Alabama
Sign In Sheet

22-Oct-20

NAME	ADDRESS	PHONE NUMBER	EMAIL	Comments?
Joey Holt	103 Student Dr. Muscle Shoals	256-389-0517	jholt@waapdc.org	
Ryan Hayse	103 Student Dr. Muscle Shoals	256-3870514	rhayse@waapdc.org	
CLINTON BAKER	ALDOT-Tuscumbia	256-389-1428	bakercl@dot.state.al.us	
Trent Brannon	ALDOT - Tuscumbia	256-389-1488	brannont@dot.state.al.us	
ANDY BETTERTON	Mayor - Florence	256-710-2129	ABETTERTON@FLORENCE AL.ORG	

https://www.timesdaily.com/news/public-can-view-shoals-long-range-transportation-plan-thursday/article_839427e7-2007-5785-8b08-0aafa7c274fc.html

TOP STORY

Public can view Shoals Long Range Transportation Plan Thursday

By Russ Corey Staff Writer
Oct 21, 2020

MUSCLE SHOALS — Shoals residents will have two opportunities Thursday to view local highway improvement plans that are projected for the next 25 years.

The Northwest Alabama Council of Local Governments is hosting two in-person events to allow the public to view the Long Range Transportation Plan, which is updated every five years, according to NACOLG Transportation Planning Director Joey Holt.

"Due to COVID, we decided to do them outdoors," Holt said.

The events are scheduled from 9 to 10 a.m. on the lawn of the Sheffield City Hall, and from 3 to 4 p.m. at Wilson Park in Florence, across the street from the Florence-Lauderdale Public Library, said Jesse Turner, NACOLG director of Planning & Transportation.

Holt said he and Transportation Planner 1 Ryan Hayse will have copies of the plan for the public to view, as well as a variety of maps depicting project locations.

In the event of inclement weather, Holt said NACOLG will arrange appointments with residents who want to view the document in person.

For those who would rather not attend an in-person meeting, Holt said the long-range transportation plan draft is available online on the NACOLG website.

There is also a way to send comments concerning the draft document.

Alan Teague, the preconstruction administrator for the Alabama Department of Transportation's Tuscumbia Area Office, said either he or someone from his office will be in attendance to help answer questions about the upcoming projects.

Holt said the plan is a financially constrained document, meaning projects are based on projected federal funding through the Shoals Metropolitan Planning Organization.

"We can't have more projects than money," he said. "We make sure local projects are included."

Holt said projects on the Transportation Improvement Program, a short-term transportation plan, must first be included in the long-range plan.

The Shoals MPO includes Colbert and Lauderdale counties and extends west to Barton in Colbert County and east to the Second Creek area east of Elgin in Lauderdale County.

While the plan is normally updated every five years, Holt said it can be amended for projects that need to be added to the Transportation Improvement Program, such as improvements required for a new industrial project.

---

russ.corey@timesdaily.com

or 256-740-5738. Twitter

@TD_RussCorey

C. Livability Principles and Indicators

1) Provide more transportation choices

Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

Indicators

- Percentage of workforce using transit service: 1%
- Transit trips per capita: 1.40
- Percentage of jobs and housing located within a ½ mile of transit: 100% (demand responsive transit service is available within the entire urban area)
- Vehicle miles traveled per household: 22,404

2) Promote equitable, affordable housing

Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

Indicator

- Percentage of household income spent on housing and transportation: 56%
- Transportation costs per household: $13,528.26

3) Enhance economic competitiveness

Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs by workers as well as expanded business access to markets.

Indicator

- Percent of housing units located within 0.5 miles of primary employment centers: 52%

4) Support existing communities

Target federal funding toward existing communities – through such strategies as transit-oriented, mixed-use development and land recycling – to increase community revitalization, improve the efficiency of public works investments, and safeguard rural landscapes.

Indicators

- Percentage of LRTP funding that will be used to improve existing facilities: 70%
- Percentage of TIP funding that will be used to improve existing facilities: 87%

5) Coordinate policies and leverage investment

Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.

Indicator

- Percent of transportation projects where more than one federal funding source is utilized: 0%

6) Value communities and neighborhoods

Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods – rural, urban, or suburban.

Indicator

- Percentage of housing units within a 0.25 mile of retail services, and parks: 77%
- Automobile greenhouse gas emissions per household: 9.20 tonnes/years

*Data Sources: U.S. Census Bureau, NACOLG Transit Department, Center for Neighborhood Technology (CNT)

D. **Bicycle and Pedestrian Projects**

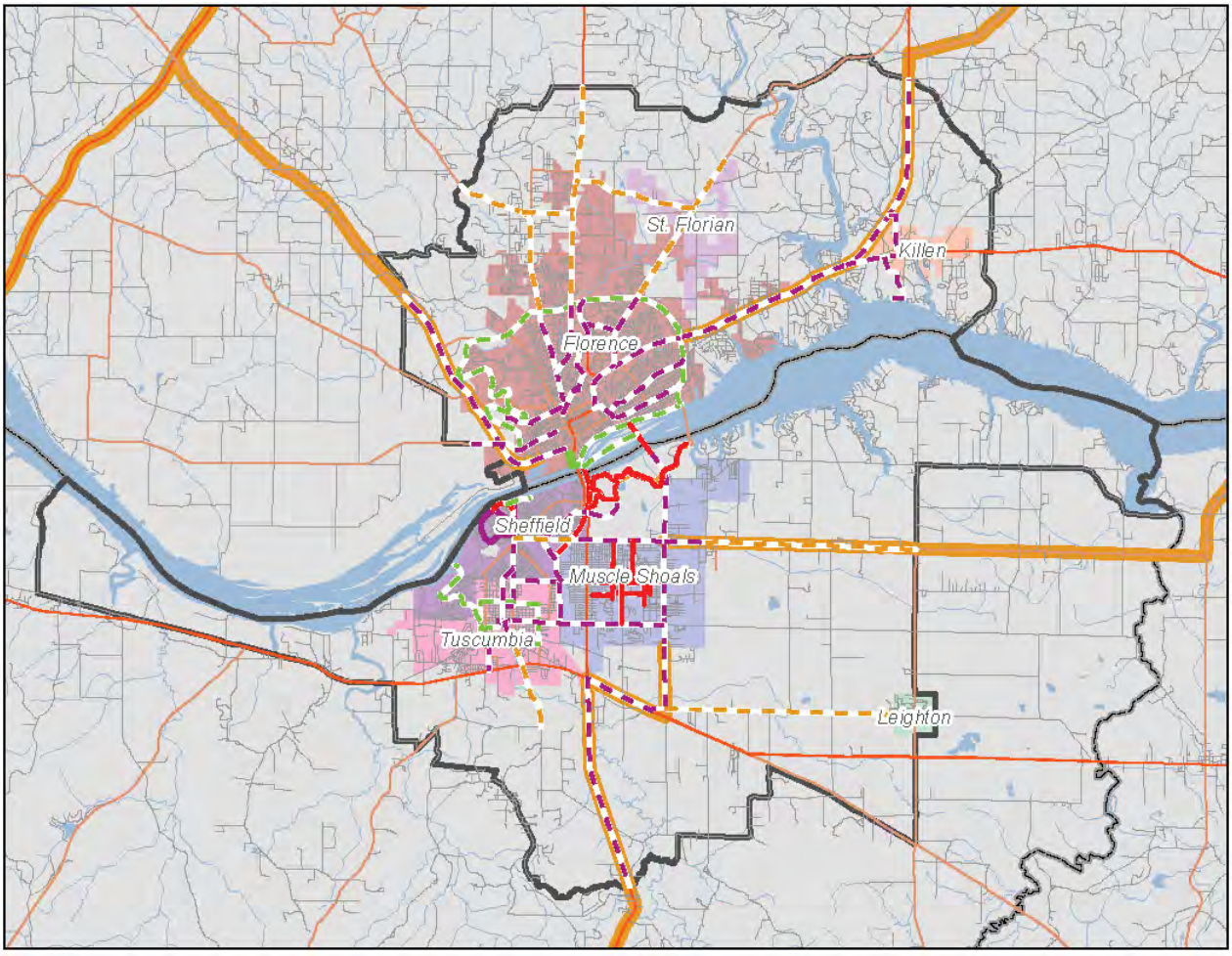


Figure 1
Shoals Area MPO
Bicycle and Pedestrian Plan

Legend

- Proposed On-Street Bicycle Facility
- Proposed Greenway
- Proposed Shared Use Trail
- Proposed Signed Route
- Proposed State Bike/Ped
- Existing Bike On Road
- Existing Greenway
- Existing Shared Use Trail
- Shoals Area MPO Boundary
- County Limit

E. Base Year Socio-Economic Data

TAZ	Housing Units	Median Income	Retail Employment	Non-Retail Employment	School Enrollment
1	134	41975	5	34	0
2	165	40988	6	62	0
3	13	29764	0	2	0
4	0	36092	0	0	0
5	8	31681	37	17	0
6	387	21955	30	1940	0
7	53	29634	0	4	0
8	257	27895	0	9	0
9	528	41591	9	461	0
10	912	35284	0	172	45
11	170	35929	0	98	141
12	195	42006	3	297	0
13	782	48768	0	258	635
14	20	47020	0	80	0
15	89	58456	0	10	0
16	5	61306	0	1	0
17	1023	64027	50	197	250
18	422	61057	20	239	324
19	450	58729	12	129	0
20	282	65423	14	64	0
21	822	54981	8	58	0
22	399	57511	20	47	0
23	945	56912	54	257	792
24	887	45962	32	207	449
25	869	50929	158	120	0
26	540	53172	121	208	0
27	34	53970	0	5	7279
28	111	54647	111	2560	0
29	17	34219	81	2316	0
30	170	25347	43	359	206
31	78	46334	35	1650	0
32	18	21560	9	79	0
33	116	20175	0	106	0
34	221	34938	81	82	0
35	587	43461	22	354	947
36	390	49278	28	42	0

37	832	46478	23	159	0
38	473	40777	5	689	0
39	313	41675	38	498	0
40	608	52202	0	81	88
41	128	56627	7	1056	0
42	116	50578	4	957	0
43	40	52854	0	113	0
44	155	49105	0	32	0
45	95	52366	18	27	0
46	106	45636	6	12	0
47	48	56585	16	1395	115
48	0	42087	0	512	0
49	812	55904	72	374	612
50	279	52285	0	28	0
51	16	58935	808	286	0
52	1	41887	983	105	0
53	112	42226	213	701	0
54	0	26641	818	151	0
55	156	62714	4	531	0
56	1013	41257	324	439	0
57	709	59187	8	266	967
58	128	65659	120	109	0
59	208	57637	27	272	0
60	324	54871	2	59	0
61	267	47721	103	230	0
62	279	26303	98	310	0
63	216	28894	0	24	0
64	11	25222	161	91	0
65	263	32211	61	132	426
66	463	42382	349	91	0
67	324	34804	3	25	0
68	262	34043	11	23	0
69	257	28854	2	66	0
70	164	33864	43	47	0
71	340	40144	46	67	0
72	65	56106	274	107	0
73	220	63932	12	36	0
74	424	57414	6	84	0
75	402	58119	27	51	0
76	249	63940	32	45	0

77	233	68322	24	41	0
78	540	69229	22	188	0
79	302	74727	20	104	0
80	556	79799	28	153	0
81	350	73039	6	227	0
82	59	61335	20	123	0
83	751	59285	125	316	959
84	1208	61082	69	340	825
85	479	53078	3	78	0
86	464	59600	16	46	0
87	272	59600	50	103	0
88	224	51426	0	23	0
89	194	55161	38	9	0
90	31	57348	0	1	0
91	111	55247	5	41	0
92	57	55247	0	20	0
93	23	61283	0	44	0
94	18	45828	0	7	0
95	31	34074	0	9	0
96	242	34074	25	56	0
97	84	34074	3	19	0
98	84	34074	0	60	768
99	9	34074	0	2	0
100	88	42751	23	11	0
101	29	47695	0	5	0
102	2	47695	34	0	0
103	154	54506	12	13	0
104	84	54506	29	137	0
105	0	57583	0	5	0
106	61	57583	0	31	0
107	44	45828	0	5	0
108	29	59943	2	60	0
109	269	60794	13	38	0
110	61	66132	16	168	0
111	348	72074	24	924	0
112	2	78692	0	73	0
113	193	64516	11	690	213
114	89	55526	93	484	0
115	174	66408	3	486	0
116	37	65106	0	1005	0

117	215	51426	11	161	0
118	166	41842	6	45	0
119	0	41842	0	2	0
120	0	41842	0	100	0
121	15	46984	58	244	0
122	0	47970	0	20	0
123	559	55556	647	1084	0
124	777	60008	36	135	0
125	476	63016	63	794	0
126	843	72201	20	807	2414
127	520	60693	370	567	193
128	91	64242	391	341	0
129	250	73089	7	79	0
130	77	72878	6	12	0
131	74	59987	27	153	0
132	6	58494	112	95	0
133	93	66591	22	715	0
134	39	63552	4	163	0
135	234	52321	5	35	0
136	24	53583	0	1	0
137	277	50062	14	254	0
138	277	30754	10	122	0
139	72	46481	1	4	0
140	135	46481	133	10	233
141	54	37142	0	23	365
142	318	42551	17	31	0
143	289	46035	0	45	0
144	50	60051	10	257	0
145	187	61799	342	70	0
146	117	52516	3	127	0
147	0	44612	3	553	5212
148	251	39886	13	346	0
149	460	40784	6	52	0
150	104	37204	0	73	410
151	207	35555	87	76	0
152	296	30465	1	20	0
153	92	37966	2	106	0
154	24	46405	134	152	0
155	535	37337	130	320	0
156	1	40250	103	59	0

157	403	37917	72	449	0
158	477	42624	71	131	0
159	370	42525	13	68	0
160	367	47718	74	156	0
161	208	38003	3	90	468
162	106	47540	0	0	0
163	92	38003	0	45	332
164	78	29895	121	48	0
165	121	39433	64	648	0
166	212	49288	0	74	0
167	611	40788	27	550	0
168	366	50299	13	127	0
169	241	40345	43	215	0
170	187	37339	56	1196	434
171	502	39009	54	267	0
172	39	42355	5	118	0
173	253	50735	36	457	0
174	171	42404	36	217	60
175	242	54852	49	78	373
176	174	44935	101	163	0
177	161	52702	0	20	0
178	75	54852	105	20	0
179	154	54852	0	16	0
180	234	63222	3	76	0
181	435	63222	10	59	0
182	128	66399	2	8	0
183	167	63222	28	61	0
184	199	46249	0	437	0
185	101	45467	0	188	0
186	13	58456	0	0	1268
187	49	54506	0	6	0
188	23	67667	0	0	0
189	104	61306	2	16	0
190	71	63196	0	8	0
191	51	62841	18	43	1534
192	207	62560	14	47	0
193	307	56534	79	182	3466
194	1080	54036	11	203	0

F. Future Year Socio-Economic Data

TAZ	Housing Units	Median Income	Retail Employment	Non-Retail Employment	School Enrollment
1	142	41975	5	36	0
2	175	40988	6	66	0
3	14	29764	0	2	0
4	0	36092	0	0	0
5	8	31681	39	18	0
6	410	21955	32	206	0
7	56	29634	0	4	0
8	272	27895	0	10	0
9	559	41591	10	488	0
10	949	35284	0	181	47
11	180	35929	0	104	149
12	206	42006	3	314	0
13	828	48768	0	273	672
14	21	47020	0	85	0
15	94	58456	0	11	0
16	5	61306	0	1	0
17	1083	64027	53	209	265
18	447	61057	21	253	343
19	476	58729	13	137	0
20	299	65423	15	68	0
21	870	54981	8	61	0
22	422	57511	21	50	0
23	1001	56912	57	272	839
24	939	45962	34	219	475
25	920	50929	167	127	0
26	562	53172	127	218	0
27	35	53970	0	5	7640
28	111	54647	114	2634	0
29	17	34219	83	2383	0
30	180	25347	46	380	218
31	83	46334	37	1747	0
32	19	21560	10	84	0
33	123	20175	0	112	0
34	234	34938	86	87	0
35	587	43461	23	364	974
36	390	49278	29	43	0

37	832	46478	24	164	0
38	473	40777	5	709	0
39	331	41675	40	527	0
40	644	52202	0	86	93
41	136	56627	7	1195	0
42	123	50578	4	1083	0
43	42	52854	0	120	0
44	164	49105	0	34	0
45	101	52366	19	29	0
46	112	45636	6	13	0
47	52	56585	17	1604	124
48	0	42087	0	580	0
49	860	55904	76	396	648
50	490	52285	0	38	0
51	256	58935	3326	1177	0
52	1	41887	1041	111	0
53	119	42226	226	742	0
54	0	26641	866	160	0
55	165	62714	4	562	0
56	1073	41257	343	465	0
57	751	59187	8	282	1024
58	136	65659	127	115	0
59	220	57637	29	288	0
60	337	54871	2	62	0
61	278	47721	108	241	0
62	75	26303	75	75	75
63	75	28894	75	75	75
64	12	25222	170	96	0
65	278	32211	65	140	451
66	490	42382	370	96	0
67	343	34804	3	26	0
68	277	34043	12	24	0
69	272	28854	2	2264	0
70	174	33864	46	50	0
71	360	40144	49	71	0
72	69	56106	290	113	0
73	233	63932	13	38	0
74	449	57414	6	89	0
75	426	58119	29	54	0
76	264	63940	34	48	0

77	247	68322	25	43	0
78	572	69229	23	199	0
79	320	74727	21	110	0
80	589	79799	30	162	0
81	371	73039	6	240	0
82	62	61335	21	130	0
83	820	59285	134	340	1031
84	1319	61082	74	366	887
85	507	53078	3	83	0
86	491	59600	17	49	0
87	288	59600	53	109	0
88	237	51426	0	24	0
89	205	55161	40	10	0
90	33	57348	0	1	0
91	118	55247	5	43	0
92	60	55247	0	21	0
93	24	61283	0	47	0
94	19	45828	0	7	0
95	33	34074	0	10	0
96	256	34074	26	59	0
97	89	34074	3	20	0
98	89	34074	0	64	813
99	10	34074	0	2	0
100	93	42751	24	12	0
101	31	47695	0	5	0
102	2	47695	36	0	0
103	163	54506	13	14	0
104	89	54506	31	145	0
105	0	57583	0	5	0
106	65	57583	0	33	0
107	47	45828	0	5	0
108	31	59943	2	64	0
109	299	60794	14	41	0
110	65	66132	17	178	0
111	368	72074	25	1544	0
112	2	78692	0	77	0
113	204	64516	12	731	226
114	94	55526	98	512	0
115	184	66408	3	515	0
116	39	65106	0	1064	0

117	228	51426	12	170	0
118	176	41842	6	48	0
119	0	41842	0	2	0
120	0	41842	0	106	0
121	16	46984	61	258	0
122	150	47970	150	150	150
123	582	55556	679	1138	0
124	940	60008	41	153	0
125	530	63016	68	862	0
126	938	72201	22	876	2621
127	551	60693	392	600	204
128	96	64242	414	361	0
129	278	73089	8	86	0
130	86	72878	7	13	0
131	78	59987	29	162	0
132	6	58494	119	101	0
133	98	66591	23	757	0
134	41	63552	4	173	0
135	248	52321	5	37	0
136	25	53583	0	1	0
137	293	50062	15	269	0
138	293	30754	11	129	0
139	76	46481	1	4	0
140	143	46481	141	11	247
141	57	37142	0	24	386
142	354	42551	18	34	0
143	306	46035	0	48	0
144	55	60051	11	276	0
145	198	61799	362	74	0
146	124	52516	3	134	0
147	0	44612	3	586	5519
148	266	39886	14	366	0
149	487	40784	6	55	0
150	110	37204	0	77	434
151	219	35555	92	80	0
152	313	30465	1	21	0
153	97	37966	2	112	0
154	25	46405	142	161	0
155	566	37337	138	339	0
156	1	40250	109	62	0

157	427	37917	76	475	0
158	477	42624	73	135	0
159	392	42525	14	72	0
160	389	47718	78	165	0
161	220	38003	3	95	496
162	112	47540	0	0	0
163	96	38003	0	47	348
164	83	29895	128	51	0
165	128	39433	68	686	0
166	221	49288	0	78	0
167	647	40788	29	582	0
168	388	50299	14	134	0
169	255	40345	46	228	0
170	198	37339	59	1266	460
171	532	39009	57	283	0
172	41	42355	5	125	0
173	268	50735	38	484	0
174	181	42404	38	230	64
175	256	54852	52	83	395
176	184	44935	107	173	0
177	170	52702	0	21	0
178	79	54852	111	21	0
179	163	54852	0	17	0
180	248	63222	3	80	0
181	461	63222	11	62	0
182	136	66399	2	8	0
183	177	63222	30	65	0
184	211	46249	0	495	0
185	107	45467	0	213	0
186	14	58456	0	0	1343
187	52	54506	0	6	0
188	24	67667	0	0	0
189	110	61306	2	17	0
190	75	63196	0	8	0
191	57	62841	20	47	1665
192	230	62560	15	51	0
193	342	56534	86	198	3763
194	1202	54036	12	220	0