
TRANSPORTATION REGIONALLY
TRIP
2050
INNOVATIVE PROJECTS

Transportation Regionally Innovative Projects (TRiP) 2050

Transportation Regionally Innovative Projects for 2050 (TRiP 2050) is a vision for the future transportation needs of the Huntsville Metropolitan Planning area and will serve as a decision guide for major transportation improvements in the Huntsville Urban Area. This Long-Range Transportation Plan (LRTP) is a cooperative effort of the U.S. Department of Transportation, Federal Highway Administration, Federal Transit Administration, Alabama Department of Transportation, and local governments in partial fulfillment of Task 3.1 of the Unified Planning Work Program. This document was prepared by the City of Huntsville Planning Division, as staff to the Huntsville Area Metropolitan Planning Organization (MPO), pursuant to requirements set forth in amended 23 USC 134 and CFR 450. The contents of this document do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

The document was prepared by

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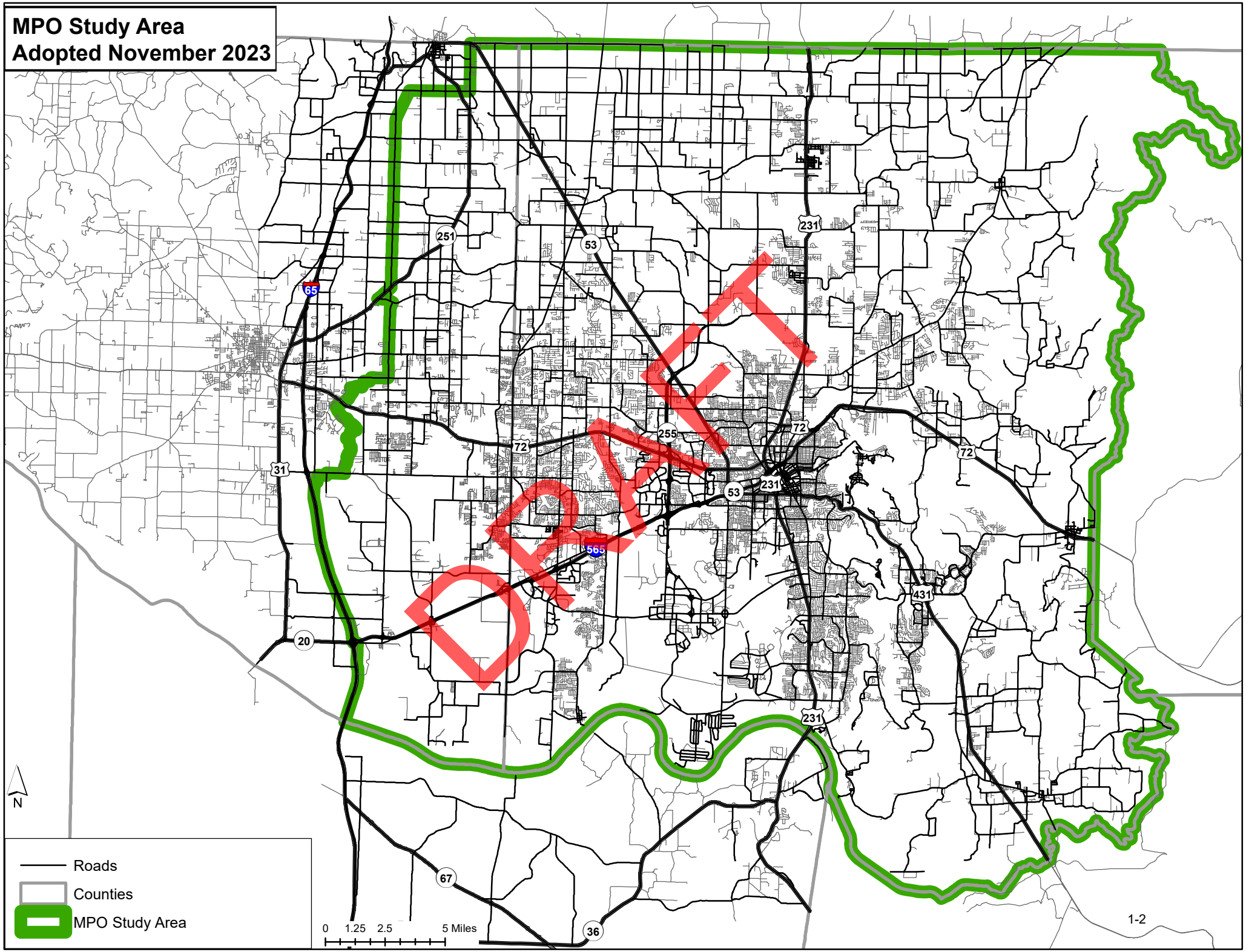
1. INTRODUCTION

About the Long-Range Transportation Plan (LRTP)

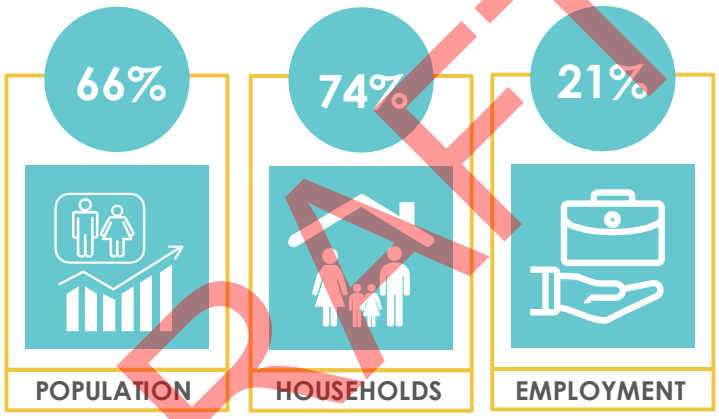
Transportation Regionally Innovative Projects for 2050 (TRiP 2050) is a vision for the future transportation needs of the Huntsville Metropolitan area and will serve as a decision guide for major transportation improvements in the Huntsville Urban Area (see Map 1.1) over a 25-year planning horizon. It addresses areawide transportation needs identified through forecasting future travel demand, developing and testing alternatives, and selecting those options which meet the mobility needs of the area. Additionally, it addresses future traffic volumes, roadway and intersection capacities, new transportation corridors, alternative transportation modes, pedestrian/bicycle trails, signalization needs, and funding alternatives.

TRiP 2050 has been developed by the transportation planning staff with input and involvement from city, county, state and local government officials, focus groups, and the public. Fiscal constraint has been a priority during the selection of the proposed projects. Careful consideration has been given to projects that reduce congestion and/or minimize trip distances, to maintain and/or improve air quality based on current attainment standards.


MPO Study Area
Adopted November 2023
DRAFT
65
251
53
231
72
255
31
20
565
431
67
36
N
Roads
Counties
MPO Study Area
0 1.25 2.5 5 Miles
1-2

Overview of Socio-Economic Projections

The Huntsville MPO Study Area demographic projections for 2050 show major growth in both households and employment. Between 2020 and 2050 the population is expected to increase by 66 percent, the number of households will increase by 74 percent and total employment will increase by 21 percent. The basis of this growth is the area's diversifying economy; low cost of living compared to peer regions around the country; and solid foundation in aerospace and defense technology, and Federal agencies.



Graphic 1.1: Demographic Change 2020 - 2050 Source: Huntsville Area MPO

Additionally, one notable area of growth is the emerging advanced manufacturing sector. Community leaders envision that the Mazda-Toyota development mega-site in Limestone County and Cummings Research Park will continue to attract high technology jobs, and the other industrial parks will continue growth as well. Huntsville's downtown, as a center for employment, will keep in step with market demand. Additional advanced manufacturing hubs will develop in Southeast Limestone County and East Madison County over the next 25 years.

TRiP 2050 assumes that area residents will still rely primarily on motor vehicles for most trips, but will have more opportunities to utilize transit, walking, and cycling for shorter trips. Investment in transit, greenways, and sidewalks will result in a higher level of usage of these modes. TRiP 2050 calls for continued investment in alternative modes of transportation throughout the planning period.

Consistency with Other Plans

The projects included in TRiP 2050 are consistent with local adopted short and long-range transportation plans as well as the master plans of other agencies and jurisdictions in the Huntsville Area MPO. For example, roadway projects in the 2024-2027 TIP are included in TRiP 2050. Transportation projects which involve federal participation will also be consistent with the current Huntsville Transit Study 2019, Huntsville International Airport Master Plan, City of Huntsville BIG Picture master plan, Redstone Arsenal Joint Land Use Study, City of Madison 2040 Transportation Master Plan, Singing River Trail Master Plan and the TARCOG Human Services Coordinated Transportation Plan. Documentation of the overall planning process is provided in the Huntsville-Area MPO Final 2018 Public Participation Plan.

Plan Implementation

Successful implementation of TRiP 2050 is dependent primarily upon the availability of financing for the improvements required. MPO-directed funds (the STPHV category of funding) are planned for capacity projects for the full 25 years. A list of all projects to be financed with anticipated federal and local revenues is shown in Chapter 9.

Additional projects are currently visionary and unfunded. The financing of these unfunded projects is essential, as the future year network indicates that most congested miles traveled on the transportation system occur on minor and major collectors. A formal list of all unfunded projects can also be found in Appendix J.

Huntsville-Area MPO Supports ALDOT's Performance Measures (PM)

Each project listed in this document has a PM target delineating which Performance Measure Target each project supports. TRiP 2050 contains both Highway and Transit Projects. Typical highway projects, such as highway capacity, system preservation, bridge, and safety projects, support the established performance measures targets. The same is true for the transit projects that are capital purchases. The MPO will continue to coordinate with ALDOT on updates and/or amendments to the Statewide Long Range Transportation Plan and support the State's selected performance targets (to the maximum extent practicable).

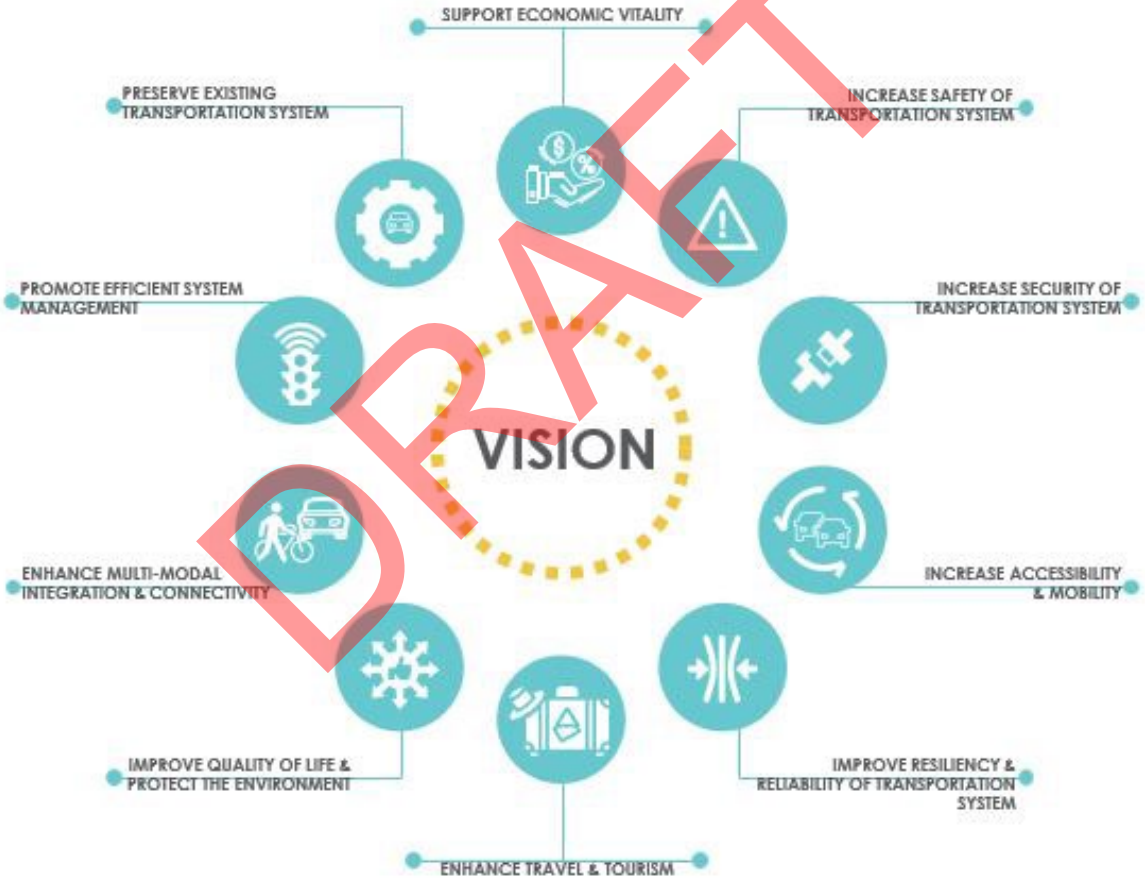
MPO and ALDOT Performance Measure Targets and Agreement

Some targets are required to be set on an annual basis while others are set on two (2)-year and four (4)-year cycles. ALDOT and the MPOs, along with the Transit Providers, have a cooperative agreement in place to coordinate the development of the targets, the sharing of information related to the transportation performance measures, selection of targets, and reporting requirements. The Performance Measures are found in Chapter 7 and Appendices C and K of the document and contain the ALDOT PM Targets supported by the MPO.

2. VISION & GOALS

Vision & Goals

The Infrastructure Investment and Jobs Act (IIJA)/ Bipartisan Infrastructure Law (BIL) replaces the MAP-21/FAST Act legislation but still centers on the growing importance of operating, managing, and increasing the safety and security of the transportation system. The focus was introduced in SAFETEA- LU as the ten planning factors and they are retained in FAST Act. These broad areas to be considered, analyzed, and reflected form the basis of the vision and goals of the planning process.



Graphic 2.1: IIJA/ BIL Vision

1. Support the economic vitality of the metropolitan area, especially by empowering global competitiveness, productivity, and efficiency.
   - Provide access to industrial parks, ports, airports, intermodal transportation facilities and military installations through the highway network.
   - Reduce congestion and increase accessibility.

2. Increase the safety of the transportation system for motorized and non-motorized users.
   - Include safety projects for transportation facilities used by all modes of transportation.

3. 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.
   - Provide projects that improve the quality of life through funding bicycles, pedestrians, historic preservation and other projects that make communities more livable.
   - Enhance local planned growth and economic development by affording projects that encourage the quality of life.

4. Increase the security of the transportation system for motorized and non-motorized users.

5. Increase the accessibility and mobility of people and freight.
   - Provide relief to traffic congestion for accessibility and mobility of people and freight.
   - Identify challenges faced by the freight network.

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
   - Address better integration across all modes of transportation.

7. Promote efficient system management and operation.
   - Promote Intelligent Transportation Systems to encourage efficient management and operation of the transportation system.

8. Emphasize the preservation of the existing transportation system.
   - Preserve the existing transportation system through upgrading and improving substandard and deficient facilities.

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

10. Enhance travel and tourism
    - Promotion of existing tourist facilities, national events and local attractions along all major corridors.

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) identify Planning Emphasis Areas (PEAs) annually to promote themes for consideration in the transportation process.

Planning Emphasis Areas

1. **Infrastructure Investment and Jobs Act (IIJA)/ Bipartisan Infrastructure Law (BIL) Implementation**

Transition Performance Based Planning and Programming. The development and implementation of a performance management approach to transportation planning and programming that supports the achievement of transportation system performance outcomes.

2. **Models of Regional Planning Cooperation**

Promote cooperation and coordination across state and MPO boundaries where appropriate to ensure a regional approach to transportation planning. This cooperation occurs through the metropolitan planning agreements that identify how the planning process and how the planning products will be coordinated, through the development of joint planning products, and/or by other local coordination of transportation plans and programs, corridor studies, and products across adjacent operators of public transportation on activities such as: data collection, data storage and analytical tools and performance-based planning.

3. **Ladders of Opportunity**

Provide access to essential services as part of the transportation planning process and identify transportation connectivity gaps in access to essential services. Essential services include housing, employment, health care, schools/education, and recreation. This emphasis area may include MPO and state identification of performance measures and analytical methods to measure the transportation system's connectivity to essential services and the use of this information to identify gaps in transportation system connectivity that preclude access to the public, including traditionally underserved populations.

Livability Principles and Indicators

Federal and state agencies use Performance Measures as a way of ensuring greater accountability for the expenditure of public funds in an increasing number of programs and activities across a variety of disciplines. Within the transportation sector and the planning processes associated with transportation infrastructure development, the Alabama Department of Transportation has adopted Livability Principles and Indicators as a sustainability measurement against future actions.

Livability Principles and Indicators are described in the narrative of various MPO adopted plans. The principles identified cannot be changed; however, Alabama MPOs are charged with determining which indicators best reflect their local conditions and needs, and can easily be monitored and presented in tabular, graphic, or mapping format. All planning tasks must be measured against these Livability Principles. The Huntsville Area MPO endeavors to incorporate livability principles into this plan by including bicycle and pedestrian facilities and coordinating with local governments/ jurisdictions on the impacts of proposed projects. The six livability principles established by the Partnership for Sustainable Communities identified in the Livability in Transportation Guidebook are displayed in Table 2.2.

1. **PROVIDE MORE TRANSPORTATION CHOICES** Develop safe, reliable and economical transportation choices to decrease household transportation costs, improve air quality, reduce greenhouse gas emissions and promote public health.	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.
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.	4. **SUPPORT EXISTING COMMUNITIES** Target existing communities through strategies such as transit-oriented, mixed-use development and land recycling-to increase community revitalization, improve the efficiency of public works investments, and safeguard rural landscapes.
5. **COORDINATE POLICIES & 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.	6. **VALUE COMMUNITIES AND NEIGHBORHOODS** Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods-rural, urban, or suburban.

Table 2.2: Livability Principles

Livability Indicators

The measurement of the sustainability of these Livability Principles are included below. These measurements were collected through the US Census Bureau and other sources. The future provision of this data is dependent upon these agencies and organizations. Graphic 2.3 shows the Livability Indicators that measure each of the Livability Principles.

1. PROVIDE MORE TRANSPORTATION CHOICES	*Source: Esri, 2024 Estimates*
Number of Housing Units Located Within 1/2 Mile of Transit Service Area • 60,888 (30% of total)	**60,888 Units: 1/2 Mile to Transit**
Total Number of Employees Located Within 1/2 Mile of Transit Service • 123,042 (48.1% of total)	**123,042 Employees: 1/2 Mile to Transit**
Total miles of alternative transportation routes currently built in MPO Area • Total multi-use paths: 11.25 miles • Total Greenways : 62.7 miles • Total Bike Lanes : 20.9 miles	**11.25 Miles Multi-Use Paths** **62.7 Miles Greenways** **20.9 Miles Bike Lanes**
2. PROMOTE EQUITABLE AND AFFORDABLE HOUSING	*Source: Housing & Transportation Affordability Index, Center for Neighborhood Technology*
Percent of Household Income Spent on Housing • 22%	**22% On Housing**
Percent of Household Income Spent on Transportation • 22%	**22% On Transportation**
3. PROMOTE EQUITABLE AND AFFORDABLE HOUSING	*Source: US Census Bureau, 2018-2022 American Community Survey, 5-Year Estimates*
Percent of Workforce With 29 Minute or Less Commute Time • 72.3%	**72.3% Commute < 29 Minutes**

Percent of Workforce With 30 Minute or More Commute Time • 27.7%	**27.7% Commute > 30 Minutes**
Note: Includes workers aged 16 and over who did not work at home within the MPO study area.	
4. SUPPORT EXISTING COMMUNITIES	
Number of projects contained in the current Transportation Improvement Program that enhance or support existing communities (non-roadway projects. There are 41 non-roadway projects in the current 2024-2027 TIP. There are nine (9) Transportation Alternatives projects, 30 transit projects, one RAISE/NAE project, and one (1) Carbon Reduction project.	**41 Non-Roadway Projects** **30 Transit Projects** **9 Transportation Alternatives Projects** **1 RAISE/NAE Project** **1 Carbon Reduction Project**
Percentage of current LRTP projects that contain bicycle and pedestrian elements, excluding transit projects • TBD bicycle and pedestrian projects listed in 2050 LRTP • TBD total projects listed in the 2050 LRTP • TBD% of projects in the current LRTP contain bike-pedestrian elements	**TBD Bike-Ped Projects** **TBD Total Projects**
5. COORDINATE POLICIES AND LEVERAGE INVESTMENTS	
Percent of Transportation Projects where more than one funding source is utilized. Considering local matches, local purchase or donation of right of way, and various state and local funding partnership programs (ATRIP, Restore our Roads), all projects (100%) in the TIP have multiple funding sources.	**100% Multiple Funding Sources**
Considering multiple federal funding sources for a single project, two projects in the TIP have multiple federal funding sources.	**2 Projects Multiple Federal Funding Sources**

List of policies and plans coordinated with MPO policies and plans: • 2050 LRTP • 2024-2027 TIP • 2018 Public Participation Plan • BIG Picture master plan for City of Huntsville • Huntsville International Airport Master Plan • Congestion Management Process • City of Madison 2040 Transportation Plan • 2015 Human Services Coordinated Transportation Plan • 2022 Huntsville Transit Improvement Plan • 2021 Regional Commuter Study • 2022 MPO High-Capacity Transit Corridor Study • 2025 MPO Bike Plan	**12** **Plans and Policy Documents Supporting TRiP2050**
6. VALUE COMMUNITIES AND NEIGHBORHOODS	*Source: Esri, 2024 Estimates*
Number of Housing Units Located Within 1/2 Mile of Transit Service Area • 60,888 (30% of total)	**60,888 Units: 1/2 Mile to Transit**
Total Number of Employees Located Within 1/2 Mile of Transit Service • 123,042 (48.1% of total)	**123,042 Employees: 1/2 Mile to Transit**
Housing Units Located 1/4 Mile from Major Retail Services • 8,871 (4.4% of total)	**8,871 Units: 1/4 Mile to Major Retail**
Housing Units Located 1/4 Mile from Recreational Facilities • 35,066 (20.1% of total)	**36,609 Units: 1/4 Mile to Recreation**

3. SOCIO-ECONOMIC CONTEXT & DEMOGRAPHICS

Introduction

Planning transportation facilities for urban areas requires research and analysis of population, economic activity, and land use. These elements are the basic determinants of travel. The future growth of travel demand in the Huntsville MPO Study Area is directly related to increases in residential, commercial and industrial construction.

For example, trips are produced from residential areas in proportion to the number of people, households, income and automobiles. Trips are attracted to various commercial and industrial locations for purposes such as work or shopping. Therefore, it is important to analyze the expected growth of land use activities to aid in the determination of future travel demands.

The Huntsville MPO Study Area projections for 2050 show major growth in both households and employment. Between 2020 and 2050 the population is expected to increase by 66 percent, the number of households will increase by 74 percent, and total employment will increase by 21 percent. The basis of this growth is the area's diversifying economy; low cost of living compared to peer regions around the country; and solid foundation in aerospace and defense technology.

Maps depicting households, income, employment, and school enrollment throughout the MPO study area are attached in Appendix A.

Employment

Employment in the Huntsville MPO Study Area is greatly supported by Redstone Arsenal. As of 2024, more than 45,000 employees worked on Redstone Arsenal. The Arsenal is a federal installation home to Department of Defense, National Aeronautics and Space Administration (NASA), and Department of Justice agencies.

Current organizations that have a significant presence at Redstone include the Army Materiel Command; Army Strategic Missile Defense Command; U.S. Army Aviation and Missile Command; Marshall Space Flight Center; Federal Bureau of Investigation; and Alcohol, Tobacco, Firearms and Explosives. Future rounds of Base Realignment and Closure (BRAC) will directly affect personnel on Redstone Arsenal, and these jobs will have indirect influence on employment in the study area for many years.

Cummings Research Park (CRP) is the center of private business activity in the Huntsville MPO Study Area. The park occupies over 3,800 acres. Redstone Gateway, located between CRP and Redstone Arsenal, has additional developable land available.

The study area also has eight industrial parks and one applied technology park, totaling over ten thousand acres. The two major parks are Jetplex, near the airport; and Chase, on US 72 East. North Huntsville Industrial Park has been experiencing significant growth over the past decade, including continued expansion of a Toyota engine plant; and new facilities for Aerojet Rocketdyne and Meta (Facebook).

Downtown Huntsville is another major employment center in the study area. Historically, downtown was a center for government, financial and medical services, but employment is increasing in the technology sector as well. The MPO anticipates continued growth in this area as more land is redeveloped into retail and office space.

The area with the most jobs growth since the last LRTP update has been Greenbrier in Southeast Limestone County. The anchor of this area is a joint Mazda-Toyota auto manufacturing facility, opened in 2021, that employs 4,000 workers as of 2024, with room to expand to over 6,000 at full capacity. Other companies with major operations in Greenbrier include Amazon, GE, Polaris, and Target. An MPO analysis of developable land in the area shows the potential for additional "Megasite" developments in Greenbrier, and jobs growth will continue through the TRiP 2050 planning period.

Another emerging industrial hub is in east Madison County, between Brownsboro and Gurley. Ample rail and highway access in this area makes it an attractive site for prospective employers. The MPO estimates this area could accommodate several thousand jobs by 2050.

Households

Households in the Huntsville MPO Study Area are expected to increase by 122,401 units by the year 2050. A strong economy with a low unemployment rate is anticipated to be the driving force behind residential development. Following national trends, a higher growth rate is anticipated in established urban neighborhoods than in years past, with an emphasis on multi-family development in these areas. Growth is expected in historically high-growth areas such as northwest Madison County, with significant growth also occurring in eastern Limestone County and northeast Madison County.

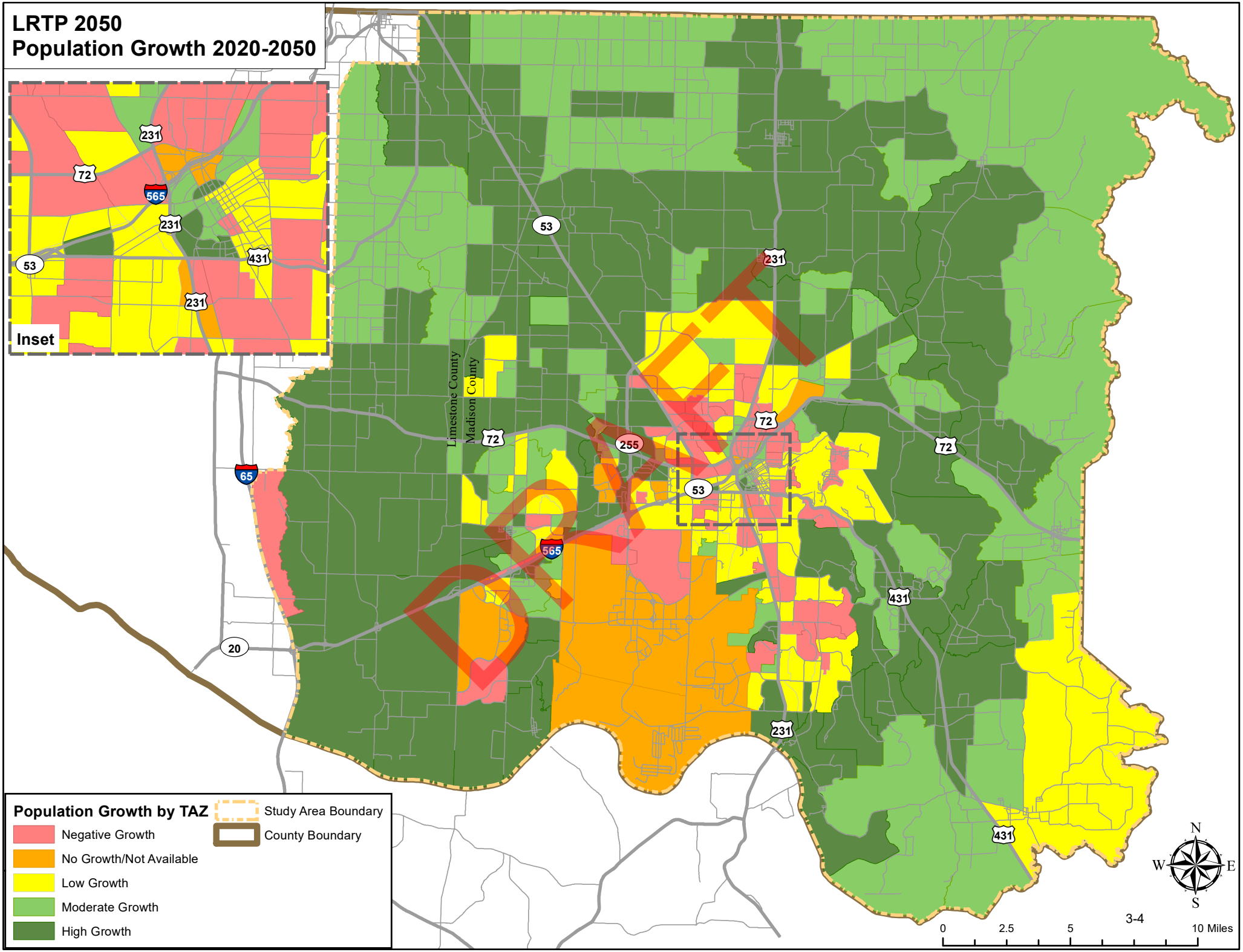
Projection Methods

Factors such as zoning, historical patterns, and professional judgment were used in projecting employment and occupied housing for the year 2050. The base year for the socioeconomic factors used in this model is 2021. Households, Income, Retail and Non-Retail Employment and School Enrollment data are all variables used in determining trip generation. Historical data from the Census Bureau and estimates from the MPO's Regional Development Review report were used to project population and household growth through 2050.

Employment estimates were determined by an analysis of business data collected by Data Axle in addition to MPO projections in future employment areas. Total employment is divided into retail and non-retail, determined by NAICS code. The TAZ level data was formatted for entry into Trip Generation software and is shown in map form in Appendix A.

SOCIO-ECONOMIC PROJECTIONS 2021 - 2050		
	2021	**2050**
Households	178,911	301,312
Retail Employment	45,437	57,886
Non - Retail Employment	190,751	224,694
School Enrollment	92,372	106,363
TAZ Level Median Income	$67,837	$91,340

Table 3.1: Growth Projections 2021- 2050

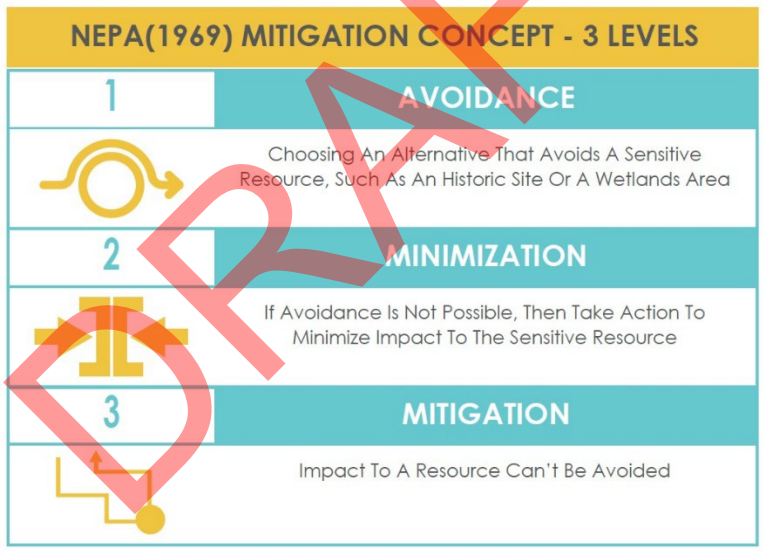

LRTP 2050
Population Growth 2020-2050
Inset
Limestone County
Madison County
Population Growth by TAZ
Negative Growth
No Growth/Not Available
Low Growth
Moderate Growth
High Growth
Study Area Boundary
County Boundary
N
W
E
S
0
2.5
5
10 Miles

4. ENVIRONMENTAL CONTEXT & LAND USE

IIJA/ BIL Act Requirements for Constitution and Environmental Mitigation

IIJA/BIL Act requires State Transportation Agencies to consult with other environmental agencies to eliminate or minimize conflicts with activities that could impact or be impacted by transportation.

Transportation decision makers must consider the potential environmental impacts associated with a LRTP or other plan updates, to mitigate those impacts. Locally, the actions to be taken concerning environmental mitigation and determining environmental impacts as related to the LRTP are discussed in the 2018 Public Participation Plan for Transportation Planning for the Huntsville Metropolitan Planning Area. Mitigation as defined by the National Environmental Policy Act of 1969 (NEPA) is a three-level concept as shown in Graphic 4.1.



Graphic 4.1: NEPA Mitigation Concept

Wetlands

Wetland impacts require avoidance, minimization, or mitigation. For these resources, the first attempt to avoid is by shifting alignments. When the wetlands are narrow (stream bank wetlands), the area may be avoided by spanning both the stream and the adjacent lands. That assumes a reasonable cost to avoid. Minimization may also be obtained by:

- Narrowing medians
- Constructing fill slopes as steep as warranted by geotechnical investigation
- Alignment shift that may not entirely miss the wetland, but lessen the impact
- Partial bridging

Minimization approaches are now expanding to include:

- Utilizing green infrastructure, like bio-swales, to manage stormwater and reduce encroachment into wetlands
- Avoidance of small wetlands by routing through corridors with permeable surfaces, which allows water flow to stay intact.

On-site mitigation efforts have seen success through the following:

- Reforestation and replanting of native vegetation species which are encouraged by Alabama's updated Wetland Mitigation Banking Program.
- More comprehensive wetland monitoring and adaptive management strategies that ensure long-term resilience.

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

Historic Properties

The National Historic Preservation Act emphasizes laws which require federal agencies to "stop, look, and listen" before making decisions that impact historic properties and the human environment. NHPA was signed into law in 1966, and Section 106 of the NHPA requires federal agencies to consider the effect of undertakings they carry out, license, approve, or fund on historic properties and provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment before making decisions.

Historic properties are protected by both Section 4(f) of the DOT Act of 1966 (as amended) and Section 106 of the Historic Preservation Act. The Huntsville Area MPO mandates detailed consideration of shifts to either side of each individual resource as well as all protected resources. The costs and impacts associated with these avoidance alternatives must be substantial before FHWA can agree to use the resource.

Examples for minimizing impacts to historic property can take the form of planting to screen the view of a modern facility, restoring a stone wall taken by the ROW, or moving a building that is historic for architectural reasons and restoring it in an appropriate location.

Resources for Consultation and Environmental Mitigation

Considerations of potential environmental impacts associated with transportation projects include but are not limited to the following resources/issues, listed in Graphic 4.2.

The primary contact for all the resources listed in Graphic 4.2 is ALDOT's Design Bureau Environmental Technical Section (ETS), not because it is a resource agency, as defined by federal regulations, but because it has multidisciplinary experts who can guide the MPO through the early identification of impacts in the initial project planning and development stage. The sooner a potential environmental impact is identified, the more likely it can be avoided, minimized, or mitigated. Early coordination with the ETS can ensure timely consultation with all potentially affected stakeholders and compliance with NEPA provisions and its enforcing regulations.

RESOURCES FOR CONSULTATION & ENVIRONMENTAL MITIGATION	
RESOURCE	IMPORTANCE
1 HAZMAT SITES	Health hazards, costs, delays, liability for both State and federal projects on either existing or acquired right-of-way
2 AIR QUALITY	Public health, welfare, productivity, and the environment are degraded by air pollution
3 NOISE	Noise can irritate, interrupt, and disrupt, as well as generally diminish the quality of life
4 WETLANDS	Flood control, wildlife habitat, water purification; applies to both State and federally funded projects
5 THREATENED & ENDANGERED SPECIES	Loss of species can damage or destroy ecosystems, to include the human food chain
6 FLOODPLAINS	Encroaching on or changing the natural floodplain of a water course can result in catastrophic flooding of developed areas
7 FARMLANDS	Insure conversion compatibility with State and local farmland programs and policies
8 RECREATION AREAS	Quality of life; neighborhood cohesion
9 HISTORIC STRUCTURES	Quality of life; preservation of the national heritage
10 ARCHAEOLOGICAL SITES	Quality of life; preservation of national and Native American heritage
11 ENVIRONMENTAL JUSTICE	To avoid, minimize, or mitigate disproportionately high impacts on minorities and low-income populations; basic American fairness

Table 4.2: Resources for Consultation & Environmental Mitigation

Environmental Factors and Land Use

An overview of environmental factors and land use must be conducted to determine the viability of proposed projects. To assess the impact of the planned transportation improvements in the area, the following environmental/land use factors were considered as listed below:

1. Air Quality
2. Cemeteries/ Historic Properties
3. Protected Lands/ Champion Trees
4. Parks & Recreation
5. Topography
6. Floodplains
7. Wetlands
8. Other

Air Quality

The Huntsville Urban Area is presently classified as an attainment area for all criteria pollutants (pollutants for which EPA has promulgated National Ambient Air Quality Standards (NAAQS) under the Clean Air Act). The most recent revision to the NAAQS for ground level ozone was promulgated in 2015 and lowered the standard from 0.075 ppm (parts per million) to 0.070 ppm.

The 2015 Air Quality Report published by the City of Huntsville's Department of Natural Resources and Environmental Management indicates that over 70% of the ozone precursor emissions (78% oxides of nitrogen and 21%

volatile organic compounds) in the area comes from mobile sources. While substantial reductions in emissions from individual vehicles have occurred due to Federal limitations on fuel volatility and national tailpipe emissions standards, increases in VMT (Vehicle Miles Traveled) have partially offset these reductions.

The standard for these pollutants is reviewed from time to time, though it is not currently under review. The 2019 Air Quality Report was published in late 2020.

Transportation Conformity

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

Transportation Conformity processes under the FAST Act have evolved to include greater focus on equity and environmental justice. The updated transportation policy integrates:

- Considerations for disadvantaged communities and vulnerable populations in air quality analysis.
- Enhanced monitoring of particulate matter (PM2.5 and PM10) emissions in line with the 2023 EPA guidelines.

The conformity process in non-attainment areas now prioritizes projects that explicitly address:

- Zero-emission vehicles (ZEV) and the creation of charging infrastructure.
- Complete streets initiatives that enhance pedestrian, bike, and multimodal travel options, contributing to lower vehicle miles traveled (VMT).

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

CMAQ Funds

The Congestion Mitigation and Air Quality (CMAQ) Program (formerly known as Congestion Management and Air Quality) was reauthorized in Investment and Jobs Act (IIJA) has seen increased funding allocations. The primary purpose of the CMAQ is to fund transportation projects and programs in non-attainment and maintenance areas which reduce transportation-related emissions. Over $2.2 billion dollars per year are authorized nationwide for the program. The CMAQ is now focused on:

- Supporting the transition to electric and alternative fuel vehicles with significant funds earmarked for electric buses and charging stations.
- Expanding transit-oriented development (TOD) and enhancing first/last-mile connectivity to reduce reliance on single-occupancy vehicles.

Updated programs also place a larger emphasis on:

- Micro-mobility solutions (e-bikes, scooters) for short trips.
- Enhanced monitoring of traffic and air quality using smart infrastructure for real-time data collection.

Cemeteries/Historic Properties

Cemeteries (public and private) were located using information from United States Geological Survey (USGS) Quad Maps and from a cemetery inventory map. Historic properties are properties listed on or eligible for the National Register of Historic Places, and/or are designated as National Historic Landmarks and/or in a Locally Designated Historic District. This information is kept on file in the City of Huntsville GIS office; however, information concerning eligible properties must be determined by field investigations conducted by qualified personnel.

Potentially Protected and Protected Lands/Champion Trees

Potentially Protected and Protected Lands are from an inventory of properties that have been acquired by or have been designated as having the potential to be acquired by the non-profit Land Trust of North Alabama. Champion Trees are those trees that are of state and/or national significance due to their outstanding size. This information is available from the Alabama Forestry Commission. With growing emphasis on climate resilience, protected lands and champion trees have taken on added significance in long-range planning.

These areas are now key in climate action planning, with stronger incentives for expanding conservation efforts. Recommendations include:

- Partnering with land trusts to incorporate more resilient landscapes into urban planning.
- Establishing urban greenways and expanding tree canopy protections, which are supported by new urban forestry initiatives in Alabama. Champion trees are now protected under both state and federal programs, with stricter criteria for development around these significant natural assets.

Parks and Recreation/Landfills

The parks and recreation facilities inventoried include the City of Huntsville neighborhood and community park and recreation facilities as well as Madison County Park and recreation facilities. Parks and recreational facilities now serve dual purposes for public health and climate adaptation. The push for more green space in urban settings post-COVID-19 has led to recommendations for expanding parks, ensuring equitable access, and using parks as spaces for stormwater management and carbon sequestration. Key updates include:

- Increased use of closed landfills as potential sites for solar energy generation and green infrastructure projects.
- Greater integration of recreational trails into greenways to support multimodal transportation options.

Other

The locations of utility delivery points, universities, public properties, industrial parks, hospitals, water treatment plants, sewage treatment plants, and Redstone Arsenal facilities are found in this category. *Note: Information for environmental factors Topography, Floodplains, Wetlands and Other is kept on file in the City of Huntsville GIS office.*

Environmental Mitigation and Climate Change

An overview of environmental factors and land use must be conducted to determine the viability of proposed projects. To assess the impact of the planned transportation improvements in the area, the following environmental/land use factors were considered as listed below:

Local Assessment

All corridors identified for improvement have been analyzed for environmental concerns, so that mitigation activities can be considered during the planning phase. Discussions are also held with other agencies as applicable to determine any environmental concerns regarding the overall proposed plan network. It is hoped that through close coordination with the appropriate entities, that creative environmental mitigation strategies may be developed prior to the project design phase.

The aggressive screening of projects, attached in Appendix B, can lead to various mitigation strategies that may achieve a balance between economic concerns and environmental stewardship. While a more detailed study, such as the Environmental Assessment, is required once a project is selected for design and construction, the overview presented in this plan provides a brief synopsis of preliminary findings.

5. ROADWAY & TRAFFIC FORECASTS

The Modeling Process

The predictability of future traffic flow is complex and is best determined by a technique known as travel demand modeling or transportation modeling. Transportation models attempt to develop reliable mathematical relationships between socioeconomic data (number of households, household size and income, number of automobiles owned or available, school enrollment, number of people employed and the type of their employment) and trip-making. By manipulating these relationships and comparing predicted trips with known (or estimated) trip patterns, an accurate method for predicting future travel demand can be developed.

The modeling process consists of four steps: (1) trip generation, (2) trip distribution, (3) mode split, and (4) trip assignment. Each of these segments is explained in detail later except for mode-split, which is not taken into consideration in most Alabama models. The overall accuracy of this model depends on the accuracy of trip generation (how well the model estimates the number and kinds of trips made in the area, both regionally and locally). Also, model results can be affected by the accuracy of trip distribution (how well the actual trip lengths compare to the model estimates and are actual, well-duplicated trip patterns). The level of accuracy, in turn, is dependent on the quality of the input of data, the relationships developed from that data, and how the model assigns the estimated trips to the road system.

Network Development

A network is made up of zones representing trip-ends, nodes representing intersections, and links representing roadways. The trips to and from zones enter the road system through nodes, which are connected by links. A set of links connecting any two zones is called a path, and a trip will always be assigned to the path with the lowest cost (measured as time or distance). However, depending on how much traffic is already on a street (path), the individual link costs, reflected by speed, are altered; therefore, paths can change. The relationship of speed and traffic volume is a function of capacity.

Roadway Capacity

The capacity of a road is usually determined by the capacity of its intersections and can be expressed as the capacity of each of the intersection approaches, or links. This capacity depends on numerous factors, among them the number of through lanes, number of turn lanes, lane width, peaking characteristics, and signalization. Of these factors, several are categorized as physical characteristics, others as operating characteristics. Models normally group links by both their physical and operating characteristics.

Roadway Classification

Different types of streets provide different types of service. This is determined by FHWA's hierarchy of streets and roads classified by the type of service provided and referred to as Functional Classification. Generally, roads within each functional class will exhibit similar operating characteristics, which will, in turn, vary between classifications. Since operating characteristics will, to a large degree, determine roadway capacity, it is extremely important that links are correctly classified in any travel model.

The principal use of functional classification in modeling is to stratify roads throughout a system by primary purpose, thus allowing the development of a single set of general values to describe the operating characteristics of all roads of a given type.

Two of the most important of these characteristics are speed and capacity - and the relationship between the two. Since most traffic assignment models operate on the premise that as traffic volumes approach capacity, speed decreases, the model will adjust link speed in some predetermined manner based on the relationship between a given load and coded capacity. This speed adjustment will affect the paths taken between zones.

Network Speed

For the model to successfully replicate actual trip patterns, the speeds coded in the model network must have some relationship to reality. When testing future networks, however, speeds will need to be coded for roads that are not yet constructed, so the coding criteria must also be defined by some tangible characteristic that can be applied in a uniform manner. Therefore, link speeds are determined by either the physical features of the road and its surroundings (such as number of lanes, its physical design characteristics, or the type of adjacent development), the road's functional classification (operational characteristics), or a combination of the two.

The number of lanes is the dominant factor in determining free speeds for arterials and collectors, but all else being equal, principal arterials are usually coded faster than lower-level arterials.

Level of Service

The Level of Service (LOS) concept is used to define the operational characteristics of roads at various traffic volumes. LOS can be used to establish the most severe conditions acceptable to the public. This is not to say or imply that the limits of acceptability are desirable - but simply tolerable. Levels-of-service range from A through F, with A being the best (least amount of traffic) and F being the worst (exceeding capacity/ unstable flow).

Travel Demand Model Overview

The Huntsville Area MPO model was previously validated to base year 2015 conditions for the 2045 LRTP Update. For the 2050 LRTP Update, the demand side of the model was updated with demographic estimates for a new base year of 2021 and a horizon year of 2050. The base year was originally scheduled to be 2020, due to the release of Census data from that year. However, the MPO chose 2021 as a base year for this update due to the abnormal impacts of COVID in 2020 on travel patterns and employment. The supply side of the model was updated with highway network characteristics separately representing base year 2021 and existing-plus-committed (E+C) conditions. The 2021 network reflects all roadway projects completed between 2015 and 2021 while the E+C ("no-build") network reflects projects constructed or authorized since 2021.

The 2021/2050 model was streamlined from the previous 2015/2045 model structure. An all-new network was created in preparation for the transition to new modeling software (TransCAD), and several unnecessary and/or duplicate attributes (remnants from previous modeling software) were removed. Street names were added, making it easier to select and edit segments along individual roads. A binary Arsenal attribute was added in preparation for further calibration of volumes along road segments within the restricted military base.

In the absence of a local travel survey, the 2021/2050 model continues to use transferable model parameters and benchmark statistics from the report NCHRP 716 "Travel Demand Forecasting: Parameters and Techniques."

Existing Conditions including Levels of Service (or "Congestion")

In addition to available 2021 traffic counts from ALDOT and local jurisdictions, the Huntsville Area MPO travel demand model was validated to represent conditions for the base year. While traffic volumes from the base year model are not a replacement for valid traffic counts, the model is the basis for system level comparisons between recent and future year 2050 conditions.

Trip Generation

Trip production rates for the Huntsville 2021 and 2050 models were derived from NCHRP 716 and adjusted to reflect local data on household income and household size, along with NCHRP benchmark statistics on percent trips by purpose and auto availability data summarized by NCHRP for the study area. Trip attraction rates were derived from NCHRP 716 as well. Table 5.1 provides a comparison of person and vehicle trips by purpose for the years 2021 and 2050.

Person trips are converted to vehicle trips in the updated model using auto occupancy factors from NCHRP 716.

Trip Purpose	Person Trips		Vehicle Trips	
Scenario Year	2021	2050	2021	2050
Home Based Work	328,186	563,141	298,321	511,895
Home Based Other	911,622	1,564,300	529,652	908,858
Non-Home Based	583,432	1,001,151	351,226	602,692
Trucks	91,155	156,425	91,155	156,425
Internal - External Trips	181,350	293,700	181,350	293,700
External - External Trips	9,576	15,060	9,576	15,060
TOTAL	2,105,321	3,593,777	1,461,280	2,488,630

Table 5.1: Trip Generation

Network Analysis

A total of 11 base year model runs were executed, iteratively adjusting model assumptions and continuously refining network accuracy, to achieve reasonable average trip lengths and match available traffic counts for the base year 2021. Average trip lengths are close to NCHRP 716 targets for home-based work, home-based other, and non-home based. The ratio of 2021 model volumes over counts were within 10 percent for all functional classifications, while the root mean square error was between 11 percent (for Interstates) and 70 percent (for collectors), well within FHWA targets for all classifications.

Volume-Over-Capacity

Volume-over-capacity (V/C) ratios were compared among four different modeling scenarios:

1. Base year 2021
2. Year 2050 Existing Plus Committed (E+C)
3. Year 2050 Financially Constrained (FC) Plan
4. Year 2050 Visionary Plan (VP)

Functionally classified V/C ratio plots were generated for each scenario and total V/C was tracked and graphed. These summaries show that V/C increases from 2021 (0.43) to 2050 E+C (0.72) and then decreases from the E+C network run to the FC (0.69) and VP (0.60) scenarios that include additional roadway capacity projects.

Future Congestion

As expected, congestion will continue to increase without additional roadway capacity in the future. Average travel speeds during peak periods of congestion will decrease from 32.3 MPH in 2021 to 26.4 MPH in 2050 using the E+C network.

The 2050 FC plan works to increase congested speeds back up to 27.3 MPH while the 2050 Visionary scenarios show speeds further increasing to 30.6 MPH. Other measures of congestion tracked included vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT).

VMT represents the total number of miles vehicles that will travel during a given scenario while VHT measures the amount of travel time that vehicles will spend on area roadways. VMT is projected to increase from 12.6 million in 2021 to 21.7 million in 2050 under E+C conditions. VHT is forecast to increase from ~431,000 in 2021 to 1,036,287 for the 2050 E+C scenario and then decreases to 986 thousand under the FC Plan and 866 thousand with the Visionary network, which includes the greatest amount of roadway capacity of the four scenarios.

	2021 Base	2050 E+C	2050 FC
Vehicle Miles Traveled (VMT)	12,631,188	21,714,984	21,761,613
Vehicle Hours Traveled (VHT)	430,613	1,036,287	986,366
Congested Speed (MPH)	32.3	26.4	27.3

Table 5.2: Modeled Congestion

Future Needs Assessment (identifies specific needed projects)

V/C plots were reviewed for each scenario to identify the most congested roadway segments in the MPO study area. Potential solutions were identified and added to subsequent network scenarios.

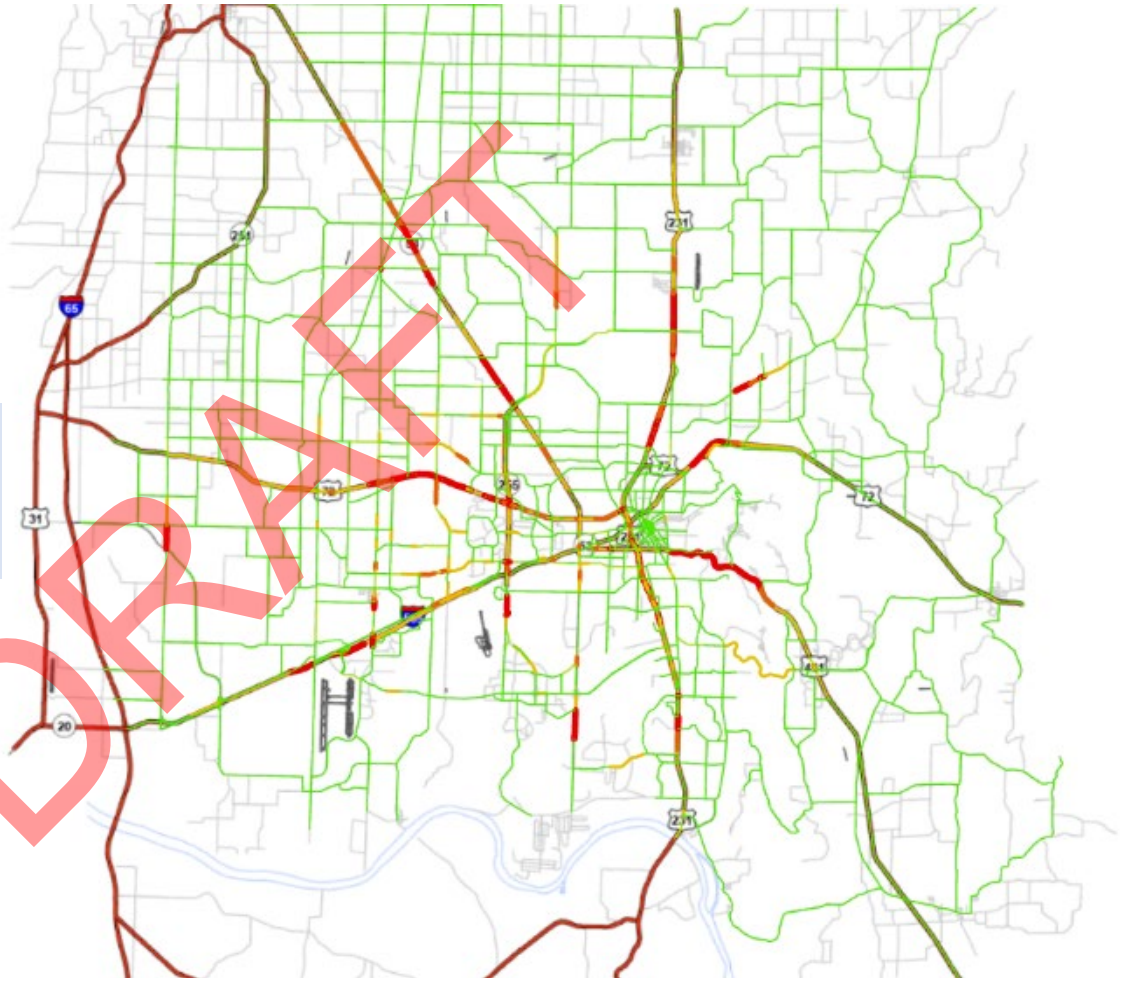
Transportation Network Evaluation

- Completed Transportation Projects since the last LRTP update vs. future traffic projections (2021 Baseline)
- "No Build" future scenario (completed and authorized projects through March 2025- 2050 E+C)
- 2050 traffic demands vs. Financially Constrained Projects (projects currently funded within 2050 Plan- 2050 FC)
- Identifying Visionary Projects through data driven System Modeling (necessary future projects outside of current funding plan- 2050 Visionary)

The following maps show the volume-over-capacity (V/C) ratio for all modeled roads in the Huntsville MPO travel demand model. Green indicates roads with little to no modeled daily congestion, while segments highlighted in red indicate chronic congestion issues.

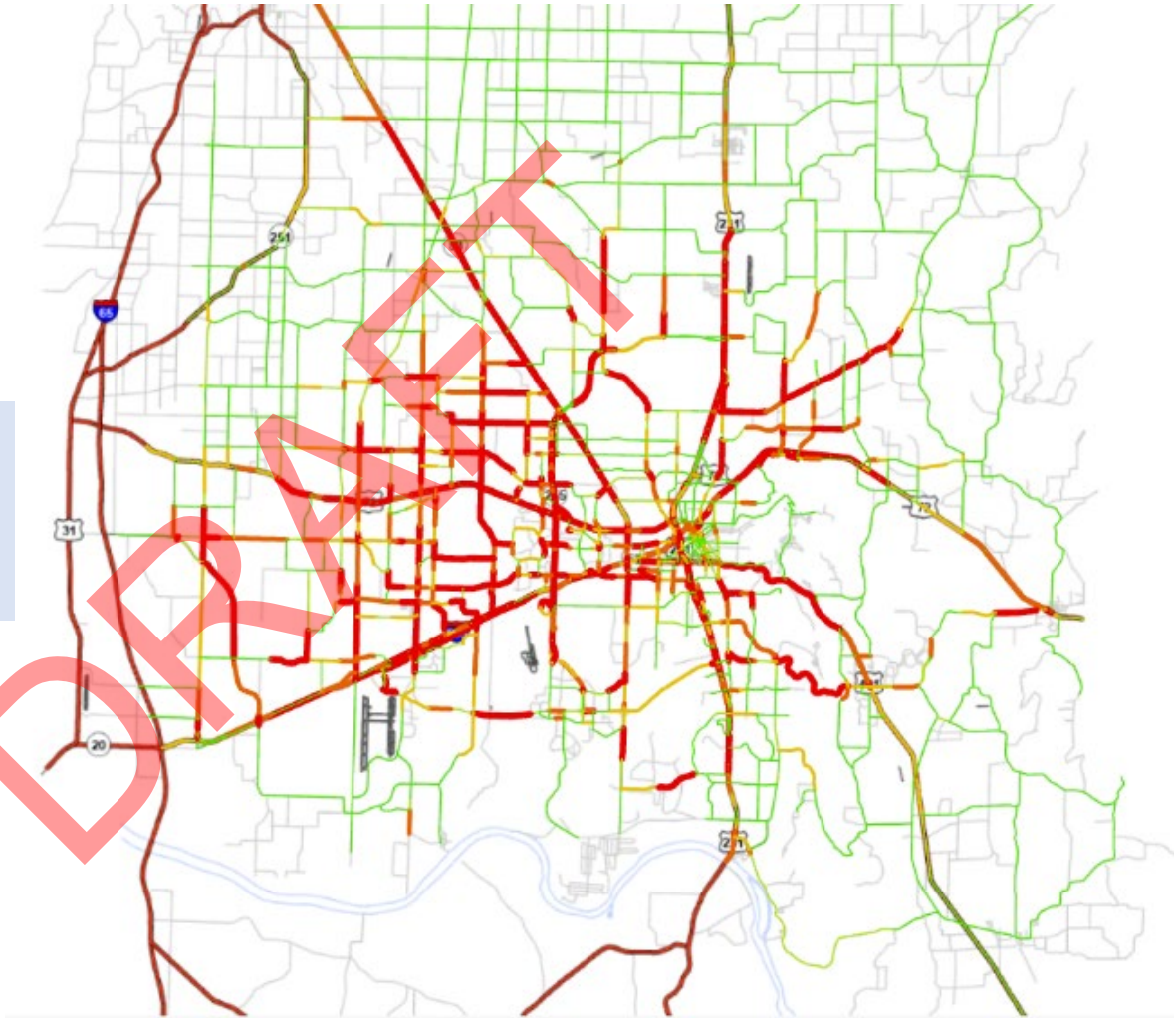
2021 Base Year Scenario

Includes all transportation projects completed to 2021.



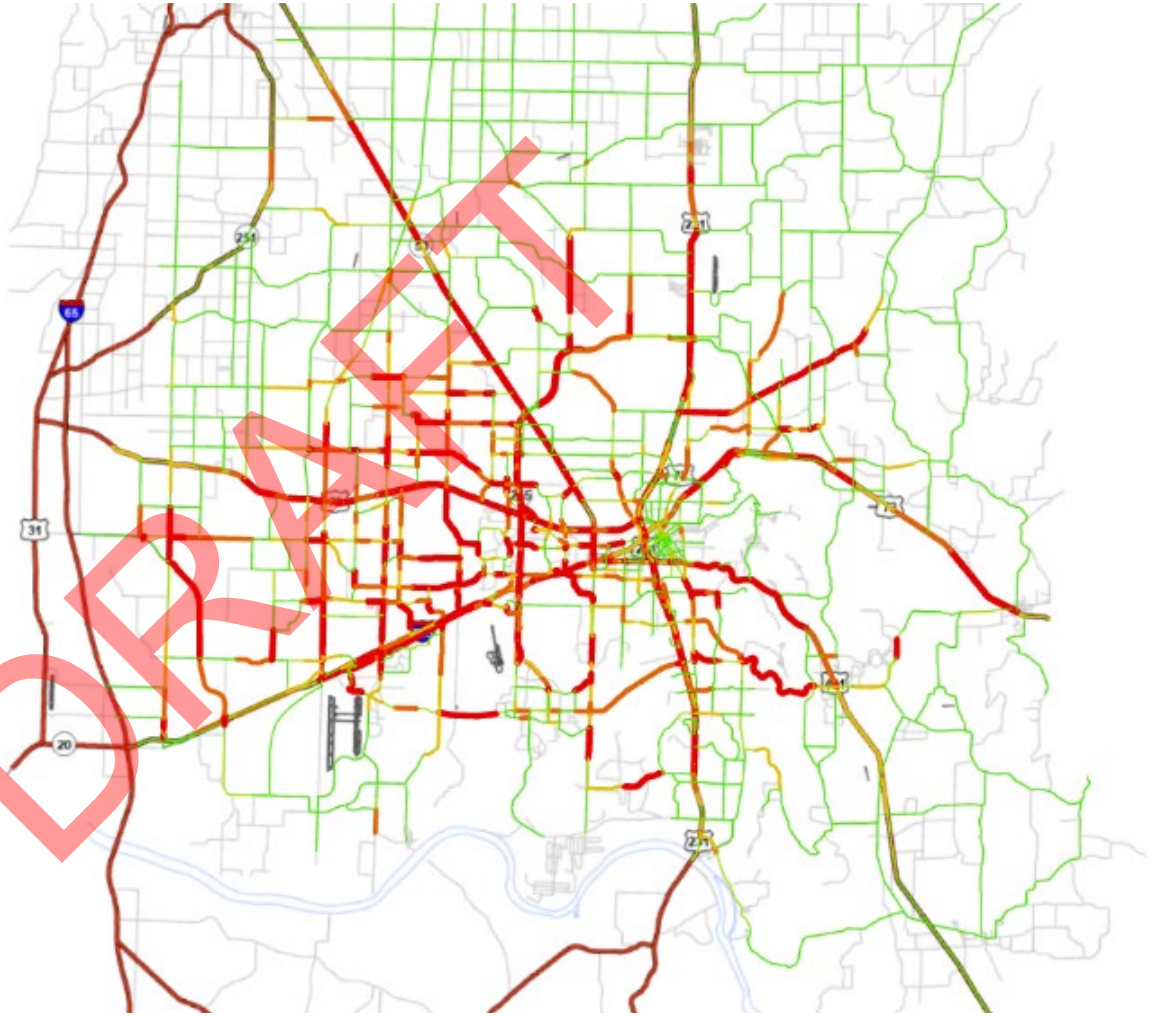
2050 Existing Plus Committed (E+C) Scenario

Includes all transportation projects completed or authorized by 2025.



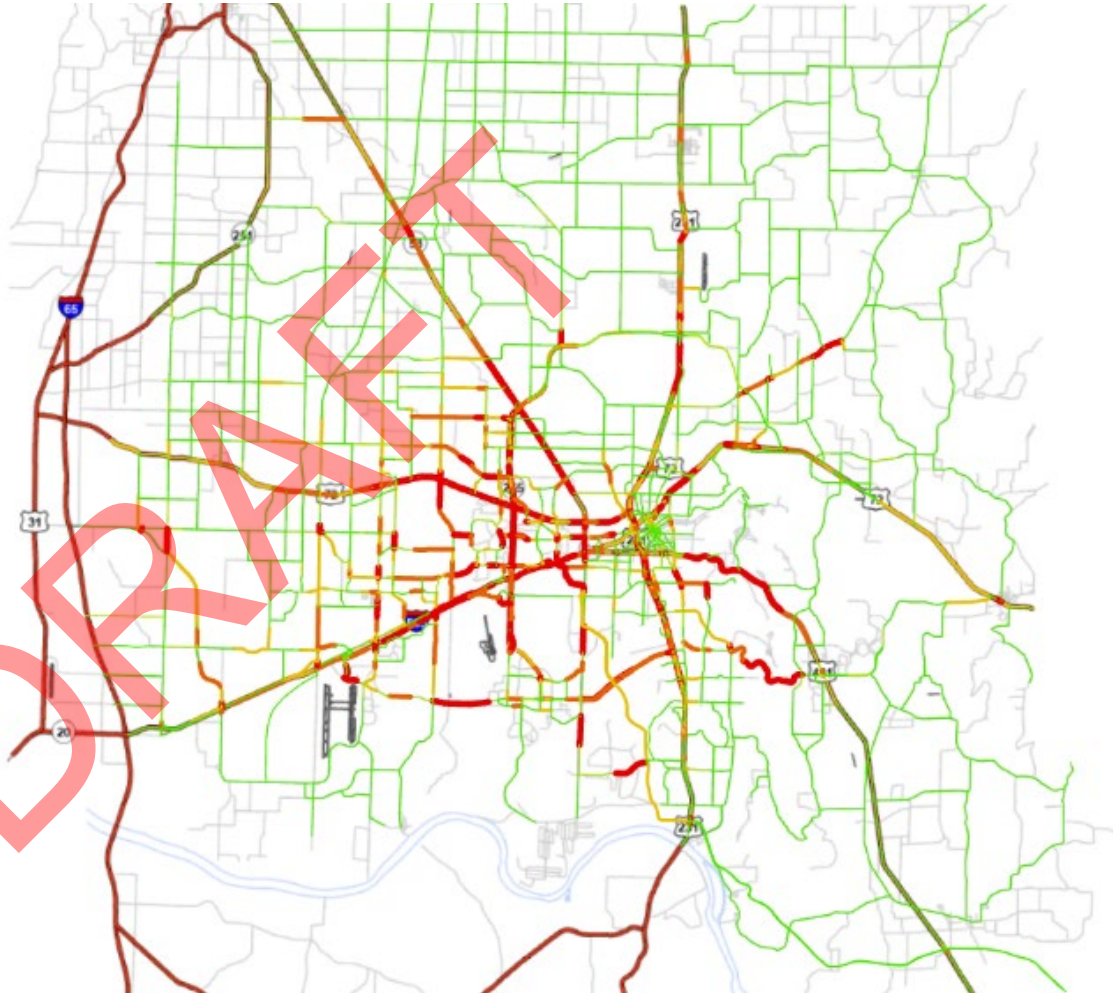
2050 Fiscally Constrained (FC) Scenario

Includes E+C projects, plus all transportation projects with financial commitment between 2025-2050



2050 Visionary (VP) Scenario

Includes E+C and FC projects, plus all unfunded transportation projects and funded projects scheduled beyond 2050



Future Needs Assessment

Project Selection and Prioritization

The comprehensive project list was generated by projects listed in the current 2045 LRTP visionary, FY 2024-2027 TIP, MPO member jurisdictions' capital improvements lists, and MPO model forecasted congestion for the year 2050. The Existing Plus Committed (E+C) list are projects either completed, under construction, or authorized at the time of plan adoption.

The same procedure was followed for the financially constrained list, as these are funded projects with assigned funding from some source (local, state, or federal) inside of the planning year 2050. The model was used to output V/C ratios for all projects and then sorted by both roadway functional class and V/C ratio to produce a ranked, and modeled, prioritization of visionary (unfunded) projects.

Two primary tools were used by MPO member jurisdictions and MPO staff to develop a list of prioritized projects for the 2050 LRTP. These tools and their use in developing project lists are outlined below.

1. **Comprehensive Project Management System (CPMS)**
   - Anticipated federal funds for the next 25 years have been allocated during prior long-range planning efforts in the ALDOT CPMS.
   - These existing CPMS allocations were examined by jurisdictional leadership.
   - Each jurisdiction presented a list of projects important to their jurisdiction.
     - These lists were derived from prior project lists in prior plans as well as new projects envisioned since the last long-range planning process.
     - New projects were added based on new developments, anticipated land use changes, or anticipated population and job growth.

2. **Travel Demand Model**
   - The travel demand model is a complex algorithm-based software program which forecasts road congestion for MPOs.
   - ALDOT and the Huntsville Area MPO use a travel demand model developed by Caliper Corporation (TransCAD).
   - Demographics professionals and travel demand modelers conducted the network development described in "The Modeling Process" earlier in Chapter 5.

- The results of the modeling process are presented to the MPO's Technical Coordinating Committee (TCC) with the Existing Plus Committed (E+C) congestion projects for 2050, as well as volume-over-capacity (V/C) ratios projects for different scenarios, as described above in "Travel Demand Model Overview".

Analyses of Obstacles, Land-Use, and Environmental Factors

Adding capacity is not feasible on every roadway segment where the travel demand model projects future congestion issues. This is due to external factors such as surrounding land use or topography. On these corridors, the Huntsville Area MPO recommends improvements in technology (TSMO); emergency response (roadside assistance patrols); and improvements in carpooling and transit service to alleviate and/or provide alternatives to congestion.

Decision Making Process

The following decision-making process occurred after the above tools and analyses were performed:

1. Lists of congested roadways were based on the model's results for the financially constrained (FC) scenario and compared to the jurisdictions' lists of projects to check for overlap and offer the jurisdictions an opportunity to reprioritize based on the model results.

2. The Technical Coordinating Committee (TCC) of the Huntsville Area MPO met multiple times to review the project lists. The TCC made recommendations and edits to the proposed lists.

3. MPO Staff prioritized projects currently scheduled to be funded beyond 2050 on the project lists.

4. Jurisdictional leadership met and discussed the TCC's recommendations, the model's results, and the demands of the region's development to formalize the project prioritization list developed by CPMS, the travel demand model, the individual jurisdictions, and the TCC.

Project Lists

Top ranked Visionary projects based on all the above factors and calculations are listed in this chapter by functional classification of the roadway. All other visionary projects (including new roads, which are not ranked) can be found in Appendix J. Projects included in the Existing plus Committed and Financially Constrained scenarios are listed and mapped in Chapter 9: Financial Plan.

TOP VISIONARY PRIORITY PROJECTS: INTERSTATES/EXPRESSWAYS				
Road	**From**	**To**	**CMP Priority Corridor?**	**Project Description**
AL Hwy 255	US Hwy 72		Yes	Interchange modification
I-565	Wall-Triana Hwy	Resolute Way	Yes	Additional Lanes
AL Hwy 255	I-565		Yes	Interchange modification
I-565	County Line Rd.	Wall-Triana Hwy	Yes	Additional Lanes
AL Hwy 255	US Hwy 72	AL Hwy 255	Yes	Additional Lanes
I-65	Martin Lime Rd.		No	New Interchange
I-65	Garrett Rd.		No	New Interchange

Table 5.3: Top Visionary Projects- Interstates/Expressways

TOP VISIONARY PRIORITY PROJECTS: MAJOR ARTERIALS				
Road	**From**	**To**	**CMP Priority Corridor?**	**Project Description**
US Hwy 72 (ADC Corridor V)	Maysville Rd.	Shields Rd	Yes	New overpasses at Moores Mill and Shields
US Hwy 72 (ADC Corridor V)	Shields Rd.	Dug Hill Rd	Yes	Freeway upgrade
AL Hwy 53	Old Railroad Bed Rd.	Pinedale Ln	Yes	Additional Lanes
US Hwy 231/431	AL Hwy 255		Yes	New interchange
US Hwy 231/431	Hollow Rd.	Patterson Ln	Yes	Additional Lanes, access management
US Hwy 231/431	Meridianville Bottom Rd		Yes	New interchange, service roads
AL Hwy 53	AL Hwy 255	Harvest Rd.	Yes	Additional Lanes
US Hwy 231	Meadowbrook Dr	Mountain Gap Rd	No	New Interchanges, service roads
US Hwy 72	County Line Rd	Holladay Blvd	No	Additional Lanes
US Hwy 72 (ADC Corridor V)	Northern Bypass		Yes	New interchange
US Hwy 72 (ADC Corridor V)	Eastern Bypass		No	New interchange
US Hwy 72 (ADC Corridor V)	Jordan Rd.		Yes	New interchange
AL Hwy 255	AL Hwy 53	Pulaski Pk	No	Mainline extension; interchange at Pulaski
US Hwy 231/431	Patterson Ln		Yes	New interchange, service roads
US Hwy 72 (ADC Corridor V)	Industrial access		No	New interchange

Table 5.4: Top Visionary Projects- Major Arterials

TOP VISIONARY PRIORITY PROJECTS: MINOR ARTERIALS			
Road	**From**	**To**	**Project Description**
Wall-Triana Hwy	Interpro Dr	Madison Blvd	Additional Lanes
Slaughter Rd	Farrow Ln	US Hwy 72	Additional Lanes
Greenbrier Pky	I-565	Hwy 20	Additional Lanes
Pulaski Pk	Prosperity Dr	Patterson Ln	Additional Lanes
Wall-Triana Hwy	McCrary Rd	Pine Grove Rd	Additional Lanes
Slaughter Rd	RR Tracks	Old Madison Pk	Additional Lanes
Whitesburg Dr	Martin Rd	Four Mile Post Rd	Additional Lanes
Wall-Triana Hwy	Browns Ferry Rd	Gooch Ln	Additional Lanes
Slaughter Rd	Old Madison Pk	Farrow Ln	Additional Lanes
Mooresville Rd	I-565	Old Hwy. 20	Additional Lanes
Hughes Rd	Millsford Dr	Brogan Dr	Additional Lanes
Huntsville-Brownsferry Rd	County Line Rd	Bowers Rd	Additional Lanes
Madison Blvd	I-565 (Exit 13)	County Line Rd	Additional Lanes
Old RR Bed Rd	US Hwy 72	Capshaw Rd	Additional Lanes
Pulaski Pk	Grimwood Rd	Morris Rd	Additional Lanes

Table 5.5: Top Visionary Projects- Minor Arterials

TOP VISIONARY PRIORITY PROJECTS: COLLECTORS			
Road	**From**	**To**	**Project Description**
Segers Rd	Old Hwy. 20	Hardiman Rd	Additional Lanes
Oakwood Rd	Adventist Blvd	AL Hwy 255	Additional Lanes
Old Madison Pk	Slaughter Rd	Hughes Rd	Additional Lanes
Mount Zion Rd	Nance Rd	Jeff Rd	Additional Lanes
Eastview Dr	Slaughter Rd	Hughes Rd	Additional Lanes
Four Mile Post Rd	Whitesburg Dr	Cadillac Dr	Additional Lanes
Capshaw Rd	Jeff Rd	Wall-Triana Hwy	Additional Lanes
Old Monrovia Rd	Claude Cir	Oakwood Rd	Additional Lanes
Plummer Rd	Jordan Ln	Indian Creek Rd	Additional Lanes
Hardiman Rd	County Line Rd	Madison Branch Blvd	Additional Lanes
Capshaw Rd	Old RR Bed Rd	Sanderson Rd	Additional Lanes
Capshaw Rd	Wall-Triana Hwy	Old RR Bed Rd	Additional Lanes
Moores Mill Rd	Winchester Rd	Countess Rd	Additional Lanes
Shelton Rd	Madison Blvd	Shelton Rd. Ext	Additional Lanes
Mill Rd	Hughes Rd	County Line Rd	Additional Lanes

Table 5.6: Top Visionary Projects- Collectors

6. MULTI-MODAL INFRASTRUCTURE

Defining Multi-Modal

Multimodal access accommodates the many ways users get to and from a public transportation stop to access a public transportation service. For transportation planners, an "Alternative Mode" is a mode of transportation other than a motor vehicle. This includes walking, cycling, running, jogging, and using mobility aids such as wheelchairs and walkers. Some motorized alternative modes, such as scooters, electric bicycles, and motorized mobility aids also require alternative mode infrastructure. The term "Multi-Modal" includes all alternative modes, as well as individual motor vehicles, freight trucks, buses, carpools, vanpools, autonomous vehicles, trains, planes, boats, and barges. This chapter specifically addresses Alternative Modes and Public Transit modes; the Freight chapter covers trucks, trains, planes, boats, and barges.

Benefits of Investing in Alternative Modes and Public Transit

The Huntsville Area MPO and its member jurisdictions invest in alternative modes and public transportation infrastructure to improve traffic safety, transportation choice, quality of life, and recreation opportunities for every resident of the MPO Area. Linking these investments to create an integrated regional network of multi-modal transportation options is an ongoing goal for the Huntsville Area MPO. Some of these benefits include:

- **Traffic Safety**
  To improve the safety of our streets for all users, MPO member jurisdictions build sidewalks, ramps, crosswalks, pedestrian signals, bike routes and bike lanes. These infrastructure improvements reduce casualties and fatalities for pedestrians, cyclists, and people with disabilities.
- **Transportation Choice**
  Public transportation provides mode choice for everyone and necessary transportation for those who cannot drive or reach critical destinations by any other means.
- **Quality of Life and Recreation**
  Alternative modes are often a form of recreation. Investment in greenways, trails, and cycle tracks is a quality-of-life improvement for the MPO Area.

Building the Network

The goal of transportation infrastructure is to provide connectivity from point A to point B by the most efficient and safest route possible. Users of public transit and alternative modes require this same connectivity to travel safely from home to work, school, medical appointments, and shopping as those traveling by individual motor vehicles. Planners use phrases like "the sidewalk network" or "the greenway network" to describe a safe, connected network for alternative modes throughout the city. Beyond serving riders who need to take public transportation, transit planners endeavor to make the public transportation network a viable regional commuting alternative to driving for those who choose not to drive.

Ideally, where every bike lane ends, a greenway or multi-use path would begin; every street would have sidewalks on both sides; and every sidewalk would have ADA compliant ramps at all crossings. Every bus stop would be connected to walkable, bikeable, and accessible infrastructure to get all transit riders safely from the bus to their destinations. The Huntsville Area MPO is continually working toward these ideals. The FHWA and FTA have set multi-modal priorities and funding opportunities to support MPOs in the growth of their alternative modes and public transportation networks.

Regional Transit Goals

The regional transit goals were divided into short term (2025-2029); mid-term (2030-2040); and long term (2040-2050) goals:

Short Term: 2025-2029

- The University-Medical Bus Rapid Transit (BRT) will begin operation.
- New bus service from Downtown to Jetplex and Greenbrier to begin service.
- Bus transport to and from Huntsville International Airport is established.
- Huntsville Transit will undergo a new 5-year implementation plan.
- Huntsville Transit will begin Phase 2 of its Downtown Transfer Center expansion.
- Huntsville Transit will continue replacing smaller, older buses and adding larger 40' buses for Orbit service, utilizing hybrid diesel-electric buses as funding becomes available per the Zero Emissions Transition Plan.

- Regional Park-and-Ride Locations Identified: The MPO Commuter Study included recommended park-and-ride locations throughout the region for commuters to access regional public transit to major employment hubs identified in the commuter study.
- Transit Model: Utilizing information from the updated Travel Demand Model, a new Transit Model will be created.
- Expanded Inter-city Bus Service: Conversations with potential inter-city bus partners may lead to an expansion of regional inter-city bus service.
- The MPO will sponsor an Intercity Passenger Rail Corridor Study to examine future passenger rail services to cities such as Birmingham and Atlanta.
- Regional demand-response partnership: Huntsville Transit is currently supporting demand-response transit services to other MPO member jurisdictions. Regional partners are discussing strategies for providing more seamless and customer-friendly transit services.

Mid Term: 2030-2040

- Implementation of pilot regional Park-and-Ride locations
- Redstone Arsenal Transit Access Established: partnership between Huntsville Transit and Redstone Arsenal allows for Arsenal employees to take public transit to work
- More BRT corridors opened in the region: University-Medical Phase 2 (to Madison Hospital); Holmes-Meridian
- Preliminary route discussions and negotiations for passenger rail service on corridors identified in Intercity Passenger Rail Corridor Study.

Long Term: 2040-2050

- The regional express bus service begins, utilizing Park-and-Ride lots established in the mid-term.
- More BRT corridors opened: SW Huntsville, SE Huntsville, NW Huntsville
- Additional park-and-ride locations were established.
- Additional regional transit studies are conducted.
- Expanded transit service in all MPO member jurisdictions.
- Construction of inter-city passenger rail to Huntsville.

Intercity Passenger Rail

As mentioned in the Regional Transit Goals section, the Huntsville Area MPO desires to conduct a Passenger Rail Corridor Study to examine possible passenger rail routes including Huntsville. This study would identify corridors for inclusion in the State Rail Plan and further study (via the Federal Railroad Administration's Corridor Identification and Development Program).

While existing freight rail lines will be studied, new alignments may be considered in order to achieve desired destinations and/or speeds. Possible passenger rail destinations to be studied include, but are not limited to:

- Birmingham
- Atlanta
- Chattanooga
- Nashville
- The Shoals

Transit Systems Serving the MPO

The Infrastructure Investment and Jobs Act (IIJA), more commonly referred to as the Bipartisan Infrastructure Law (BIL) places emphasis on the expansion, enhancement, and increased use of public transportation to help address traffic congestion problems. To fully address the existing and future traffic congestion problems in the study area, alternative solutions to single occupancy vehicles must be maximized to the extent feasible.

Transit services in the urbanized area are provided by Madison County, the City of Madison, and the City of Huntsville. These public transit operators fall under the authority of local government jurisdictions that are voting members of the Huntsville Area Metropolitan Planning Organization.

Madison County: Transportation for Rural Areas of Madison County (TRAM)

https://www.madisoncountyal.gov/departments/planning-and-economic-development/tram

Madison County operates demand response transit through the Transportation for Rural Areas of Madison County (TRAM) program. There are no service restrictions to the county's service, such as age or income; however, riders must reside in the rural communities of Madison County.

TRAM is a federally funded FTA Section 5311 public transportation program that is open to the public who reside in rural Madison County, Alabama. The Madison County Commission provides matching funds to assist with operating expenses. TRAM operates on a first come, first served basis. Riders are urged to schedule rides 24 hours in advance. Reservations are accepted daily between 8:00 a.m. and 3:00 p.m. Monday through Friday. No reservations will be scheduled after 3:00 p.m. for the following day. Reservations MUST be made or changed by contacting the TRAM office.

City of Madison: Madison Assisted Ride System (MARS)

https://www.madisonal.gov/122/Madison-Assisted-Ride-System

The City of Madison operates the Madison Assisted Ride System (MARS) through the City of Madison Department of Recreation. The program is fully funded by the City of Madison and its client base is restricted to those persons residing in the City of Madison that are eligible for paratransit services under ADA guidelines. The service primarily provides trips

for medical and employment purposes for those that are qualified as disabled. Transportation service is limited to the Madison City limits; however, exceptions are made for essential services that are available in Huntsville such as medical appointments and employment. The City of Madison contracts with Huntsville Transit to provide scheduling and dispatch services.

MARS operates Monday through Friday from 7:00 a.m. until 5:00 p.m., excluding official City of Madison holidays. The service operates up to four (4) vehicles, which are also wheelchair lift equipped. Vans run full time. Fares for MARS service are $2.00 for each one-way trip. MARS service must be scheduled at least 24 hours ahead of time, and persons wishing to ride must be subscribers of the program.

City of Huntsville: Huntsville Orbit and Access

https://www.huntsvilleal.gov/residents/streets/public-transportation/huntsvilletransit/

Huntsville Transit currently operates a variety of services targeted to specific community transportation needs. The City of Huntsville's funding program includes the Federal Transit Administration. Huntsville Transit aims to provide efficient and customer-friendly community transportation services for the general public, senior citizens, physically challenged citizens, commuters, and individuals with limited transportation alternatives.

Huntsville Transit currently provides these services through several programs. Most Huntsville Transit resources are currently directed to two services: the fixed route Orbit Huntsville (formerly Shuttle) service and the Access Huntsville (formerly Handi-Ride) paratransit program which serves senior citizens and individuals with disabilities. A Rideshare program through CommuteSmart provides matching services for commuters and encourages carpooling and vanpooling on a local and regional basis.

Huntsville Transit also provides a transportation brokerage to assist citizens, groups, and agencies to find or help provide transportation for other specialized needs. Taxicab and Limousine support is also provided. This support includes inspections, advocacy, and other assistance as required by local privately owned and operated taxicab companies.

The Huntsville Orbit is a fixed route transportation network currently operating along eleven (11) fixed routes. Hours of operation are 6:00 AM to 9:00 PM, Monday through Friday and from 7 a.m. to 7 p.m. on Saturday and Sunday, excluding official City of Huntsville holidays.

Orbit Huntsville serves 542 bus stops throughout the city and approximately 108 stops have shelters. The downtown Huntsville Bus Transfer Station is a central transfer point where all fixed routes connect for riders transferring between fixed routes. There are also several additional transfer points where routes cross and connections can be made. System headways are thirty minutes and one hour. Routes 1, 2, and 4 serve stops every 30 minutes. All other routes operate on one-hour headways and connect with all buses downtown (except Route 56) at the top of each hour.

Base fare is $1.00. Senior citizens, individuals with disabilities and students are $.50. The half-fare provision is in effect for all hours of service and is not currently limited to off-peak times. An unlimited monthly pass is available at $30.00 and single ride ticket books ($18.00) are sold in the Huntsville Transit office.

Huntsville Transit also administers a demand response paratransit service, known as Access Huntsville (formerly Handi-Ride). In accordance with the Americans with Disabilities Act (ADA) of 1990, Access Huntsville is available to persons traveling within ¾-mile of the Orbit Huntsville fixed route network (defined as ADA paratransit zone) with a physical, visual, or cognitive disabling condition that prevents them from accessing or using Orbit Huntsville service. Separate and in addition to the ADA mandated paratransit zone, the City of Huntsville provides paratransit service beyond the ¾ mile threshold to the city limits (known as the City of Huntsville service area). Access operates with 25 vehicles, all of which are wheelchair lift equipped.

Operating hours are 6:00 am until 9:00 pm, Monday through Friday and 7:00am to 7:00pm on Saturday, excluding official City of Huntsville holidays. Riders must call to request a trip. Fares for Access Huntsville are $2.00 per trip with no discounted tickets or passes. There are no restrictions on trip purposes.

Alabama A&M University Shuttle

Alabama A&M University provides campus transportation for their students, faculty, staff, and visitors. Alabama A&M has been a recipient of federal funds for implementation of a campus transportation system consisting of a fleet of 11 electric buses, and the construction of bus support facilities. Current transportation services provide for students to travel within campus on fixed routes and provide transportation services for students to local shopping destinations and off campus on weekends.

Operating hours are from 7:00 am to 11:00 pm Monday through Friday and as needed on weekends. Fares are charged as transportation and parking fees. The university has plans to expand service and infrastructure, procure more buses/rolling stock, expand/build maintenance facility and garage, parking garage, pedestrian walkways, bus shelters, Intelligent Transportation System (ITS), and Transit Asset Management System (TAMS).

The University of Alabama in Huntsville (UAH) Shuttle

The UAH Shuttle, operated by Huntsville Transit, is a Friday evening-only route intended to serve the public and UAH students' shopping needs. The route operates as a large counterclockwise loop, with stops on UAH campus, the University Drive Walmart Supercenter, Target, and Bridge Street Town Centre shopping mall. It does not serve the Transfer Station. The UAH Shuttle helps fill a nighttime mobility gap for UAH students by effectively extending the western service area of Routes 3 and 4 to 10:15 p.m.

Oakwood University

Oakwood University provides transportation services for all campus students, for daytime and evening classes, field trips, activities, and worship services. Additionally, the university follows a scheduled route for transporting their off-campus students.

Rideshare: CommuteSmart

https://www.commutesmart.org/huntsville/

The Rideshare program operates through the CommuteSmart system online that links all major cities in Alabama. A person can call or go online and find if anyone is going in their general direction within the city proper or throughout Alabama.

Human Service Agencies

Certain human service agencies provide demand response services for their clients and have received federal funding to provide for capital vehicle purchases. These organizations include the ARC Opportunity Center, Ability Plus, and the Huntsville-Madison County Mental Health Center. The provision of transit services to their own clients alleviates the need for TRAM, Huntsville Access, and MARS to do so.

Transit Systems Needs Assessment

The City of Huntsville, the City of Madison, as well as rural Madison County have experienced significant growth over the last 50 years. Huntsville's population increased dramatically during the space race and subsequent defense buildup. This growth placed heavy demands on the public infrastructure during these peak growth times. Workforce in the military and space industries resulted in significant numbers returning to Huntsville and the surrounding area to retire. This, coupled with the aging of the Boomer generation over the next 25 years, should mean significant increases in senior citizens and disabled residents. It is anticipated that services utilized by these populations will need to be expanded and enhanced to meet the demand.

As roadways near their capacity, efforts to encourage alternative modes of commuting, such as the transit and CommuteSmart programs, will become essential. When used effectively, these programs can assist in reducing peak hour congestion and increasing existing roadway capacities for the future. Increased hours of operation, weekend service, reduced headways, and implementing advanced technology will be important in making the system more appealing to commuters.

Because the City of Huntsville still qualifies for capital eligible operating expenses up to the rate of 75% of appropriation, any increase in capital outlays will decrease the eligible operating funding. One of the key elements in effective reform will be the provision of low-cost transportation alternatives for employment opportunities, job training, and related requirements for gainful employment. Effective public transportation services in Huntsville will be essential in helping to provide these opportunities as needs continue to increase.

Finally, the increasing federal requirements to reduce air pollution due to automobile usage will necessitate more reliance on alternative transportation. Ridesharing, vanpooling, and public transit will all play an increasing role in meeting these goals. With the changing status of environmental laws, Huntsville may become a nonattainment area for ozone. If this occurs, additional resources and efforts around Ridesharing services will be necessary.

Current Ridership, Future and Opportunities

City of Huntsville

The 2023 Huntsville Transit Study Final Report states that Huntsville Orbit ridership increased by 14% immediately after changes to the system in 2019, indicating an increasing demand for transit. The COVID-19 pandemic severely reduced ridership; by 2024, weekday ridership had returned to approximately 95% of its pre-pandemic levels, a recovery that few US transit agencies can match. Ridership is highest along University Drive, at major shopping centers, and in dense, low-income neighborhoods. Demand for paratransit service, which primarily transports seniors to medical and social service destinations, has also increased at a significant rate.

In 2022, rider feedback obtained through on-board surveys, community meetings, online surveys, and bus drivers revealed that existing riders overwhelmingly prefer Sunday service, increased frequency, and later evening service over other service and capital investments. These improvements were then implemented starting in 2023 and continuing into 2024 with the introduction of Sunday service and the return of transit service to Southeast Huntsville. The new fixed route network design increased bi-directional service in Southwest Huntsville and improved directness and on-time performance on other routes. In 2025, a new peak-hour service will begin with major industrial employers in Jetplex and Greenbrier. Future phases of the plan will extend evening service and add frequency to existing routes, including the first "high-frequency" (15 minutes or less headways) service along University Dr.

5-Year Service Plan

Orbit Huntsville optimization and expansion recommendations are detailed in a 5-phase implementation plan.

5-Year Capital Plan

Implementation of the 5-year service plan requires several capital investments:

- **Vehicles**
  The plan recommends the conversion of the Orbit fleet to 40' buses, which would provide more seats and better amenities than the older 30' buses. Huntsville Transit has four 40' buses as of the end of 2024, with more ordered. Huntsville Transit's Zero Emissions Transition Plan calls for the larger buses to transition to hybrid diesel-electric when funds become available.
- **Bus Stops**
  The plan recommends adding bus shelters at stops that have high boarding activity or vulnerable populations.
- **Pedestrian Infrastructure**
  Every fixed-route transit rider is a pedestrian, and infrastructure improvements are needed to ensure safe pedestrian access to existing bus stops. As a result, the 5-year capital plan recommends several crosswalks and sidewalk extensions across the city.

City of Madison

The 2040 Transportation Master Plan highlights that Madison currently has no generally accessible public transit service other than MARS. However, given the existing and projected travel conditions along Highway 72, the demand for transit to serve the retail uses along the corridor will likely increase. The demand for transit may also increase in response to projected employment opportunities in the areas of Huntsville adjacent to Madison on the south, east and west, given the Airport expansion and the new Mazda-Toyota facility. Many employers may also become interested in participating in ridesharing and/or carpooling programs.

Madison's plan recommends the addition of a new transit service via 4 transit corridors. Corridors identified include Highway 72, Madison Boulevard, Hughes Road, and Sullivan Street/Wall Triana Highway. Without existing services to gauge transit propensity and/or ridership characteristics, the primary indicators for any potential new transit services exist and projected traffic volumes and roadway congestion levels. Other indicators for potential transit service are the presence of higher density residential and employment concentrations and connections to activity centers, retail uses, and/ or community facilities. Detailed information can be found in the City of Madison 2040 Transportation Master Plan.

Transit System Performance Measures

The IIJA requires States and MPOs to establish performance targets that address national performance measures issued by the U.S. DOT. These performance measures are based on goals outlined in law: safety, infrastructure condition, congestion reduction, system reliability, economic vitality, environmental sustainability, reduced project delivery delays, transit safety, and transit asset management.

Safety Management System (SMS)

The City of Huntsville Public Transit recognizes that the management of safety is a core value of the business. The management team will embrace the Safety Management System and is committed to developing, implementing, maintaining, and constantly improving processes to ensure the safety of employees, customers, and the public. All levels of management and frontline employees are committed to safety and understand that safety is the primary responsibility of all employees.

Huntsville Transit is committed to:

- Communicating the purpose and benefits of the Safety Management System to all staff, managers, supervisors, and employees. This communication will specifically define the duties and responsibilities of each employee throughout the organization and all employees will receive appropriate information and SMS training.
- Providing appropriate management involvement and the necessary resources to establish an effective reporting system that will encourage employees to communicate and report any unsafe work conditions, hazards, or at-risk behavior to the management team.
- Identifying hazardous and unsafe work conditions and analyzing data from the employee reporting system. After thoroughly analyzing the provided data, the transit operations division will develop processes and procedures to mitigate safety risk to an acceptable level.
- Ensuring that no action will be taken against employees who disclose safety concerns through the reporting system, unless disclosure indicates an illegal act, gross negligence, or deliberate or willful disregard of regulations or procedures.
- Establishing safety performance targets that are realistic, measurable, and data driven.
- Continually improving our safety performance through management processes that ensure appropriate safety management action is taken and is effective.

Transit Asset Management (TAM) Plan

The broadest goal for TAM is to provide a highly reliable public transit service to the public. This is achieved by tracking the age and condition of all assets to ensure reliable vehicles, equipment, and facilities that a consistent capital replacement plan is maintained. By ensuring a consistent age and condition, maintenance and customer service standards (such as low # of fixed route and paratransit service interruptions) are realized, maintenance costs are more predictable and future needs and funding requirements are more easily forecasted.
Listed below are TAM Goals:

- **Goal 1:** Ensure that the occurrence of fixed route service interruptions is less than 1% of all Main Transfer Station departures.
- **Goal 2:** Ensure 99% availability of an 18-bus daily pullout of paratransit service
- **Goal 3:** Implement the Service and Capital plan with 5 years

Targets for the fixed route fleet and paratransit fleet are established based on the useful life of each vehicle, forecasts of capital replacement funds, and spare ratios needed to ensure minimum service interruptions. All transit assets are tracked and reported according to current FTA requirements and updated as assets are retired or purchased/replaced.
All written asset maintenance plans are followed and reported on according to current FTA requirements. These plans ensure adherence to standard practices and promote the safe and secure performance of assets and services.

Financing of Transit Services

Financing public transportation services for Madison County and the City of Huntsville includes funding from the Federal Transit Administration, local sources, and fare revenues. The financing of Madison's paratransit program is dependent upon local revenues. Alabama A&M University and Oakwood University's transit program may use federal grant monies for the purchase of rolling stock. Specific federal funding programs for transit in the Huntsville area are provided by the Federal Transit Administration. The source for program descriptions is available on FTA's website.

Section 5303 – Metropolitan Planning Programs

This program provides transportation planning in the MPO area, to include transit services. The State of Alabama combines FHWA Planning Funds (PL) and FTA Section 5303 Funds into the same category for allocation and distribution purposes. Funds are allocated to MPOs for planning activities and for the development of Transportation Improvement Program and metropolitan transportation plan documents that include transit programs, projects, and initiatives. Under IIJA, there is a requirement to establish a performance-based planning process. TAM Performance Measures are attached to Appendix C of this plan document. Matching funds for the Section 5303 program are paid for by the City of Huntsville, per financial agreement.

Section 5307 – Urbanized Area Formula Grants

This program provides grants to Urbanized Areas for public transit capital and planning. Operating expenses are eligible for areas with a population less than 200,000 or areas with a population greater than 200,000 that operate no more than 100 buses in fixed route service during peak hours. The City of Huntsville funds its fixed route system through this grant as well as its paratransit program. Matching funds for the Section 5307 program locally are paid for by the City of Huntsville. Activities that were eligible under the former JARC program are now eligible under this program.

Section 5310 – Enhanced Mobility of Seniors and Individuals with Disabilities (EMSID)

This program is intended to enhance mobility for seniors and persons with disabilities by providing funds for programs to serve the special needs of transit-dependent populations beyond traditional public transit services and Americans with Disabilities complementary paratransit services. Section 5310 monies in the past have funded buses for human service agencies such as Ability Plus, the Mental Health Center, and the opportunity Center. Matching funds for the Section 5310 program locally are paid for by the project sponsor.

Additionally, activities that were eligible under the former New Freedom program are now eligible under this program. Matching funds for any EMSID projects under this section are to be paid for by the project sponsor. Recipients of funds must continue to certify under IIJA that projects selected are included in a locally developed, coordinated public transit-human services transportation plan. Locally, the Top of Alabama Regional Council of Governments (TARCOG) developed a Human Services Coordinated Transportation Plan (September 2017) for the northeast Alabama region, which includes

the non-metropolitan areas of its five-county region. The Huntsville Area MPO contracted with TARCOG to amend their coordinated plan to include the MPO Study Area. In addition, TARCOG administers a competitive grant selection process to ensure a fair and equitable distribution of EMSID funds.

Section 5311 – Rural Area Formula Grants

This program provides capital, planning, and operating assistance to support public transit services in rural areas. Madison County's TRAM program receives funding through this grant program, with the federal appropriations funneled to rural areas through the State of Alabama. Matching funds for the Section 5311 program locally are paid for by the Madison County Commission. Activities that were eligible under the former JARC program are now eligible under this program. Matching funds for any JARC projects under this section are to be paid for by the project's sponsor.

Section 5339 – Bus and Bus Facilities Program

This program replaced Section 5309 under SAFETEA-LU and provides for capital funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities. The funds are restricted to fixed route transit. Matching funds for the Huntsville Orbit program are paid for by the City of Huntsville. Additionally, sub recipients may be eligible for this funding if they are public organizations engaging in public transportation, including those providing services open to a segment of the public, as defined by age, disability, or low income. Huntsville Transit is considering an upgraded transit facility project for 2021, using these funds.

The specific financing of transit operations, capital items, and the programming of funds, is found in Chapter 9: Financial Plan.

Bicycle-Pedestrian Infrastructure

Bicycling and walking are viable transportation alternatives throughout many communities within the North Alabama region. Whether for commuting or recreational enjoyment, the MPO understands the importance of these activities to one's health, safety and general welfare. Therefore, the Huntsville Area MPO is committed to improving bicycle and pedestrian conditions throughout the region. The MPO member jurisdictions of Madison and Huntsville have adopted

bicycle and pedestrian plans or policies aimed at increasing the awareness and benefits of non-motorized modes of travel.

Bikeways improve the quality of life in the community. A bikeable community significantly impacts the economy by attracting the growing number of cycling tourists, retirees and sporting events. Cycling also helps reduce parking congestion, motorized vehicle congestion and air pollution. Regardless of purpose or ultimate destination, the FHWA has determined cycling as a mode of transportation that is entitled to a place on the American roadway (within certain limits).

A Bicycle Pedestrian Plan seeks to provide links and resources within the larger transportation network, encouraging construction or development of dedicated and fixed facilities, bike trails on-road and off, improvements to existing structures. Much focus is on encouraging safe travels on roads and highways that also accommodate motorized vehicles. Other efforts are geared toward providing linkages between residential neighborhoods, shopping areas, and central business districts or traffic-heavy urban centers. TRiP 2050 expands on the previous bicycle and pedestrian plans included in the Year 2045 LRTP. The MPO Bike Plan ("Bike the Rocket City") will be incorporated into the document when complete in mid-2025.

To encourage the use of alternative means of transportation, these plans collectively will feature linked transportation facilities for bicyclists and pedestrians, encourage community-wide support of educational programs, and promote coordinated bicycle and pedestrian programs and services.

FHWA Requirements

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 enacted significant changes to federal transportation policy and programs that expanded consideration of and eligibility for bicycling and walking. The Transportation Equity Act for the 21st Century (TEA-21) of 1998 and the Safe Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU) of 2005 continued these provisions.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012 enacted program changes and continued broad consideration and eligibility for bicycling and walking. The Fixing America's Surface Transportation (FAST) Act of 2015 allowed for additional design flexibility for projects that benefit pedestrians and bicyclists. The Infrastructure Investment and Jobs Act (IIJA), more commonly referred to as the Bipartisan Infrastructure Law (BIL), which was passed in

November, 2021, put further emphasis and priority on bicycle and pedestrian transportation, especially as it relates to safety and equity, and is a major focus through several significant transportation programs.

Federal legislation in Title 23 of the United States Code Section 217 provides the funding mechanisms, planning requirements, and policy tools necessary to create more walkable and bicycle-friendly communities. More importantly, it enhances the ability of communities to invest in projects that can improve the safety and practicality of bicycling and walking for everyday travel.

The statutory provisions affecting bicycling and walking are codified in titles 23 and 49 of the United States Code (U.S.C.). This guide describes the range of opportunities to improve conditions for bicycling and walking, consistent with Department of Transportation goals for a safe, comfortable, equitable, and integrated multimodal transportation network infrastructure that serves all ages and abilities. Detailed information on policies, regulations and legislation can be found at the FHWA website: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/

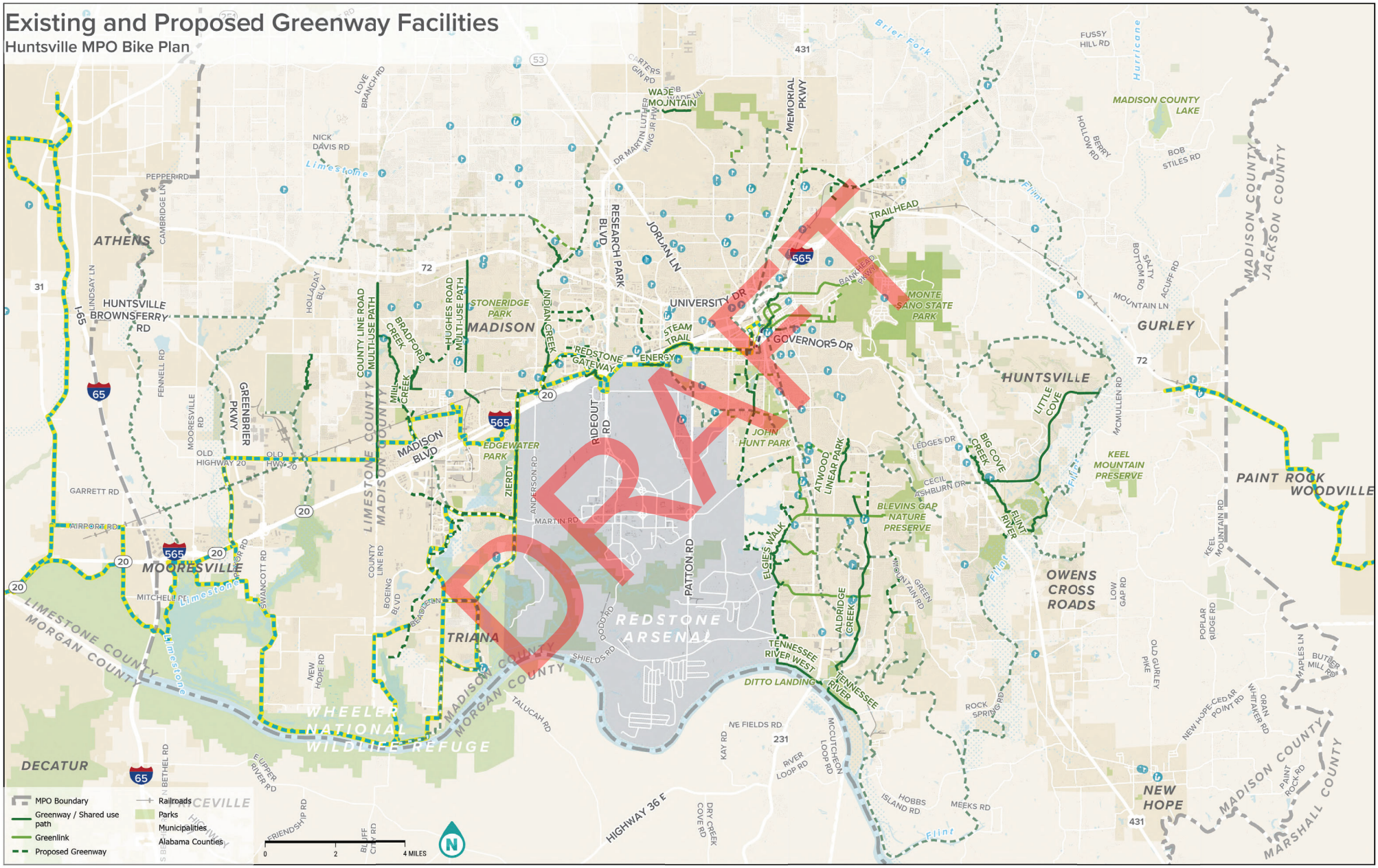
Huntsville Area MPO Requirements

The Huntsville Area MPO has carefully considered the appropriateness of the areas designated for bicycle and pedestrian travel. The Huntsville Area MPO intends to create a mobility system for its citizens that will realize long term cost savings in terms of improved public health, reduced fuel consumptions, reduced demand for single occupancy motor vehicles and increased public safety through the Complete Streets program. To meet this goal, the MPO gives full consideration to non-motorized transportation facilities designed for bicyclists and pedestrians, when planning for new construction and the reconstruction of transportation facilities.

MPO Bicycle and Pedestrian Planning

The MPO partners with member jurisdictions provide a regional view of interconnected bicycle and pedestrian networks and identifies a county wide system of corridors aimed at improving non-motorized transportation and accessibility. The focus of the MPO is to emphasize regional connectivity to provide a framework for the development and enhancement of bicycle and pedestrian facilities throughout the counties, cities and towns of the MPO study area.

With growing interest in walking, cycling and the safety of these modes of travel, the MPO has carefully considered the appropriateness of the areas designated for bicycle and pedestrian travel. The MPO Bike Plan ("Bike the Rocket City") will be incorporated into the document when complete in mid-2025.


Existing and Proposed Greenway Facilities
Huntsville MPO Bike Plan
DRAFT
ATHENS
HUNTSVILLE
BROWNSFERRY RD
MADISON
STONERIDGE PARK
HUGHES ROAD MULTI-USE PATH
COUNTY LINE ROAD MULTI-USE PATH
MADISON BLVD
EDGEWATER PARK
REDSTONE GATEWAY
ENERGY
UNIVERSITY DR
STEAM TRAIL
GOVERNORS DR
RESEARCH PARK BLVD
JORDAN LN
TRAILHEAD
MONTE SANO STATE PARK
HUNTSVILLE
JOHN HUNT PARK
ATWOOD LINEAR PARK
BLEVINS GAP NATURE PRESERVE
KEEL MOUNTAIN PRESERVE
GURLEY
PAINT ROCK
WOODVILLE
OWENS CROSS ROADS
MADISON COUNTY LAKE
MOORESVILLE
TRIANA
REDSTONE ARSENAL
WHEELER NATIONAL WILDLIFE REFUGE
DECATUR
NEW HOPE
LIMESTONE COUNTY
MORGAN COUNTY
MADISON COUNTY
JACKSON COUNTY
MARSHALL COUNTY
TENNESSEE RIVER
DITTO LANDING
MEMORIAL PKWY
WADE MOUNTAIN
GREENBRIER PKWY
I-65
I-565
MPO Boundary
Greenway / Shared use path
Greenlink
Proposed Greenway
Railroads
Parks
Municipalities
Alabama Counties
0
2
4 MILES
N

Accessibility of Pedestrian Networks on State Routes

In 2017, ALDOT initiated a priority program for ensuring accessibility of sidewalks and pedestrian facilities. This is primarily done through retrofitting existing sidewalks along State Routes and is managed by the ALDOT North Region Office. The State has invested over $500,000 in Madison County - including the cities of Huntsville and Madison - towards the installation of curb ramps on various state routes. This action provides for public accommodation under the revised Americans with Disabilities Act Title III, codified under 28 CFR Part 36 Subpart D – New Construction and Alterations. According to the Department of Justice, the final rules went into effect on March 15, 2011.

Bike and Pedestrian Accessibility to Transit

Federal regulations require that States and Metropolitan Planning Organizations accommodate pedestrians and bicyclists, especially to ensure the operability of an intermodal transportation system. In accordance with 23 CFR 450.322(f), metropolitan transportation plans shall, at a minimum include existing and proposed transportation facilities should function as an integrated metropolitan transportation system.

Transportation facilities include major roadways, transit, multimodal and intermodal facilities, pedestrian walkways and bicycle facilities, and intermodal connectors. The Huntsville Area MPO seeks to continue the provision of an integrated system of transportation modes that connects transit with bicycle and pedestrian facilities. The MPO Bike Plan ("Bike the Rocket City") will be incorporated into the document when complete in mid-2025, which will include pedestrian and bicycle access to transit maps.

Transportation Alternatives Set-Aside Program (TAP)

The TAP Set-Aside Program provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; etc. TAP activities are transportation-related initiatives that are designed to strengthen the cultural, aesthetic, and environmental aspects of the intermodal transportation system.

Eligible Transportation Alternatives projects include:

A. Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.

B. Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.

C. Construction of turnouts, overlooks, and viewing areas.

D. Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other nonmotorized transportation users.

E. Community improvement activities, including –

- Inventory, control, or removal of outdoor advertising
- Historic preservation and rehabilitation of historic transportation facilities
- Vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control
- Archaeological activities relating to impacts from implementation of an eligible transportation project

F. Any environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to –

- Address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff, including activities described in sections 133(b)(3), 119(g), 328(a), and 329 of title 23
- Reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats

The Alabama Department of Transportation (ALDOT) accepts applications for statewide funding. The Huntsville Area MPO receives an annual TAP allocation for member jurisdictions. Projects for both statewide and MPO funding are selected through a competitive grant process. More information on both applications can be found at https://www.huntsvillempo.org/tap/.

Through Bicycle and Pedestrian Planning, the Huntsville Area MPO can ensure that bicycle and pedestrian accommodation will be more fully integrated into local, state and regional transportation improvements. As federal transportation policy with regards to bicycle and pedestrian accommodations evolves, new funding opportunities are made available to enhance the non- motorized transportation network.

Planned Bicycle and Pedestrian Projects

Other factors considered in the feasibility of bicycle and pedestrian projects include traffic volume, connectivity, cost, land acquisition and safety. Currently, the Huntsville Area MPO has federal and local funds allocated for planned transportation enhancement projects aimed at increasing the quality of life for bicyclists and pedestrians. In addition, the Cities of Huntsville and Madison, through capital funding, allocate annual funding for sidewalk construction and sidewalk improvement projects. The following table displays the Huntsville MPO future transportation projects in TRiP 2050 and how these projects will address or consider bicycle and pedestrian travel. Maintenance and Operations (MO) projects are displayed in this section as well. These projects include the installation of bicycle route signs to accommodate cyclists. Projects identified include paved bike lanes, road diets/protected bike lanes, sidewalks, paved shoulders, share the road bike route, greenways (shared use paths), green streets, and pedestrian corridors. These projects can be further defined as follows:

- **Paved Bike Lane**

  A corridor expressly reserved for bicycles existing on a street or roadway in addition to any lanes for motorized vehicles.
- **Road Diet/Protected Bike Lanes**

  A typical road diet serves to reduce the number of lanes on a roadway and a barrier is placed between the driver and the cyclist to improve safety for pedestrians and bicyclists.
- **Paved Shoulders**

  Referring to the part of the highway that is adjacent to the regularly traveled portion of the highway and is on the same level as the highway.
- **Share the Road/Bike Routes**

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

  An improved pedestrian surface that is typically located adjacent to a roadway.
- **Greenway (Shared-Use Path)**

  A linear park, alternative transportation route, or open space conservation area that provides passive recreational opportunities for pedestrian and/or bicycle paths.

All paved bike lanes, share the road/bike routes, and sidewalks are typically constructed on both sides of the street. Greenways, shared use paths, pedestrian corridors, and green streets are typically constructed on one side of the street or will provide a single transportation route beside or near the planned road improvements listed in Chapter 9. Additional details concerning the exact placement of greenways, green streets, and pedestrian corridors will not be known until engineering design commences. Several corridors have been identified that cannot accommodate bicycles and pedestrians because the corridor is a limited access or controlled access roadway or are U.S. routes and carry high volumes of traffic. This includes roads classified as Interstates, Expressways, and Major Arterials.

All Sidewalk, Greenway (Shared Use Path), and Pedestrian Corridor projects highlighted in blue are financially constrained projects. All projects highlighted in the red are visionary projects. The cost of constructing sidewalks, greenways, and pedestrian corridors for the listed projects has already been incorporated in the total cost of the road improvement projects shown in Chapter 9.

Table 6.1: Visionary Bicycle and Pedestrian Projects

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
PROPOSED PAVED BIKE LANES				
20	Balch Rd	City of Madison	Capacity	Provide bike lanes from Mill Road to Gooch Ln
108	Beadle Lane	City of Huntsville	Capacity	Provide bike lanes from Swancott Rd to Zierdt Rd
90, 95	Huntsville-Browns Ferry Rd	City of Huntsville	Capacity	Provide bike lanes from Mooresville Rd to County Line Rd
4,6	Capshaw Rd	City of Huntsville	Capacity	Provide bike lanes from Nance Rd to Old Railroad Bed
3	Eastview Drive	City of Madison	Capacity	Provide bike lanes from Slaughter Rd to Hughes Rd
89	Hughes Rd	City of Madison	Capacity	Provide bike lanes from Millsford Lane to Brogan Dr
38	King Drake Road-US 431 Connector	City of Huntsville	Capacity	Provide bike lanes for new road construction from US Hwy 431 to King Drake Rd
33	Moontown Rd	Madison County	Capacity	Provide bike lanes from Ryland Pike to US Hwy 72

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
PROPOSED PAVED BIKE LANES				
7	Moores Mill Rd	Madison County	Capacity	Provide bike lanes from Winchester Rd to Countess Rd
11	Mount Lebanon Rd	Madison County	Capacity	Provide bike lanes from Monroe Rd to AL Hwy 255
13	Nance Rd	Madison County	Capacity	Provide bike lanes from McCrary Dr to Capshaw Rd
1	Oakwood Rd	City of Huntsville	Capacity	Provide bike lanes from Adventist Blvd to AL Hwy 255
91	Old Railroad Bed Rd	City of Huntsville	Capacity	Provide bike lanes from US Hwy 72 to Capshaw Rd
97, 100, 103	Old Railroad Bed Rd	Madison County	Capacity	Provide bike lanes from Capshaw Rd to AL Hwy 53
122	Slaughter Rd	City of Huntsville	Capacity	Provide bike lanes from Old Madison Pike to Madison Blvd
83, 87	Slaughter Rd	City of Huntsville	Capacity	Provide bike lanes from Old Madison Pike to US Hwy 72
85, 98	Wall Triana Highway	City of Madison	Capacity	Provide bike lanes from McCrary Rd to Yarbrough Road
86	Wall Triana Highway	City of Madison	Capacity	Provide bike lanes from Browns Ferry Road to Gooch Lane
82	Wall Triana Highway	City of Huntsville	Capacity	Provide bike lanes from Interpro Drive to Dunlop Blvd
104, 106, 109	Winchester Rd	City of Huntsville	Capacity	Provide bike lanes from Riverwalk Trail to the State Line

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
PROPOSED PAVED BIKE SHOULDERS OR BIKE ROUTES				
55	AL Hwy 53	Madison County	Capacity	From AL Hwy 255 to Harvest Rd
110	Greenbrier Parkway	City of Huntsville	Capacity	Paved bike shoulders from North of I-565 to Huntsville Browns Ferry Rd
93, 101, 105	Hobbs Island Road	City of Huntsville	Capacity	Provide paved bike shoulders from US Hwy 231 to US Hwy 431
10	Ryland Pike	Madison County	Maintenance & Operations	Install Bike Route Signs from Jordan to Dug Hill Road.
23	Homer Nance Rd	Madison County	Capacity	Install Bike Route Signs from Jordan Rd to Winchester Rd
27	Jordan Rd	Madison County	Capacity	Install Bike Route Signs from Homer Nance Rd to US Hwy 72 Corridor V
12	Jordan Rd	Madison County	Capacity	Install Bike Route Signs from Moores Mill Rd to Homer Nance Rd
34	Old 431 Highway	Madison County	Capacity	Install Bike Route Signs from US Hwy 431 to Wilson Mann Rd
25	Old Big Cove Rd	Madison County	Capacity	Install Bike Route Signs from US Hwy 431 to Sutton Rd
31	Old Big Cove Rd	Madison County	Capacity	Install Bike Route Signs from South Green Mtn Rd to US Hwy 431
14	Shields Rd	City of Huntsville/ Madison County	Capacity	A Bike Route currently exists for this project
102	Swancott Rd	City of Huntsville	Capacity	A Bike Route currently exists for this project
N/A	Taylor Road	City of Huntsville	Transportation Alternative	Construct a 3.05-mile protected bike lane from Sutton Rd to Old Big Cove Rd

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
PROPOSED PAVED BIKE SHOULDERS OR BIKE ROUTES				
N/A	Blue Springs Road	City of Huntsville	Transportation Alternative	Construct a 3.14-mile protected bike lane from Oakwood Ave North to Winchester Road
99	Meridian Street	City of Huntsville	Transportation Alternative	Construct a 6.77-mile protected bike lane from US Hwy 231 to Winchester
N/A	Triana Boulevard	City of Huntsville	Transportation Alternative	Construct a 2.65-mile protected bike lane from Holmes Ave to Johnson Rd
N/A	Johnson Road	City of Huntsville	Transportation Alternative	Construct a 1.26-mile protected bike lane from Triana Blvd to Memorial Parkway
N/A	Green Cove Road	City of Huntsville	Transportation Alternative	Construct a 1-mile protected bike lane from Memorial Parkway to Bailey Cove Rd
N/A	Maysville Road	City of Huntsville	Transportation Alternative	Construct a 1.75-mile protected bike lane from US 72 East southward to Oakwood Ave
N/A	Technology Drive	City of Huntsville	Transportation Alternative	Construct a .53-mile protected bike lane from Wynn Dr to Sparkman Drive
N/A	Wynn Drive	City of Huntsville	Transportation Alternative	Construct a 2.79-mile protected bike lane from Adventist Blvd to Old Madison Pike
N/A	Taylor Lane	City of Huntsville	Transportation Alternative	Construct a .53-mile protected bike lane from Taylor Road to US 431 South
N/A	Washington Street	City of Huntsville	Transportation Alternative	Construct a 1.58-mile protected bike lane from Sparkman Dr to Pratt Ave
N/A	Bailey Cove Road	City of Huntsville	Transportation Alternative	Construct a 5.44-mile protected bike lane from Carl T. Jones Dr to Green Cove Rd
N/A	Bradford Drive	City of Huntsville	Transportation Alternative	Construct a 1.97-mile protected bike lane from Explorer Blvd east to Sparkman Dr

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
SIDEWALKS				
55	AL Hwy 53	State of Alabama	Capacity	Provide sidewalks from AL Hwy 255 to north of Harvest Rd
63	AL Hwy 53	State of Alabama	Capacity	Provide sidewalks from Old Railroad Bed Rd to Limestone CR-117 (Pinedale Rd)
20	Balch Rd	City of Madison	Capacity	Provide sidewalks from Mill Road to Gooch Lane
108	Beadle Ln	City of Huntsville	Capacity	Provide sidewalks from Swancott Rd to Zierdt Rd
90, 95	Huntsville-Browns Ferry Rd	City of Huntsville	Capacity	Provide sidewalks from Mooresville Rd to County Line Rd
4, 6	Capshaw Rd	City of Huntsville	Capacity	Provide sidewalks from Jeff Rd to Old Railroad Bed Rd
3	Eastview Dr	City of Huntsville	Capacity	Provide sidewalks from Slaughter Rd to Hughes Rd
110	Greenbrier Parkway	City of Huntsville	Capacity	Provide sidewalks from north of I-565 to Huntsville-Browns Ferry Road
93, 101, 105	Hobbs Island Rd	City of Huntsville	Capacity	Provide sidewalks from US Hwy 231 to US Hwy 431
23	Homer Nance Rd	Madison County	Capacity	Provide sidewalks from Jordan Rd to Winchester Rd
35	Brogan Way	City of Madison	Capacity	Provide sidewalks from Uptown Dr to Wall Triana Hwy
27	Jordan Rd	Madison County	Capacity	Provide sidewalks from Homer Nance Rd to US Hwy 72

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
SIDEWALKS				
12	Jordan Rd	Madison County	Capacity	Provide sidewalks from Moores Mill Rd to Homer Nance Rd
38	King Drake Rd-US 431 Connector	City of Huntsville	Capacity	Provide sidewalks for new road construction from US Hwy 431 to King Drake Rd
99	Meridian St	City of Huntsville	Capacity	Provide sidewalks from Winchester Rd to US 231/431
33	Moontown Rd	Madison County	Capacity	Provide sidewalks from Ryland Pike to US Hwy 72
7	Moores Mill Rd	Madison County	Capacity	Provide sidewalks from Winchester Rd to Countess Road
11, 21, 26	Mount Lebanon Rd	Madison County	Capacity	Provide sidewalks from Grimwood Rd to Northern Bypass
13	Nance Rd	Madison County	Capacity	Provide sidewalks from McCrary Rd to Capshaw Rd
N/A	Oakwood Ave	City of Huntsville	Transportation Alternative	Provide sidewalks from Andrew Jackson Way to Church St
1	Oakwood Rd	City of Huntsville	Capacity	Provide sidewalks from Adventist Blvd to AL Hwy 255
34	Old 431 Hwy	Owens Cross Roads	Capacity	Provide sidewalks from US Hwy 431 to Wilson Mann Rd
25	Old Big Cove Rd	City of Huntsville	Capacity	Provide sidewalks from US Hwy 431 to Sutton Rd
32	Old Big Cove Rd	City of Huntsville	Capacity	Provide sidewalks from South Green Mountain Rd to Taylor Road
N/A	Old Hwy 20	City of Huntsville	Transportation Alternative	Provide sidewalks from County Line Rd to Greenbrier Parkway

Map ID #	PROJECT	JURISDICTION	PROJECT TYPE	DESCRIPTION
SIDEWALKS				
91	Old Railroad Bed Rd	City of Huntsville	Capacity	Provide sidewalks from US Hwy 72 to Capshaw Rd
97, 100, 103	Old Railroad Bed Rd	Madison County	Capacity	Provide sidewalks from Capshaw Road to AL Hwy 53
14	Shields Road	Madison County	Capacity	Provide sidewalks from Jordan Rd to Winchester Rd
83, 87	Slaughter Rd	City of Huntsville	Capacity	Provide sidewalks Old Madison Pike to US Hwy 72
102	Swancott Rd	City of Huntsville	Capacity	Provide sidewalks from I-565 to County Line Rd
85, 98	Wall Triana Hwy	Madison County	Capacity	Provide sidewalks from US Hwy 72 to Yarborough Road
104, 106, 109	Winchester Rd	Madison County	Capacity	Provide sidewalks from Bell Factory Rd to the State Line
N/A	Pratt Ave	City of Huntsville	Transportation Alternative	Provide sidewalk for transit access from Memorial Parkway/US Hwy 231 to Church St
N/A	Putnam Dr	City of Huntsville	Transportation Alternative	Provide sidewalk for transit access from University Dr to Sparkman Dr
N/A	Technology Dr	City of Huntsville	Transportation Alternative	Provide sidewalks for transit access from Wynn Dr to Sparkman Dr
N/A	Wynn Dr	City of Huntsville	Transportation Alternative	Provides sidewalks for transit access from existing sidewalk near Old Madison Pike to US Hwy 72

Last Mile Connectivity

"Last Mile Connectivity" refers to the final mile between destinations and accessible public transit and alternative transportation options. This planning term is used when transportation planners and engineers attempt to find connecting routes between people's origins, destinations, and the closest transit stops at both ends. A radius of one mile is often drawn around each transit stop and potential bike and pedestrian routes, as well as ADA accessibility, within that mile radius are determined for access between transit and nearby destinations.

The member jurisdictions of the Huntsville-Area MPO each invest in multi-modal infrastructure differently and use methodologies unique to their communities and residents' needs. The City of Huntsville is the only member jurisdiction with a fixed-route public transit system, including bus stops. However, other jurisdictions address last-mile connectivity for residents using alternative modes of transportation to access destinations within one mile. Alternative Modes projects such as greenways, trails, sidewalks, ADA compliance accessibility, bike lanes, scooters, and bike routes all contribute to last-mile connectivity in the MPO Area.

A new concept in Last Mile Connectivity is autonomous vehicles (AV). While no AV projects are active or planned in the Huntsville MPO area at this time, the MPO staff have attended training on the possibility of AVs to meet the last-mile gap in transportation.

7. CONGESTION MANAGEMENT, SAFETY, & SECURITY

Executive Summary

Congestion Management, Safety Management, and Security of the transportation system form three major program elements to be considered in the planning process. These elements serve to increase the mobility of people and freight that utilize the transportation system and to eliminate or mitigate hazards on the transportation network.

TEA-21 legislation required a Congestion Management System to be developed for Transportation Management Areas, such as the Huntsville Urbanized Area. The SAFETEA-LU legislation changed the requirement to a Congestion Management Process, and subsequent Federal transportation legislation continued that requirement. The Congestion Management Process provides effective management and operations, and an enhanced linkage to the planning and environmental review process based upon cooperatively developed travel demand reduction, operational management strategies, and capacity increases.

Recently, there has been a focus upon livability concepts and their relationship to transportation planning, especially in managing congestion on the transportation network. In addition to congestion management, the IIJA considers the importance of two planning factors: the safety and security of the transportation system and added emphasis upon maintenance and operations strategies. Since these factors are clearly integrated within Congestion Management, they will be included in this section as well.

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

Progress on Projects Listed in the CMP of the 2045 LRTP

1. **Memorial Parkway from Bob Wallace Ave. to Clinton Ave.**

   The City of Huntsville has committed funding to study and create preliminary designs for a reconfiguration of the I-565/Memorial Parkway interchange. Currently, this interchange carries nearly 200,000 vehicles daily, and several movements are over capacity. The interchange also includes several hazardous sections that require traffic to merge multiple lanes quickly. This project would also include improvements at the Clinton Ave. and Governors Dr. interchanges. The MPO has funded a TSMO project along this corridor in the 2024-2027 TIP, to include traffic cameras and dynamic message signs.

2. **US 72 West from Hughes Rd. to Providence Main St.**

   The State continues to move forward with design efforts to widen this corridor to 6-lanes through multiple jurisdictions. ALDOT is currently designing a widening of this corridor to three lanes in each direction from County Line Rd. to Providence Main St. The project was divided into three phases in 2024, with construction taking place between 2025-2030 and includes pedestrian and bicycle connectivity to future greenways in the area. Phase 2 of the City of Huntsville's University-Medical Bus Rapid Transit project would introduce a fixed-route transit service to this area. ALDOT, the MPO, and its member jurisdictions continue to work together to move this project forward to acquisition and construction to reduce congestion.

3. **Research Park Blvd. (SR-255) from I-565 to US-72**

   The City of Huntsville funded a widening project on this corridor between US Hwy 72 and Old Madison Pike which was completed in 2022. An additional off-ramp from northbound SR-255 to the Mid-City development was opened at the same time. The MPO has approved funding for the Resolute Way project, which will reduce congestion at the I-565/SR-255 interchange and provide an alternate route to Redstone Arsenal. The State continues to evaluate options to improve the I-565 and Research Park Boulevard interchange in conjunction with current and proposed improvement projects within the area.

4. **I-565 from I-65 to Wall-Triana Hwy.**

   ALDOT completed a resurfacing and widening project of I-565 from west of County Line Rd. to I-65 in 2021. Construction is ongoing from County Line Rd. to Wall-Triana Hwy. When complete, I-565 will have at least three lanes in each direction from I-65 to Downtown Huntsville. Additionally, a TSMO project funded by ALDOT is currently under construction along all I-565, including this segment.

5. **Memorial Parkway (US 231) from Whitesburg Dr. to Martin Rd.**

   The mainline for this major arterial has been completed along with accompanying overpasses and service roads. This section provides a nine-mile stretch of limited access highway, known as Memorial Parkway between north and south Huntsville. Although no further capacity changes are planned, TSMO upgrades may be added to this corridor in the future.

6. **US 231/431 from Mastin Lake Rd. to Winchester Rd.**

   ALDOT is currently in the process of constructing a new overpass at Mastin Lake Road to include access management improvements to Winchester Road. The first phase of work consisted of structure removals and clearing. This "mainline" extension will provide ten miles of limited access highway connectivity along Memorial Parkway between north and south Huntsville. Another extension, to include an overpass at Winchester Rd., is funded and included in the Financially Constrained scenario of this LRTP.

7. **US 72 East (ARC Corridor V) from Maysville Rd. to Moores Mill Rd.**

   An interim project was completed by ALDOT in 2016, including intersection improvements and an additional westbound lane from Shields Rd. to Maysville Rd. The construction of service roads in preparation for overpasses at Moores Mill Rd. and Shields Rd. is included in the Financially Constrained scenario of this LRTP. However, the actual overpasses are currently scheduled for construction in 2052, beyond the scope of this LRTP. This project is located on Appalachian Regional Commission (ARC) Priority Corridor V.

8. **Governors Dr. from California St. to Monte Sano Blvd.**
   The City of Huntsville funded a reconstruction and widening project on Cecil Ashburn Dr., adding an alternate 4-lane corridor. A Rebuild Alabama grant is funding a project to add another eastbound lane for a short distance east of California St. Due to the terrain in this area, additional capacity improvements are unlikely. The MPO has funded a TSMO project along this corridor in the 2024-2027 TIP, to include traffic cameras and dynamic message signs.

9. **Winchester Rd. from Moores Mill Rd. to Henson Dr.**
   The MPO and City of Huntsville are funding a capacity project from Dominion Cir. to Naugher Rd. This project is included in the 2024-2027 TIP. Once complete, Winchester Rd. will be a four-lane corridor from Pulaski Pk. to Bell Factory Rd.

10. **Bradford Dr. from Explorer Blvd. to Wynn Dr.**
    The corridor has been monitored as recommended in the 2045 CMP. The widening of Research Park Blvd. (see #3) and the additional off-ramp to Mid-City have reduced congestion on this corridor since the previous LRTP. No capacity improvements are planned for this corridor. The City of Huntsville and the MPO will continue to monitor this corridor for safety and multi-modal improvements.

Congestion Management Element

One of the greatest challenges faced by the Huntsville Urbanized Area is increasing traffic congestion, resulting in motorist frustration, the loss of productivity, and the deterioration of air quality. The Huntsville Urbanized Area has been designated as a Transportation Management Area by the Federal Highway Administration and the Federal Transit Administration. This designation requires the MPO to develop and maintain a comprehensive congestion management process.

One of the planning factors identified in federal regulations that must be considered in the transportation planning process is "to promote efficient system management and operations" [23 CFR 450.306(a)]. The legislation specifically requires that the LRTP include not only capital projects, but management and operations strategies as well. These management and operations strategies are highlighted as an important component in mitigating congestion in addition to increasing safety and security.

This section details the congestion management analysis performed as a part of the 2050 LRTP specifying current and future congestion problems on the network and identifying various strategies to correct system deficiencies. The legislative requirements view the Congestion Management Process (CMP) as objectives driven. The CMP also has an emphasis on incorporating management and operations in the project development process, so that short-term improvements may be made to alleviate immediate congestion problems, and long-range solutions may also be offered as a more permanent solution.

Publications by the Federal Highway Administration define Transportation Systems Management and Operations (TSMO) as an integrated approach to optimize the performance of existing and programmed infrastructure through the implementation of multi-modal, intermodal, and often cross-jurisdictional systems, services, and projects. Implementing a planning process with a strong TSMO component is best accomplished by a new way of thinking about management and operations in transportation planning – one that is objectives-driven and performance-based such as the CMP.

The CMP actualizes the operations objectives through a systematic approach for developing performance measures, identifying and analyzing problems, collecting data, developing strategies, implementing strategies, and further evaluating how the implemented strategies impact the transportation network. TSMO strategies are integrated into the LRTP through the CMP.

One of the planning factors identified in federal regulations that must be considered in the transportation planning process is "to promote efficient system management and operations" [23 CFR 450.306(a)]. The legislation specifically requires that the metropolitan transportation plan, or LRTP, include not only capital projects, but management and operations strategies as well. These management and operations strategies are highlighted as an important component in mitigating congestion in addition to increasing safety and security.

Congestion Management Process

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

The purpose of the CMP is to establish certain characteristics of the local transportation system, so that future data analysis may be performed which would show changes in system efficiency and the quality of the transportation system service experienced by users. The CMP is divided into the following four sections to cover all aspects of the CMP addressed in the federal requirements: State of the System; CMP Technical Ranking; Strategy Recommendations; and Strategy Effectiveness Evaluations.

The cornerstone of an effective CMP is dependent upon the quality and quantity of data collected for the study area. Specific performance criteria and the parameters of study were established in the CMP Procedures and Responsibilities Report, found in Appendix D.

The following elements were selected for study and have been incorporated into this document:

1. **CMP Transportation Network**

   The CMP Transportation Network consists of all major arterials, minor arterials, major collectors, and major rural collectors that have been modeled by the MPO's TRiP 2050 Transportation Plan. Traffic counts have been taken from the base year network (2021) of the transportation model and were used in compiling this report on mobility.

2. **Local Public Transit Systems**

   Both fixed route and demand response public transit services were studied that receive federal funds through the Federal Transit Administration either directly or through the State of Alabama.

State of the System

Data collection for the CMP is being performed in accordance with the methods and procedures outlined in the CMP Procedures and Responsibilities Report. The recent traffic count data collected and utilized in this report was collected by all entities and was input into the base year transportation model during its 2021 update.

CMP Objectives

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

1. **Congestion-Based Measures: V/C Ratio and Fixed Route Rate of Occupancy**
   - Reduce the number of segments on the transportation network that have a V/C ratio of 1.0 or higher, so that by 2050 the transportation network exhibits improved traffic flow. This can be accomplished by implementing various strategies that relate to land use, access management, operational improvements, construction of bike and pedestrian facilities, as well as road widening.

2. **System Efficiency Based Measures: Daily VMT, Daily VMT per Person, Roadways Operating at Congested Conditions (uncongested vs. congested lane miles, congested vs. uncongested VMT)**
   - Reduce congestion on the transportation network so that users accessing the network may experience overall efficient trips.

3. **System Mobility Based Measures**
   - Measure the ease and freedom with which people can travel from one location to another (Total yearly public transit ridership, average daily passengers on transit services, annual revenue miles, average speed on the transportation network)
   - Correlate public transit ridership with bus capacity so that by 2050 certain routes or systems can easily handle the demand for service.
   - Routinely increase average speed of all classifications of corridors on the transportation network so that by 2050 enhanced mobility on the overall network can be realized. This may be accomplished through the implementation of short-term and long-term strategies that will operationally enhance mobility or increase system capacity.

4. **System Accessibility Measures**
   - Activity oriented and measures the degree of ease that individuals experience in traveling to employment, shopping, school, and even other modes of transportation.
   - Increase carpool activity and the use of alternative modes of transportation besides the vehicle, so that system accessibility may be improved and congestion experienced on the network may be reduced. This may be performed through marketing various modes of transportation and providing more opportunities for network users to try new methods of transportation.

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

5. Non-Recurring Congestion Measures: Work Zone Data by Location

- Reduce non-recurring delay by identifying work zone locations that may impact traffic delay, and by investigating and monitoring the need for improvements to work zone management processes.

Strategy Recommendations

The CMP Procedures and Responsibilities Report comprehensively lists each strategy to be considered within screening matrices to assist jurisdictions in selecting appropriate and feasible strategies to correct problematic corridors. The strategy recommendations, in order of consideration are:

1. Strategies that eliminate or reduce trips
2. Strategies that involve traffic operational improvements
3. Strategies that shift trips from single-occupancy vehicles to other multi-modal options
4. Strategies that involve intelligent transportation systems (ITS)
5. Strategies that add capacity for all vehicles

Each corridor selected for strategy recommendations has been through a comprehensive screening process. Some solutions may be nontraditional but may be effective in combating traffic congestion. It is important to remember that the recommendations presented will more than likely require additional study.

The numbers in parentheses in Table 7.1 indicate the relevant strategy for each recommended intervention. Short-term interventions are projects completed since the base year or scheduled to begin construction during the current TIP timeframe; long-term interventions would take place within the LRTP forecast period.

CMP Technical Ranking

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

- Extent of Current Congestion
- Extent of Anticipated Congestion
- Functional Classification
- Current Traffic Volumes

CMP PRIORITY CORRIDOR TECHNICAL RANKING LIST	Short Term Intervention(s)	Long Term Intervention(s)
1. US-72 East Maysville Rd. to Dug Hill Rd.	TSMO (4)	Freeway extension (5)
2. US 72 West County Line Rd. to Providence Main St.	Access Mgmt. (2); Widening (5)	BRT (3)
3. Memorial Parkway (US 231-431) Martin Rd. to I-565	TSMO (4)	Interchange Improvements (2); Parallel road improvements (5)
4. Research Park Blvd. (SR-255) I-565 to SR-53	Widening (5)	Interchange improvements (2), TSMO (4)
5. Memorial Parkway (US-231/431) Mastin Lake Rd. to Winchester Rd.	Interchange at Mastin Lake (2,5)	Interchange at Winchester (2,5)
6. Governors Dr. (US 431) Dug Hill Rd. to California St.	TSMO (4); Add EB Lane (5)	Operational improvements (2)
7. Winchester Rd. Dominion Cir. to Naugher Rd.	Widening (5)	Operational improvements (2)
8. SR-53 SR-255 to Pinedale Rd.	Widening (5)	Operational improvements (2); Widening (5)
9. I-565 County Line Rd. to SR-255	Widening (5), Transit (3)	Widening (5); Managed Lanes (3)
10. US 231/431 Northern Bypass to Grimwood Rd.	Operational improvements (2)	Access Mgmt. (2); Widening, Expressway extensions (5)

Table 7.1: CMP Priority Corridor Technical Ranking List

- Safety
- Multi-Modal Network
- Prior Funding Commitment

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

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

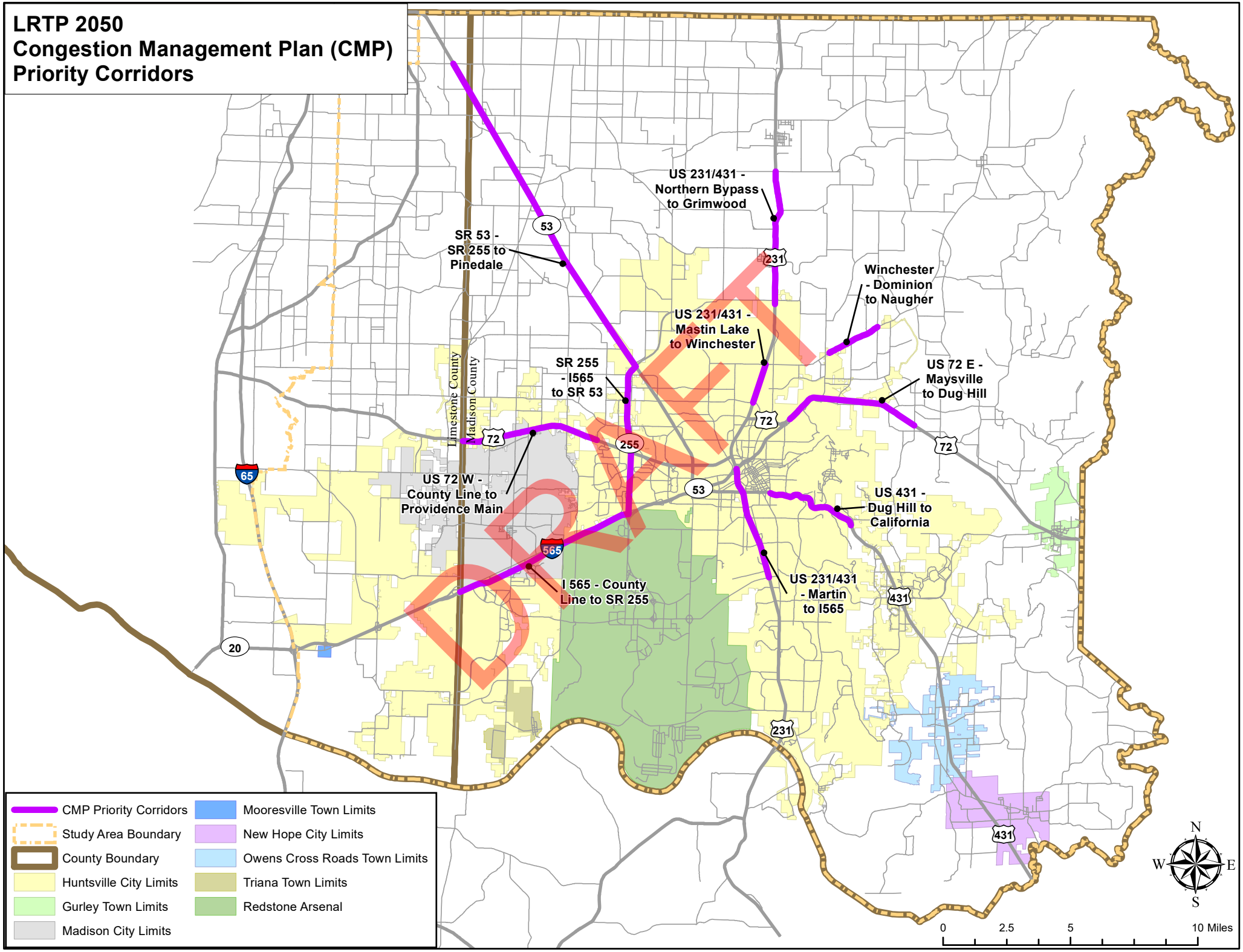
The travel time and speed of the top ten corridors selected for study, where congestion is either occurring or is subject to occur by 2050 has been compiled. Travel time and speed is indicated from the roadway segment to the center of Huntsville.

Additional analysis from the Regional Commuter Study completed in 2021 were used to compile the list.

Strategy Evaluations for Effectiveness

Several of the previously identified congested corridors during the previous LRTP cycle have been improved since 2020. As the projects are completed, the staff will depend upon real-time observations in the field to indicate the improvement's success. This method of analysis and measure of system effectiveness will be applied, and the improvement evaluated for effectiveness in the future. Detailed evaluations are attached in Appendix E.

Since the methodology differs in some portions of the CMP, which establishes benchmarks for the region, overall system trends have not yet been substantiated. At the present time, census data and other performance measures give some indication that overall mobility on the transportation network is efficient and accessible, apart from several trouble spots which are identified and addressed in this report. Strategy recommendations have been made for the top ten corridors.


LRTP 2050
Congestion Management Plan (CMP)
Priority Corridors
US 231/431 - Northern Bypass to Grimwood
SR 53 - SR 255 to Pinedale
Winchester - Dominion to Naugher
US 231/431 - Mastin Lake to Winchester
SR 255 - I565 to SR 53
US 72 E - Maysville to Dug Hill
US 72 W - County Line to Providence Main
US 431 - Dug Hill to California
I 565 - County Line to SR 255
US 231/431 - Martin to I565
Limestone County
Madison County
DRAFT
CMP Priority Corridors
Study Area Boundary
County Boundary
Huntsville City Limits
Gurley Town Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
Redstone Arsenal
0
2.5
5
10 Miles
N
W
E
S

The previous Congestion Management Plan identified past strategy recommendations that are now in process or on the verge of construction. Once additional strategy recommendations are implemented for other corridors, an assessment will be conducted on the effectiveness of the improvement(s). The overall effectiveness of the congestion management process is dependent upon the data collected, performance of the transportation model, and appropriate analysis of selected performance measures. Ongoing data collection, continuous monitoring, and future reports will serve to comprehensively measure network performance and will provide a more multidimensional review and assessment of the state of the local transportation system.

Performance Measure (PM) Targets

In compliance with the Joint Planning Rule from FWHA (23 CFR 450 and 771) and FTA (49 CFR 613), under MAP-21 and continued in the FAST Act and IIJA, State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are implementing a performance-based approach to planning and programming activities. This includes setting data-driven performance targets for transportation performance measures. This approach supports the seven national goals for the federal-aid highway and public transportation programs listed in [23 USC 150(B)].

Under the 23 CFR 490, the DOTs and MPOs are required to establish targets for applicable national performance measures. The Safety Performance Measures (PM1), Bridge/Pavement Measures (PM2), the System Performance Measures (PM3), and the FTA's Transit Asset Management (TAM) Targets have been adopted by ALDOT and the MPOs.

A System Performance Report has been completed for the Huntsville Area MPO, and can be found in Appendix K.

Performance-Based Plans Descriptions

Below are brief descriptions of ALDOT's plans which align with their respective performance measures and targets and are supported by the highway and transit projects listed in this LRTP:

- **Strategic Highway Safety Plan (SHSP) and Highway Safety Improvement Program (HSIP) Report (HSIP) (PM1)**

  The SHSP provides a comprehensive framework for reducing fatalities and serious injuries on all public roads, with the ultimate vision of eradicating the State's roadway deaths. The Alabama SHSP 4th Edition was completed in 2022, and the current focus is the National Goal of "Toward Zero Deaths" initiative which is to reduce fatalities and serious injuries by 50% by 2040. HSIP is a report required by states that documents the statewide performance measures toward the zero deaths vision. It identifies and reviews traffic safety issues around the state to identify locations with potential for improvement.

PM1: SAFETY PERFORMANCE MEASURES
Number of Fatalities
Fatality Rate per 100 million VMT
Number of Serious Injuries
Serious Injury Rate per 100 million VMT
Number of Combined Non-Motorized Fatalities and Serious Injuries
PM2: BRIDGE/PAVEMENT PERFORMANCE MEASURES
Percent of Interstate System Pavement in Good Condition
Percent of Interstate System Pavement in Poor Condition
Percent of Non-Interstate NHS Pavement in Good Condition
Percent of Non-Interstate NHS Pavement in Poor Condition
Percent of NHS Bridge Deck Area in Good Condition
Percent of NHS Bridge Deck Area in Poor Condition
PM3: SYSTEM PERFORMANCE MEASURES
Percent Person-Miles Traveled on the Interstate that are Reliable
Percent Person-Miles Traveled on the Non-Interstate NHS that are Reliable
Percent Change in Tailpipe CO2 (greenhouse gas) Emissions on the NHS Compared to the Calendar Year 2017 Level
Truck Travel Time Reliability (TTTR) Index
Annual Hours of Peak Hour Excessive Delay Per Capita
Percent Non-SOV Travel
Total Emissions Reduction

Table 7.2: Highway Performance Measures

- **Transportation Asset Management Plan (TAMP) (PM2)**

  The TAMP is a focal point for information about bridge and pavement assets, their management strategies, long-term expenditure forecasts, and business management processes. The TAMP is consistent with ALDOT's desire to make data-driven spending decisions related to its assets.

- **Alabama Long-Range Plan and Statewide Freight Plan (PM3)**

  The Alabama Statewide Long-Range Plan provides a high-level description of existing and projected travel and maintenance conditions of Alabama's infrastructure. This Plan places emphasis on the roadway system because it is the primary mode of transportation for the movement of people and goods. The targets support system reliability along Alabama's infrastructure system.

  The Alabama Statewide Freight Plan (FP) provides an overview of existing and projected commodity flow by mode (truck, rail, waterway, air and pipeline) along existing and projected network characteristics through data analysis. In general, the FP provides an overall profile of Alabama's multimodal freight network, existing and projected freight flows by truck, and congested areas of concern throughout the state. The targets support the movement of freight which affects economic vitality.

- **Transit Asset Management (TAM)**

  Transit Asset Management (TAM) is a business model that uses the condition of assets to guide the optimal prioritization of funding at transit properties to keep transit networks in a State of Good Repair (SGR). The benefits of the plan are: improved transparency and accountability; optimal capital investment and maintenance decisions; more data-driven decisions; and potential safety benefits. This plan aligns with the transit targets under Transit Asset Management.

Safety Management Element

The elimination of hazards that may pose problems within the transportation network will improve the safety of the transportation system. Federal transportation legislation has continued to split the safety and security requirements of TEA-21 into two separate and distinct planning factors to be undertaken by States and MPOs. This was done, beginning with the SAFETEA-LU legislation, to further emphasize these planning factors.

The Strategic Highway Safety Plan (SHSP) and Highway Safety Improvement Program (HSIP) and their development have been directly influenced by the Moving Ahead for Progress in the 21st Century (MAP 21) Act, the Fixing America's Surface Transportation (FAST) Act, and the Bipartisan Infrastructure Law (BIL), which was passed in November, 2021. Under these laws, the Federal Highway Administration (FHWA) published their HSIP Final Rules with an effective date of April 14, 2016. These regulations set policy that guide the implementation and evaluation of the SHSP.

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance. A Strategic Highway Safety Plan (SHSP) is a major component and requirement of the Highway Safety Improvement Program (HSIP) (23 U.S.C. § 148). It is a statewide-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. In addition, some states also have a High-Risk Rural Roads (HRRR) program if they had an increasing fatality rate on rural roads. The HSIP is legislated under Section 148 of Title 23, United States Code (23 U.S.C. 148) and regulated under Part 924 of Title 23, Code of Federal Regulations (23 CFR Part 924). The HSIP consists of three main components, the Strategic Highway Safety Plan (SHSP), State HSIP or program of highway safety improvement projects and the Railway-Highway Crossing Program (RHCP).

An SHSP identifies a State's key safety needs and guides investment decisions towards strategies and countermeasures with the most potential to save lives and prevent injuries. An SHSP is developed by the State department of transportation in a cooperative process with Local, State, Federal, Tribal and other public and private sector safety stakeholders. It is a data-driven, multi-year comprehensive plan that establishes statewide goals, objectives, and key emphasis areas and integrates the four E's of highway safety – engineering, education, enforcement and emergency medical services (EMS). However, recent legislation has added a fifth "E", Equity. The SHSP allows highway safety programs and partners in the State to work together to align goals, leverage resources and collectively address the State's safety challenges.

Strategic Highway Safety Plan (SHSP)

23 CFR Part 924 requires States to develop a Strategic Highway Safety Plan (SHSP) to focus on implementable policies and methods to make travel on State roads safer for motorists. Additionally, the legislation calls for long range statewide and metropolitan transportation plans to include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects contained in the Strategic Highway Safety Plan.

The State of Alabama Strategic Highway Safety Plan (SHSP) 4th Edition was developed by the Alabama Department of Transportation (ALDOT) in 2022 in a cooperative process with local, state, federal, and other public and private stakeholders, including representatives from the Technical Coordinating Committee of the Huntsville Area MPO. The SHSP provides a comprehensive framework for reducing fatalities and serious injuries on all public roads, with the ultimate vision of eradicating the State's roadway deaths. The strategies detailed in the plan integrate the efforts of partners and safety stakeholders from the 5 Es of safety.

SHSP Emphasis Areas

A review of the State's 2022 SHSP indicates that the local MPO and various agencies and organizations within its jurisdictions have implemented a variety of strategies to assist the State in meeting its implementation goals. Some strategies are wholly State-driven and can only be enacted at the State level. The four main emphasis categories that are the focus of the 2022 SHSP are:

- **Emphasis Area 1: Behavioral-based**
  Behavioral-Based Emphasis Areas:
  Crashes occur because of multiple factors associated with the roadway, vehicle, and the user/operator. An example of this is a distracted driver who fails to yield at a traffic signal and strikes a non-motorist or an unrestrained driver who departs the roadway and runs into a tree. Drivers, passengers, pedestrians, and bicyclists all engage in several risky behaviors that contribute to traffic crashes. ALDOT and its partners have identified the following emphasis areas that are primarily behavioral-based and have a strong correlation with the occurrence and/or severity of crashes in the state:
  - Speeding and Aggressive Driving
  - Distracted/Drowsy Driving
  - Impaired Driving
  - Occupant Protection

Behavioral-based contributing factors are primarily addressed through a combination of education and public outreach activities to inform and educate the road users of the prevalence and risk associated with certain behaviors, and enforcement activities as the proverbial stick to discourage risky behavior in both a general and targeted manner. Impaired driving and occupant protection are priority programs in the Alabama HSP.

- **Emphasis Area 2: Infrastructure-based**

  Implementation of infrastructure-based safety counter-measures are intended to prevent crashes and/or to reduce the severity of crashes that do occur. Understanding how various roadway features contribute to crashes and crash severities is a basic element of planning a safety program. The two emphasis areas identified based on infrastructure-based contributing circumstances are:
  - Roadway/Lane Departure Crashes
  - Intersection Crashes

  Infrastructure-based contributing factors are primarily addressed through engineering solutions, however, as with all crashes true reduction requires a multidisciplinary approach including education, outreach, and enforcement to also address behavioral aspects associated with infrastructure-based crashes. Roadway/Lane departure crashes and intersection-related crashes are priority crash types to reduce in the Alabama HSIP program.

  ALDOT is the primary state level agency involved in the mitigation of crashes from an infrastructure-based approach. The Department also works with local transportation agencies at the county and municipal level to implement improvements as well as partnering with universities for the development of innovative countermeasures, new systems, and programs such as the Safety Technical Assistance for Counties and Cities (STACC).

- **Emphasis Area 3: At-Risk Road Users**
  The at-risk road users category is comprised of older drivers, younger drivers, and non-motorists, which are comprised of pedestrians and bicyclists. These roadway users are at risk for varying reasons which will be explained further in each emphasis area. At-risk road user safety concerns will be addressed through a multidisciplinary approach utilizing education, outreach, enforcement, and engineering. There is also significant overlap between some of the at-risk user groups and behavioral based contributing circumstances that will need to be addressed to fully achieve a significant reduction in high severity crashes.

- **Emphasis Area 4: Data Systems**
  Understanding the crash trends and factors is critical to the effectiveness of traffic safety initiatives in Alabama. Efforts to reduce crashes and their consequences require robust data, analytical tools, and analysis. The fourth emphasis area for the Alabama SHSP 4th Edition captures the areas of transportation safety that develop, define, and empower safety decisions and decision-makers in the state. ALDOT uses Highway Safety Manual (HSM) methods and other analytical tools to evaluate safety improvements. These tools require the use of robust datasets. By improving data systems, Alabama can begin to achieve success by making significant reductions in crashes and becoming a national leader on the path towards zero deaths. The state's Traffic Records Coordinating Committee (TRCC) serves as the action group for safety data issues. This group oversees planning and improvements in the key data attributes for each of the traffic records information systems within the state. The TRCC is charged with ensuring these efforts move forward in each of the six traffic records information systems (i.e., crash, citation and adjudication, driver records, EMS/ injury surveillance, roadway, and vehicle). Ultimately, the goal is for data integration and access to be possible through a one source data portal.

SHSP Implementation

The FHWA 2017 SHSP Implementation Process Model describes the components necessary for successful implementation. The model outlined features four steps for successful implementation (emphasis area action plans; linkage to existing plans, marketing, and monitoring evaluation and feedback). The Implementation Plan identifies for each SHSP strategy, an action step leader, expected outcome(s), project type, needs and resources, and output and/or any additional outcome measures (in addition to the fatality and serious injury performance measures).

The Implementation Plan also provides information on marketing and communications, including recommendations on communication tactics and methods to inform the public and safety stakeholders about the SHSP and deliver the SHSP message. The intent is to keep the SHSP in the forefront of every stakeholder's mind, so they remain interested and committed to the plan and to helping the public understand the State's highway safety issues and that they are a part of the solution in reducing roadway fatalities and injuries.

The Steering Committee will continue to provide oversight during plan implementation by:

- Tracking implementation progress in each of the emphasis areas as a part of Steering Committee meetings
- Discussing strategy implementation progress and suggesting new actions as needed
- Evaluating the effectiveness of the plan as outlined in the SHSP Evaluation Section

Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS), a collective group of innovative technologies, were developed and have been deployed globally to improve transportation efficiency, safety, and security. ITS aims to provide travelers with current information on traffic conditions, provide vehicles with safety equipment, and improve the transportation infrastructure by relieving congestion and enhancing productivity. ITS can assist emergency responders in securing the transportation network during special events as well as at times of emergency.

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

Huntsville Urbanized Area TSMO Strategic Initiatives

The ALDOT North Region, in cooperation with other regional governments and organizations, has identified TSMO strategies for its region, and has developed a TSMO Master Plan. Two important aspects of the Plan are the Strategies and Priorities and the Regional ITS Architecture Deployment Recommendations. The Strategies and Priorities include, but is not limited to, the integrated and coordinated operations of incident management, emergency management, and advanced traffic signal and traveler information.

The development of the Strategies and Priorities translates the region's identified transportation operations problems into a set of core strategies for developing the North Region TSMO program. The Regional ITS Architecture defines the specific transportation management and incident management components needed to achieve the regional vision of the MPO. The components applicable to the Huntsville area transportation system are discussed in Table 7.3.

The MPO is continuing its initiative to implement TSMO technologies identified in the strategic plan and integrate them into the transportation system. This is being accomplished by meetings with regional stakeholders, which include law enforcement and other public safety personnel, to discuss implementation strategies for utilizing technology for increasing the safety and security of the transportation system within the MPO jurisdiction. Specific projects have been identified to bring the system to fruition. The MPO has also committed Carbon Reduction Attributable funds in the 2024-2027 TIP to expedite the deployment of ITS infrastructure in the MPO area.

TSMO COMPONENTS APPLICABLE TO THE HUNTSVILLE AREA TRANSPORTATION SYSTEM
TRAFFIC SIGNAL CONTROL SYSTEMS Provides for the control and coordination of traffic signals, surveillance and monitoring of traffic, and the monitoring of hardware and software malfunctions.
FREEWAY MANAGEMENT SYSTEMS Provides for the following on limited access facilities: surveillance and incident detection, intelligent ramp control, information dissemination, incident management, lane use control, and coordination/integration with all appropriate agencies that are affected by freeway management strategies.
TRANSIT MANAGEMENT SYSTEM Provides for the following with respect to public transit operation: transit vehicle tracking, demand-responsive operations, passenger and fare management, vehicle security, vehicle maintenance, and multimodal coordination.
REGIONAL MULTI-MODAL TRAVELER INFORMATION SYSTEM Provides multi-modal trip planning, route guidance, traveler advisory functions, confirmation and payment services for travelers, special event information, and pre-trip/enroute trip planning assistance, including roadway conditions, traffic information, travel times, and transit information.
EMERGENCY MANAGEMENT SYSTEM Provides for the integration and coordination of appropriate emergency management agencies (county and local police, fire, E-911) with respect to the transportation infrastructure.
INCIDENT MANAGEMENT PROGRAM Provides for the detection and verification of roadway incidents, appropriate response to incidents, site traffic management, incident clearance, and motorist information.
RAILROAD GRADE CROSSING WARNING SYSTEM Provides for the implementation of technologies, which increase roadway and rail safety for at-grade crossings throughout the Huntsville area transportation system.

Table 7.3: TSMO Components Applicable to the Huntsville Area Transportation System

The MPO will continue to apply for any available funding for the deployment of TSMO technologies that complement the TSMO Master Plan. Congestion management and safety management projects have been identified. A systematic approach of integrating these improvements into the transportation system, along with the implementation of ITS technologies and construction of the transportation improvements yields a transportation network that will provide more efficient and safe travel in future years.

8. FREIGHT: AIR, RAIL, WATER & TRUCK

Introduction

The efficient movement of freight through the region plays an important role in the quality of life and economic vitality of the area. Therefore, planning for the effective transport of goods is a key component of the region's long range transportation plan. Currently, the urban area has excellent linkages between the Huntsville International Airport and the highway system via I-565 which facilitate the movement of freight. The International Intermodal Center (IIC) is North Alabama's inland port, located at the airport and is connected by a spur to a main line of the Norfolk Southern Railroad. However, there is currently no direct connection to the Tennessee River.

A River Port Development Study was conducted in 2000 identifying potential locations for river terminal sites in Huntsville, as a site is vitally important to capture additional economic markets. As a result of this study, property was acquired for future port development. The cargo waterway service is available in nearby Decatur offering barge service for bulk commodities and general cargo providing access for customers to the IIC and I-565.

The categories that follow explain the various modes of transportation that are either available or are being investigated in the region. Each is an important component of an efficient intermodal freight transportation system.

Airports

The Huntsville-Madison County Airport Authority (HMCAA) is a public corporation which owns and operates the Huntsville International Airport, International Intermodal Center, Jetplex Industrial Park, and Spaceport. These properties and facilities, located on more than 7,400 acres, are valued at more than $2 billion.

Huntsville International Airport (HSV), with its state-of-the-art amenities, is the largest commercial airport in North Alabama. Located just 12 miles from downtown Huntsville, HSV serves more than 1.4 million passengers annually. The airport has parallel 10,000-foot and 12,600-foot runways with a 5,000-foot separation, allowing simultaneous approaches even during inclement weather. To date, air traffic operations are 63,603 annually with passenger traffic exceeding 1.4 million (enplaned and deplaned passengers) and air cargo activity of more than 120 million pounds per year.

The IIC opened in 1986 at the Port of Huntsville. The IIC rail terminal is served by Norfolk Southern, with dedicated stack-train service to/from both east coast and west coast ports. Cargo services via air and rail serve over 600 industries.

Air cargo services currently in place at Huntsville International Airport include 5-7 weekly scheduled non-stop international cargo flights to, Europe, Hong Kong, and San Paulo, Brazil, as well as daily flights by two major all-air cargo carriers via their hubs in the U.S. Huntsville International Airport is ranked the 21st largest International Air Cargo Airport in the continental US. The Port of Huntsville now has more than 436,00 square feet of cargo space with 35,000 square feet of cold storage adjacent to 2.1 million sq. million sq. ft. of ramp area.

U.S. Customs and Border Protection have offices in the International Intermodal Center, where it oversees the transportation and inspection of the above-mentioned cargo. It collects over $50 million annually in import duty taxes, making the inland Port of Huntsville – located at the Huntsville International Airport – the second-largest port in the state of Alabama.

Foreign-Trade Zone No. 83, located at the Port of Huntsville, includes the Jetplex Industrial Park and the Mallard Fox Creek Industrial Park and Port in Decatur, AL as well as sub-zones located in the north Alabama region. Operated by the Huntsville Foreign-Trade Zone Corporation, this service-plus entity provides technical expertise on regulatory Customs issues, as well as money savings from duty exemptions.

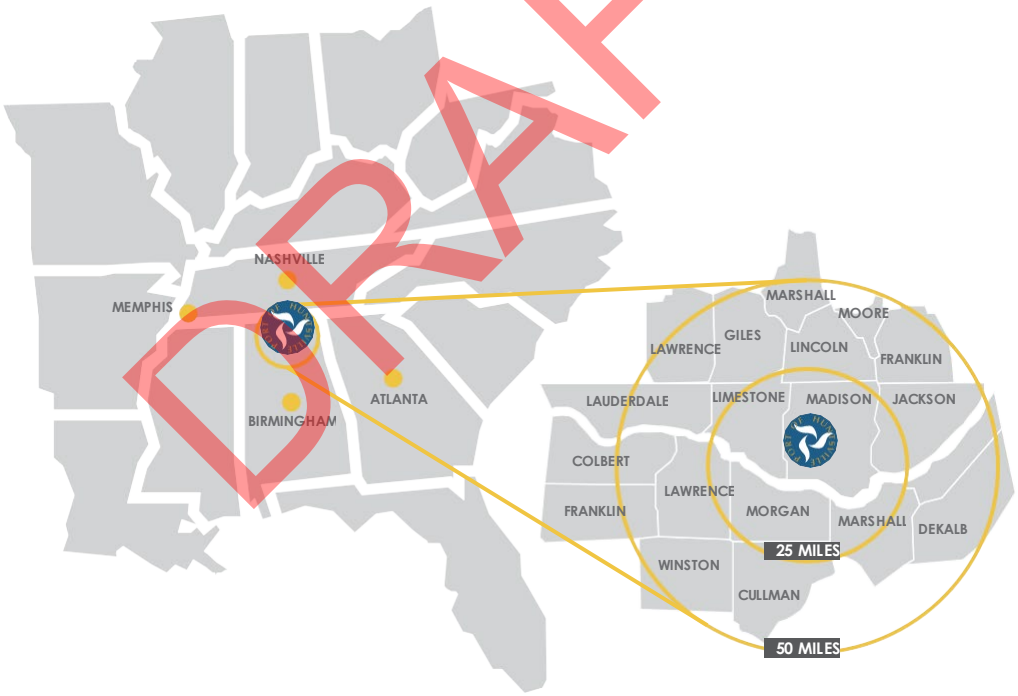
Airport Passenger Trends

The 2024-2044 FAA forecast calls for U.S. carrier domestic passenger growth over the next 20 years to average 2.5 percent per year. This average, however, includes robust growth in 2024, as activity returns to pre-pandemic levels. Following the recovery period, trend rates resume with average growth through the end of the forecast of 2.3 percent. Annual domestic passengers in 2024 are forecast to exceed 2019 levels by 6 percent. Another sector showing promise is Advanced Air Mobility (AAM). Based on research performed by others, the FAA believes that AAM will likely enter service (EIS) in the 2025-2027 timeframe. Starting from limited services to initial launch cities, services will be experimental, slow, and likely gain a gradual trajectory of growth until 2030. We expect that an initial 5 years or so will be required to resolve many outstanding issues including establishing solid AAM business cases.

Over most of the past decade, the international market has been the growth segment for U.S. carriers when compared to the mature and much larger U.S. domestic market. For the ten years ending in 2023, international enplanements grew by 31 percent while domestic enplanements grew 24 percent. International capacity and demand will see another year of strong growth in 2024 as the recovery continues but rates will return to more typical values in 2025 and 2026.

Huntsville International Airport has been designated as a Spaceport and was the first commercial airport to receive a license for a space launch vehicle to land at a commercial airport. Commercial Space launch activity has been steadily growing over the past 5 years. FY 2023 actuals were the highest in U.S. history at 113, accounting for 16.7% of the activity since 1989. FAA is forecasting launch and re-entry activity to increase from a low high range of 134-156 in FY 2024 to a low high range of 195-338 by FY 2028. Much of this increase is attributable to the lineup or reusable vehicles and the expectation for increased human space exploration and space tourism.

Currently, Huntsville International Airport is operating at about 30% of its capacity and has an excess capacity of 219,000 operations per year as determined by the FAA Office of Capacity. To protect future growth potential, the HMCAA continues to pursue an aggressive land acquisition program, which will make the Port of Huntsville complex approximately 10,000 acres.



Graphic 8.1: Huntsville International Airport Service Area

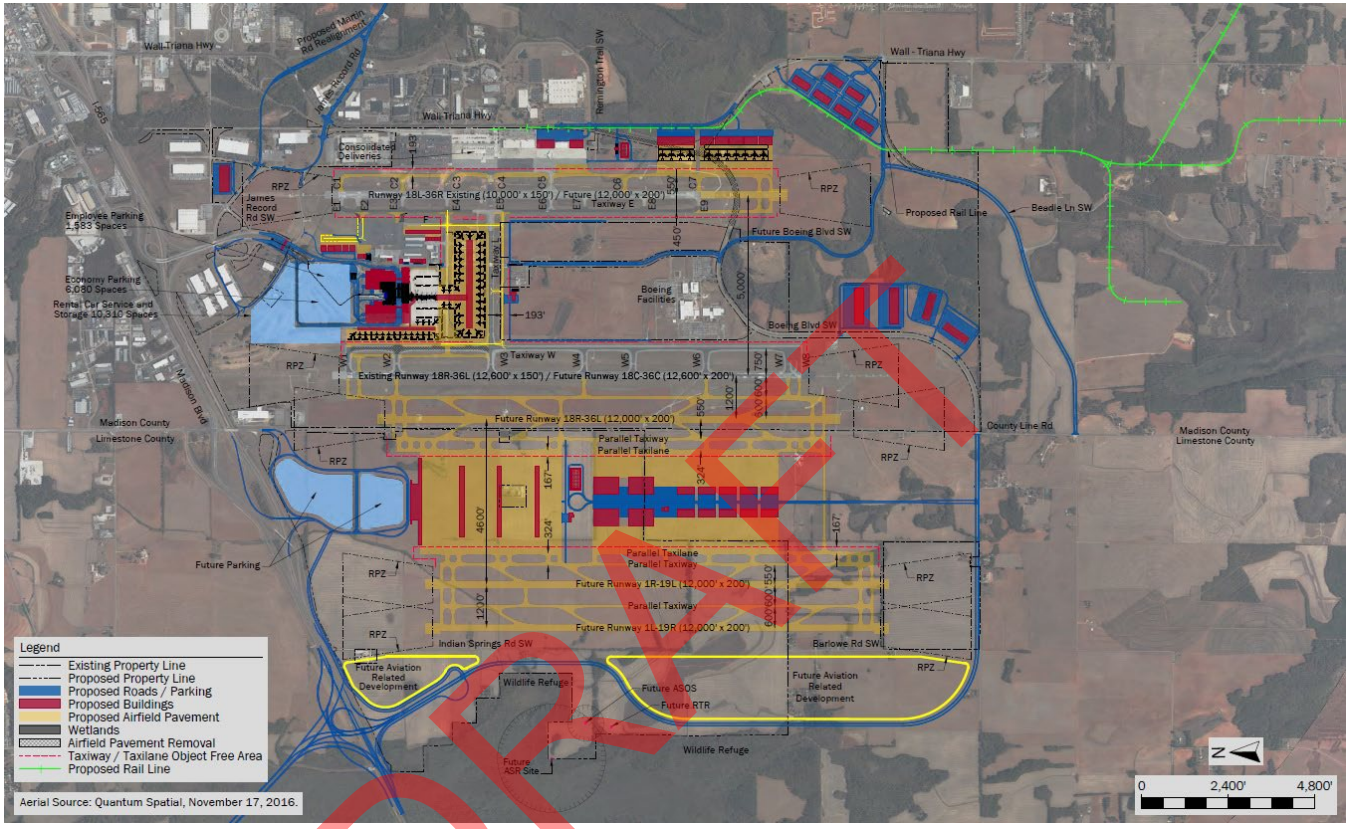
The Huntsville International Airport is strategically located between Atlanta, Birmingham, Memphis, and Nashville, making it an attractive transfer and distribution point for the Southeastern United States. Airport passenger and air cargo hubs develop where people live and where resulting demand and airline revenue dictate such a need. Approximately 1.1 million people reside within a 50-mile radius of Huntsville International Airport. If the radius is moved to 100 miles, the population increases to almost 5 million. This is a larger population than the 100-mile radius around Nashville or Birmingham airports. Graphic 8.1 represents the HSV Service Area.

HIA also serves an international business community. The presence of many international companies has been a driving force in continuous economic growth in North Alabama. The Jetplex Industrial Park is home to L.G. Electronics, the first Korean manufacturing operation located in North America.

In Madison County alone, there are over 60 foreign-based corporations. These include representation from Canada, France, Denmark, Germany, Ireland, Italy, Japan, Korea, Kuwait, Netherlands, Singapore, South Africa, Sweden, Switzerland, and the UK. The Huntsville Area MPO's population base has its origin from nearly 100 countries. There are several international schools in place as well as the very active North Alabama International Trade Association.

Services already in place at Huntsville International include U.S. Customs Port of Entry, Foreign-Trade Zone No. 83, freight forwarders, customs brokers, and weekly scheduled international cargo flights to Europe, Mexico and Hong Kong. The world-class International Intermodal Center combines air, rail, and highway modes of transportation and more than 100% of rail cargo has an international origin or destination while 90% of the air cargo has an international origin or destination.

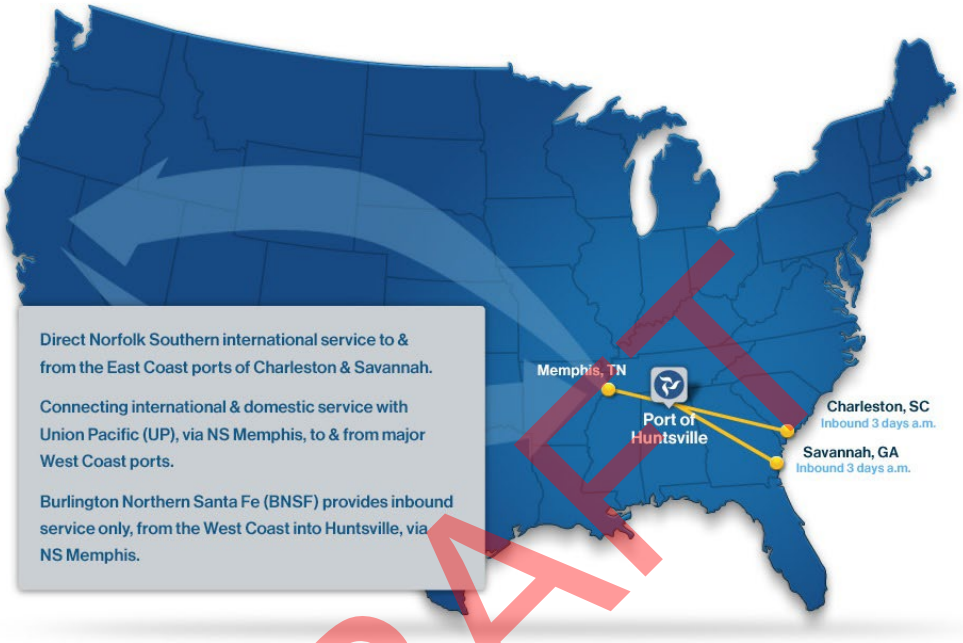
The Airport Layout Plan reflects parallel 12,600 feet and 10,000 feet runways with the ability to expand to a total of five parallel runways as depicted in the master plan (Graphic 8.2).



Graphic 8.2: Huntsville International Airport Master Plan
Source: Huntsville-Madison County Airport Authority

Truck-Rail Intermodal Facilities

To efficiently serve the growing demand of its customers, railroads are placing increasing importance on intermodal facilities. Additionally, the need to cope with the industry trend of locating facilities in suburban and rural locations is often remote from existing rail facilities, further exacerbates the need for intermodal facilities. Development of domestic containerization by railroads is consistent with the trend toward more diverse points of origin and destination, shipment of smaller units, and the need for more rapid service.



Graphic 8.3: Huntsville International Airport Master Plan
Source: Madison County Airport Authority

The IIC is one of the entities that is owned and operated by the HMCAA and provides multi-modal services and facilities at one central hub location. The center supports a range of services for receiving, transferring, storing, and distributing air, rail, and highway cargo as well as features a U.S. Customs and Border Protection Port of Entry with Customs Officials, U.S. Department of Agriculture Inspectors, and Custom Brokers on site.

Rail service is provided by Norfolk Southern. The Intermodal Center is capable of handling trailers on flat car and container on flat car (TOFC/COFC) and double-stack service. The center is in Foreign Trade Zone No. 83, enhancing trade and economic development. The Intermodal Center serves as a regional distribution hub for rail customers within a 200-mile radius and a 600-mile radius for air cargo customers. The IIC rail services map is displayed in Graphic 8.3.

International Intermodal Center Expansion for Future Capacity

In 2024, the container volume at the Intermodal Center is 100% international. During 2023 the IIC had 27,517 rail lifts, which was a 24.2% increase from 2022. Based on an updated site optimization study, performed in 2019 with The Hanson Group, the IIC can handle up to 85,000 rail lifts and store up to 2,100 containers. Foreign Trade Zone No. 83 and U.S. Customs & Border Protection are located on site which enhances the on-site transportation amenities. The IIC is located on a 51-acre site, with approximately five miles of track and two gantry cranes in operation. Opened in 1986, the IIC is nearing 40 years in operation, with approximately $70 million total investment to-date.

The Intermodal Center currently serves 14 major steamship lines, which also utilize the Center as a container yard depot to store and manage their equipment in Huntsville. Current system users and projected increases in rail traffic, coupled with the recent expansion of the Center, place the region in a strategic position to accommodate anticipated cargo growth.

The Port of Huntsville in Alabama will be opening a new 111,0000-square foot air cargo building in the fall of 2024 adding to existing capacity.

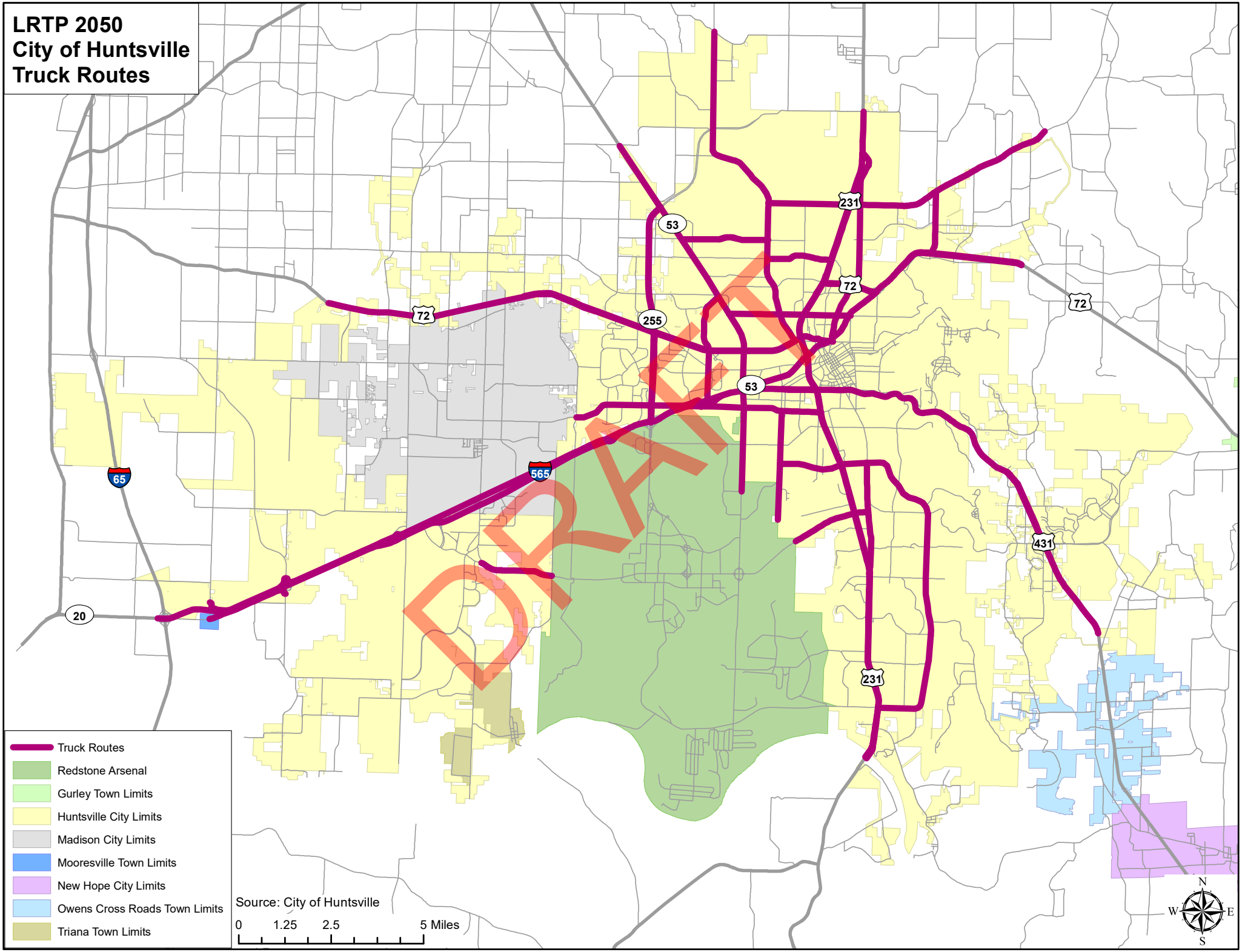
Truck-Rail Service Facilities

Truck-rail, drayage*, cartage, warehousing, and chassis leasing companies, as well as motor freight carriers, serve the Huntsville area. Information on these companies and carriers can be found in Appendix F.

**Drayage consists of trucking goods between a warehouse and rail yard.*

Truck Routes

Ordinance No. 96-810 established truck routes within the City of Huntsville and these are illustrated in Map 8.1. Designated truck routes on state highways include I-565, U.S. 431, U.S. 231, U.S. 72 East and West, Alabama Highway 53, Alabama Highway 20, and AL-255 Research Park Boulevard. Truck routes established on City of Huntsville streets are shown on Map 8.1.


LRTP 2050
City of Huntsville
Truck Routes
DRAFT
231
53
72
255
72
72
53
65
565
431
20
231
Truck Routes
Redstone Arsenal
Gurley Town Limits
Huntsville City Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
Source: City of Huntsville
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1.25
2.5
5 Miles
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TRUCK ROUTES ESTABLISHED ON CITY OF HUNTSVILLE STREETS			
1.	Jordan Lane from I-565 to Redstone Arsenal	11.	Meridian St. north of Pratt Av.
2.	Triana Blvd south of Bob Wallace Avenue	12.	Oakwood Av. between Jordan Lane & Andrew Jackson Way
3.	Johnson Rd. from Triana Blvd to Leeman Ferry Rd.	13.	Moores Mill Rd. between U.S. Hwy 72 East & Winchester Rd.
4.	Airport Rd. from Leeman Ferry Rd. to Carl T. Jones Rd.	14.	Winchester Rd. from Pulaski Pike to city limits
5.	Carl T. Jones Rd. from Airport Rd. to Bailey Cove Rd.	15.	Stringfield Rd. between Alabama Hwy 53 & Pulaski Pike
6.	Bailey Cove Rd. from Carl T. Jones Rd. to Green Cove Road	16.	Mastin Lake Rd. between Pulaski Pike & Memorial Pkwy
7.	Bob Wallace Av. from I-565 to Memorial Pkwy	17.	Old Madison Pike from I-565 to city limits
8.	Pulaski Pike from University Dr. to city limits	18.	Martin Rd. in its entirety
9.	Sparkman Dr. west of Jordan Lane	19.	Green Cove Rd. from Memorial Pkwy to Bailey Cove Rd.
10.	Pratt Avenue between Memorial Pkwy & Meridian St.	20.	Whitesburg Dr. from Airport Rd. to Memorial Pkwy

Table 8.1: City of Huntsville Truck Routes

Railroad Facilities

Three railroads operate in the urbanized area – Huntsville-Madison County Airport Authority (HMCAA), Huntsville-Madison County Railroad Authority (HMRA), and Norfolk Southern (NS).

Huntsville-Madison County Airport Authority (HMCAA)

The Huntsville-Madison County Airport Authority owns and operates 6.2 miles of industrial switching track off the Norfolk Southern spur into the International Intermodal Center (IIC). The tracks serving the IIC have the capability to extend the rail southward to any potential riverport facility, bringing the total track length to approximately 12 miles.

Huntsville-Madison County Railroad Authority (HMCR)

Authority (HMCR) is a Class III* non-profit short- line railroad that owns and operates over 13 miles of track originating in downtown Huntsville with a corridor that extends south and terminates at the Tennessee River. The HMCR owns 5.5 acres of land in south Huntsville with plans to develop this site to accommodate additional trans-load and storage demands. Image 8.1 represents the HMCR interchanges with Holmes Avenue.

Norfolk Southern (NS)

This Class I railroad has both North to South and East to West lines with most of the track located in the central and northern part of the state. The NS has 1,144 miles of track within Alabama. Major commodities transported include coal, chemicals, lumber and wood products.

From Huntsville west to I-65 the Norfolk Southern railway mainline runs north and parallel to I-565, encompassing some of the highest quality industrial development properties in North Alabama. This property adjoins industrial property in Morgan County along the Tennessee River and in the direction of the river ports in Decatur, Alabama.

There is currently a trend of railroads granting operating rights to other railroads for use of tracks. Consideration should be made of the future possibilities of operating rights for railroads serving Huntsville and Memphis. Shared operating rights could substantially increase intermodal rail and truck activities between these two cities.

**In the United States, the Surface Transportation Board defines a Class I railroad as having annual carrier operating revenues of $250 million or more in 1991 dollars, which adjusted for inflation was $452.6 million in 2012. A Class II railroad hauls freight and is mid-sized in terms of operating revenue. As of 2011, a railroad with revenues greater than $37.4 million but less than $433.2 million for at least three consecutive years is considered Class II. A Class III railroad has an annual operating revenue of less than $20 million (1991 dollars). Class III railroads are typically local short-line railroads serving a small number of towns and industries or hauling cars for one or more railroads; many Class III railroads were once branch lines of larger railroads or abandoned portions of main lines.*

Freight Trends

The 2022 Alabama Freight Plan projects existing and projected commodity flows which were developed through the statewide commodity flow assignment process, which relies on its primary data source, the Freight Analysis Framework Version 5.4 (FAF 5.4) produced by FHWA. Several points of significance indicated by the data are:

- Trucks have the highest volume of commodity flow by mode, given their ability to transport a wide range of commodities and service last mile needs. The truck is the mode most directly influenced by ALDOT and its management of operations and maintenance of the state roadway network. While ALDOT also influences the operations of other modes with last mile connectivity, the overall operations and maintenance for goods movement is the responsibility of other entities (i.e., railroad companies, airports, and Port of Mobile).

- Pipeline is the second most used mode of transport, carrying approximately 32 percent of the state's freight (in kilotons).
- While the smallest portion of cargo flow with respect to tonnage is by air, commodities shipped via air cargo are more valuable than those shipped by any other mode.
- Alabama imports slightly more goods than the state exports, as shown by comparing the total kilotons for origins in Alabama (exports) to destinations in Alabama (imports).

Intermodal Trends

Each transportation mode has its strengths and role in facilitating mobility. The interaction of the modes occurs at Intermodal connections that facilitate the interaction of modes and the opportunity to benefit from each in getting freight to market on time and economically. Truck-rail intermodal traffic at the Port of Huntsville since 2006 has experienced some peak years in the range of 45,000 to 46,000 units per year, but those volumes declined after the recession period of 2008-2009.

The past five years, truck-rail intermodal traffic at Port of Huntsville has averaged 27,202 units per year, with 2023 coming in at 27,597 units. Intermodal facilities are in Birmingham, Mobile, Montgomery and Huntsville.

Waterway Facilities

The transportation of goods via water transportation makes economic sense. Shipping of bulk commodities utilizing barge transportation proves more cost effective, since one barge can transport as much tonnage as 15 rail cars or 60 semi-trucks. The significance of the future development of this mode of transportation in the Huntsville area has been recognized. If developed, it would provide existing and expanding industries with another option for shipping products in a cost-effective manner.

The 2000 River Port Development Study determined that the City of Huntsville should identify and procure property to make barge transportation a reality to diversify its economic base. The study, which involved a full evaluation and screening of potential sites, recommended purchase at the southern end of Wall-Triana Highway, approximately 3 miles southwest of the Town of Triana. Since that time, the property has been purchased.

While the Huntsville economy can continue to grow in the advanced technology sector with or without a river port, diversification of industry is vital to future economic growth. Diversification into more traditional manufacturing industries could fit into plans for broadening Huntsville's economic base, and a viable river port would be an asset that could aid in attracting transportation intensive industries.

The feasibility of the new river port development is highly dependent upon a common desire and concerted effort by community leaders to recruit businesses using barge transportation. illustrate the Tennessee River and Inland Waterway System. Table F1 in Appendix F describes waterway facilities in the vicinity of Huntsville.

Various modes of transportation in the area provide options for industries moving goods along the transportation system, and for individuals seeking alternative methods of trip-taking either within or outside of the study area. Long range plans have been developed to improve and/or expand services with existing or future capacity capabilities. The provision of multimodal services for industries and the general population will continue to be available and will expand as demand and potential growth and development dictate.

9. FINANCIAL PLAN

Introduction

IIJA/BIL legislation requires MPOs to demonstrate how long-range transportation plans can be successfully implemented through the development of a financial plan. The financial plan must indicate resources from public and private sources that are expected to be made available to carry out the plan and recommend any additional financial strategies for needed projects and programs.

While the consideration of bicycle and pedestrian facilities have been made as part of the planned projects listed in Chapter 5, additional bicycle, pedestrian, and greenway projects have been identified in Chapter 6. These additional projects have been incorporated into this section.

Funding Sources

The implementation of a financially constrained plan for the Huntsville urban area will require a mix of funding sources. These sources include various programs at the federal, state and local levels. Many of the needs identified are located on the state and federal highway system, and therefore, will require substantial financial assistance through the state and U.S. DOT funding programs. To determine available resources, historic funding data from ALDOT was examined in addition to ALDOT's expectation of future funding. During the previous ten years, over $372 million in project funding was utilized across all categories for capacity-adding projects, as well as maintenance and operations projects.

Historically, the largest proportion of funding was allocated for Surface Transportation Projects. In analyzing future projections, it is expected the largest proportion of funding will continue to be from the Surface Transportation Project category. The following depicts the estimated federal funding forecasts (expected operations and capital budgets) for the Huntsville Urban Area for the fiscal years 2025 to 2050.

The operating estimates are based upon the current budget and FTA allocation of funds and consider a typical 1% annual rate of inflation for future operating expenditures. FTA operating funds are matched by the project sponsors on a 50/50 cost basis. The capital and preventative maintenance estimates are based upon the current budget and FTA allocation of funds and consider a typical .5% annual rate of inflation for future preventative maintenance (PM) and capital expenditures. FTA PM and Capital funds are matched by the project sponsors on an 80/20 cost basis. If FTA funds are not available in the amounts noted, project sponsors will be required to pay for deficiencies. FTA allows PM allocations to be treated as a capital allocation and is matched at an 80/20 cost basis instead of 50/50.

HUNTSVILLE MPO ESTIMATED FUNDING FORECASTS: FY 2025-2050						
IIJA/BIL FUNDING CATEGORIES	**CAPACITY**	**OPERATIONS & MAINTENANCE**	**CAPACITY (STPHV)**	**OPERATIONS & MAINTENANCE (STPHV)**	**STATE**	**TRANSIT**
SURFACE TRANSPORTATION ATTRIBUTABLE	$0	$0	$245,475,760	$0	$0	$0
OTHER SURFACE TRANSPORTATION	$47,355,931	$0	$0	$0	$3,787,760	$0
NHS/IM/BRIDGE	$381,097,522	$21,299,256	$0	$0	$100,541,877	$0
APPALACHIAN HIGHWAY	$0	$0	$0	$0	$0	$0
TAP	$0	$2,337,073	$0	$0	$0	$0
BRIDGE	$44,486,871	$0	$0	$0	$11,121,719	$0
STATE FUNDED	$0	$0	$0	$0	$0	$0
TRANSPORTATION ENHANCEMENT	$0	$0	$0	$0	$0	$0
TRANSIT	$0	$0	$0	$0	$0	$29,093,838
SYSTEM MAINTENANCE	$0	$0	$0	$0	$0	$0
SAFETY	$0	$8,130,525	$0	$0	$789,404	$0
OTHER FEDERAL/STATE	$5,585,028	$53,095,029	$0	$0	$5,636,270	$0
CMAQ	$0	$0	$0	$0	$0	$0
HIGH PRIORITY	$0	$0	$0	$0	$0	$0
CARBON REDUCTION ATTRIBUTABLE	$0	$1,200,000	$0	$0	$0	$0
CARBON REDUCTION OTHER	$0	$0	$0	$0	$0	$0

Table 9.1: Huntsville MPO Estimated Funding Forecasts FY 2025-2050

Based upon the uncertainty of future funding amounts through the Highway Trust Fund, and a large maintenance effort proposed by the State, it is expected that the Alabama Department of Transportation will spend more dollars on maintenance and operations activities over the next twenty-five years. Given this uncertainty, (beyond projects with a financial commitment as of the writing of this LRTP update) the MPO has forecasted only attributable funds for the Huntsville urban area. The MPO estimates $245.5 million in Surface Transportation Block Grant funding will be allocated between 2025-2050.

Even though historical data has been analyzed to project anticipated funding, there are instances where funding in certain project categories will increase due to new sources of financing, at the discretion of the Governor, or the leveraging of local funds to complete projects. Examples of this are the Alabama Transportation Rehabilitation and Improvement Program (ATRIP) and the City of Huntsville/State of Alabama Restore our Roads initiative.

The Huntsville MPO has historically used its own directed Surface Transportation Program funds for capacity projects. This practice will continue, as maintenance and operations activities are typically funded through each jurisdiction's own capital improvements budget.

Major Funding Categories

IIJA/BIL legislation allows for streamlined federal highway transportation programs, by simplifying and consolidating the program structure into a smaller number of broader core programs. Activities carried out under the previous National Highway System Program, Interstate Maintenance Program, Highway Bridge Program, and Appalachian Development Highway System Program have now been incorporated into the National Highway Performance Program (NHPP), Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), and Congestion Mitigation and Air Quality (CMAQ) Improvement Program.

The Huntsville Area MPO does not qualify for CMAQ funds, since the area meets the National Ambient Air Quality Standards for ozone, carbon monoxide, and particulate matter. The following is an analysis of anticipated revenues for the LRTP implementation.

MAJOR FUNDING CATEGORIES		
FEDERAL PROGRAMS	**INNOVATIVE FINANCING**	**STATE & LOCAL PROGRAMS**
• Highway Safety Improvement Program (HSIP) • National Highway Performance Program (NHPP) • Surface Transportation Block Grant (STBG) • FTA Formula Funding • Transportation Alternatives Program (TAP)	• Alabama Transportation Rehabilitation and Improvement Program (ATRIP) • Rebuild Alabama (RA)	• Property Taxes • Sales Taxes • Fuel Taxes • User Fees • Special Assessments • Impact Fees • Bond Issuance • Value Capture

Table 9.2: Major Funding Categories

Federal funding amounts shown in this section reflect the Alabama Department of Transportation's projections of future funds. Various categories of federal funds are available for transportation improvements. These categories may be further broken down into capacity adding and maintenance and operations.

Capacity funding is dedicated to projects that improve or widen an eligible corridor. Maintenance and Operations (MO) funding is dedicated to projects that construct improvements such as traffic signal installation, improved signage, intersection improvements, etc. Historically, ALDOT has used maintenance funds for activities such as resurfacing, corridor studies, signalization, safety improvements, shoulder paving, pedestrian overpasses, signals and markings, and streetscape projects. More information can be found in Appendix G.

Innovative Financing

The two innovative financing mechanisms adopted include the Alabama Transportation Rehabilitation and Improvement Program (ATRIP) and the Rebuild Alabama Program. To facilitate the delivery of projects, Congress has enabled States to develop and use a variety of financial tools such as bonds to make needed investments on the transportation network.

ATRIP utilizes Grant Anticipation Revenue Vehicles (GARVEE) bonds. GARVEE bonds utilize the State's future federal aid funds as collateral, to issue low-interest rate bonds that address projects that are needed immediately.

State and Local Programs

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

Locally, the City of Huntsville approved Ordinance 13-959 in December 2013, that allocates an additional 1 percent sales and use tax to road and other capital infrastructure projects. The City of Madison and Madison County have also created the Town Madison Cooperative District to fund an interchange on I-565 near Zierdt Road. The Town Madison Cooperative District is a Community Development District that allows sales tax revenue, as well as property taxes from the district, to repay money borrowed for development in the area.

Federal Competitive Grants

Federal competitive grant programs may be available to fund major transportation projects, such as FHWA's RAISE and INFRA grant programs. The goal of these grant programs is to support innovative and collaborative local transportation projects which align with the specific criteria of each individual grant. MPO member jurisdictions apply for competitive federal grant programs according to each individual grant's application schedule as outlined in a Notice of Funding Availability. MPO member jurisdictions applying for such grants may contact the MPO to include their proposed grant-funded project(s) in the TRiP 2050, if not included already, as 'visionary' projects. In the event of a winning grant application, funded projects will be moved to the 'financially constrained' category in the TRiP 2050 and added to the TIP, if applicable.

Note - The projection of State revenues is difficult to predict and may vary from year to year; therefore, projected State funding is not included in this section.

Program Costs

The overall list of planned projects was evaluated, and the projects were categorized per funding source as appropriate. The projects receiving the highest priority, were those projects that either are in process, in the Transportation Improvement Program, or are exhibited on the Alabama Department of Transportation's Comprehensive Project Management System (CPMS) as being programmed for future years. The Alabama Department of Transportation established a policy to dedicate State-directed funds for capacity projects, during fiscal years 2020 through 2050, and to program remaining funds to maintenance and operating projects for the entire twenty-five-year period.

The Huntsville Area MPO has the authority to program the Surface Transportation Program urbanized area funds and has done so. Once programmed projects were segregated from the remaining projects, future projects were selected based upon available funds remaining.

Financially Constrained Projects

The breakdown of the financially constrained planned transportation projects by funding category all have costs that have been adjusted at 1 percent per year for the anticipated year of expenditure.

The cost of most projects reflects the current year's dollars, because it is unknown exactly when those projects may be constructed. It is therefore impossible to estimate inflated costs for a future year when the future year of construction is unknown. In some instances, the Alabama Department of Transportation has estimated the cost of an improvement for a future scheduled year, and those costs are reflected. The costs for both tables reflect charges for preliminary engineering, right of way, construction, and include the costs for bike lanes and sidewalks, where planned.

Visionary Projects

In many instances, projects exceeded anticipated funding revenues. Since TRiP 2050 must be financially constrained, projects lacking funding are listed in Appendix J as visionary projects. This list of visionary projects will be maintained in the hope that additional funds will be acquired.

Proposed Sources of Revenues to Cover Shortfalls

23 CFR 450.322(f)(10)(ii) and (iii) directs the MPO, public transportation operator(s), and the State to "… cooperatively develop estimates of funds that will be available to support metropolitan transportation plan implementation, as required under § 450.314(a)."

Additionally, the regulations require that "…all necessary financial resources from public and private sources that are reasonably expected to be made available to carry out the transportation plan shall be identified. The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified.

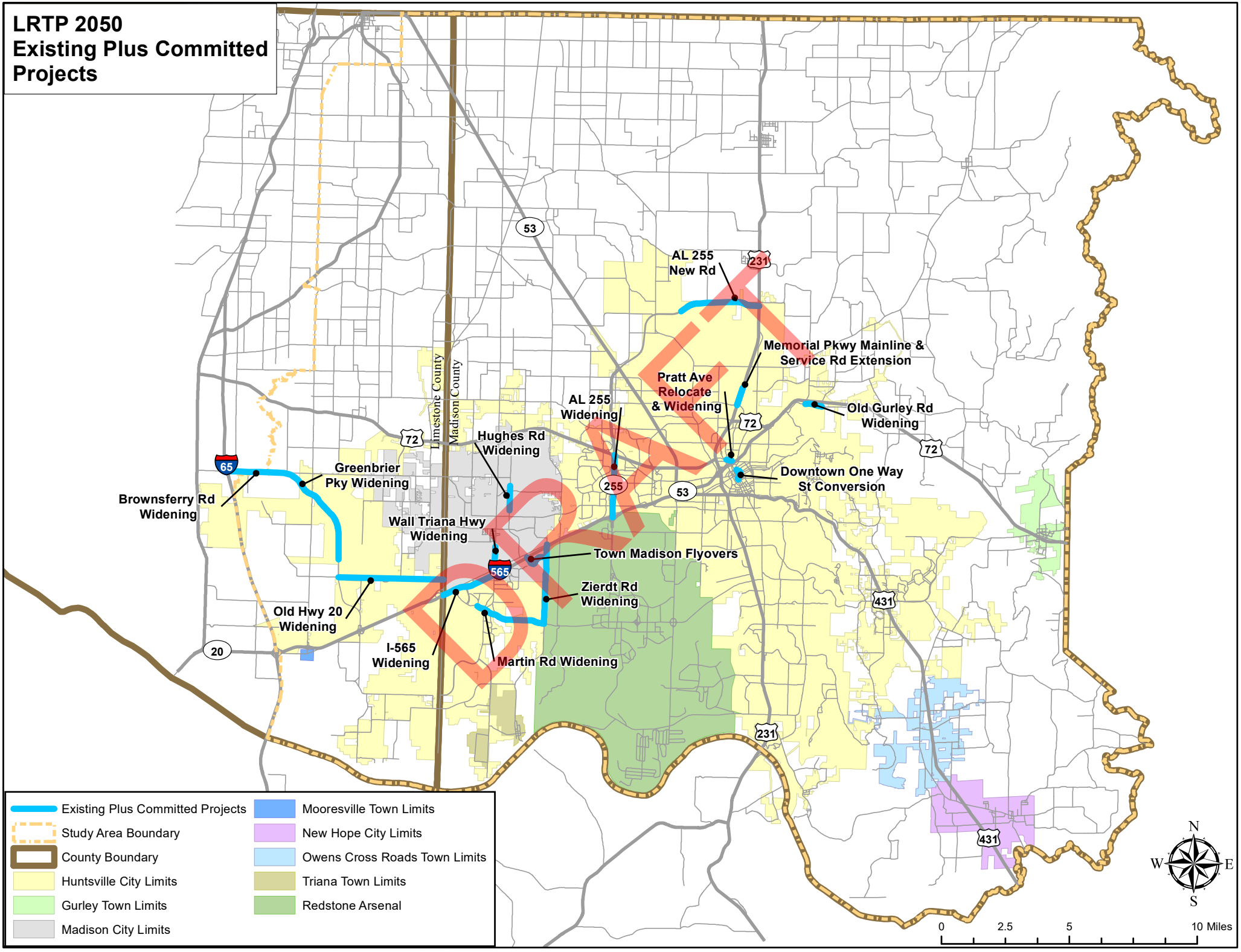
Currently, funds are inadequate to finance all the NHPP and STP projects identified in TRiP 2050. Alternative sources of funds will be needed to cover any shortfalls. It is anticipated that supplemental funding for the long-range plan may come from the following sources as indicated below.

1. Local Capital Improvement Programs, Bonds, Taxes
2. State Fuel Taxes/User Fees
3. State Programs, Industrial Access Funds
4. U.S. Congressional Appropriations
5. Public/ Private Partnerships (Value Capture, Impact Fees)
6. Toll Roads/Bridges/Managed Lanes

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

The maintenance and operations projects primarily focus on the construction of interchanges, bridge replacements, and geometric improvements. The projects have been categorized by funding sources. Enhancement-type projects, which would include the construction of greenways and signage of bike routes, may be eligible for Transportation Alternatives Program funds. The allocation of these funds is based upon the discretion of the State of Alabama and the MPO and are

distributed through grant activities. All these types of projects complement the road improvement projects identified in Section 4, by providing bicycle and pedestrian facilities such as bike lanes and signage, bike routes, and greenways. Federal funds are required to construct these types of projects. The LRTP is presented, and the projects selected to facilitate the future movement of people and goods within the MPO study area, are realistic and exhibit financial constraints. The projects detailed in this document indicate the best fit for improvements within the area. Actual implementation of this plan will be incremental, since these projects will be programmed into future 4-year Transportation Improvement Programs (TIPs) as local priorities and available funds dictate.


LRTP 2050
Existing Plus Committed Projects
DRAFT
AL 255 New Rd
Memorial Pkwy Mainline & Service Rd Extension
Pratt Ave Relocate & Widening
AL 255 Widening
Old Gurley Rd Widening
Hughes Rd Widening
Limestone County
Madison County
Greenbrier Pky Widening
Brownsferry Rd Widening
Downtown One Way St Conversion
Wall Triana Hwy Widening
Town Madison Flyovers
Zierdt Rd Widening
Old Hwy 20 Widening
I-565 Widening
Martin Rd Widening
53
231
72
65
255
565
431
20
Existing Plus Committed Projects
Study Area Boundary
County Boundary
Huntsville City Limits
Gurley Town Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
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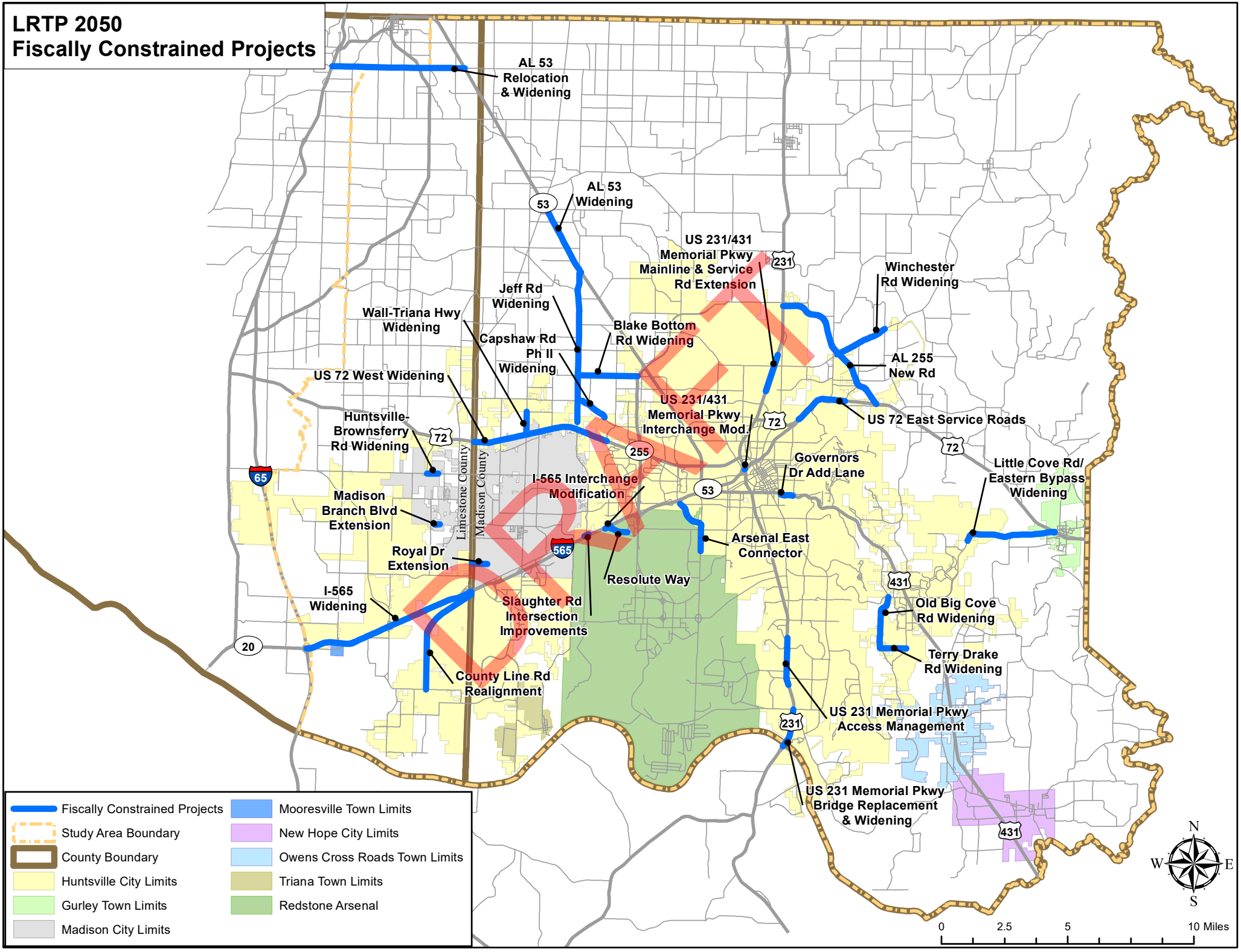
LRTP 2050
Fiscally Constrained Projects
AL 53 Relocation & Widening
AL 53 Widening
US 231/431 Memorial Pkwy Mainline & Service Rd Extension
Winchester Rd Widening
Jeff Rd Widening
Wall-Triana Hwy Widening
Blake Bottom Rd Widening
Capshaw Rd Ph II Widening
AL 255 New Rd
US 72 West Widening
US 231/431 Memorial Pkwy Interchange Mod.
US 72 East Service Roads
Huntsville-Brownsferry Rd Widening
Governors Dr Add Lane
Little Cove Rd/ Eastern Bypass Widening
I-565 Interchange Modification
Madison Branch Blvd Extension
Limestone County
Madison County
Arsenal East Connector
Royal Dr Extension
Resolute Way
I-565 Widening
Slaughter Rd Intersection Improvements
Old Big Cove Rd Widening
Terry Drake Rd Widening
County Line Rd Realignment
US 231 Memorial Pkwy Access Management
US 231 Memorial Pkwy Bridge Replacement & Widening
Fiscally Constrained Projects
Study Area Boundary
County Boundary
Huntsville City Limits
Gurley Town Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
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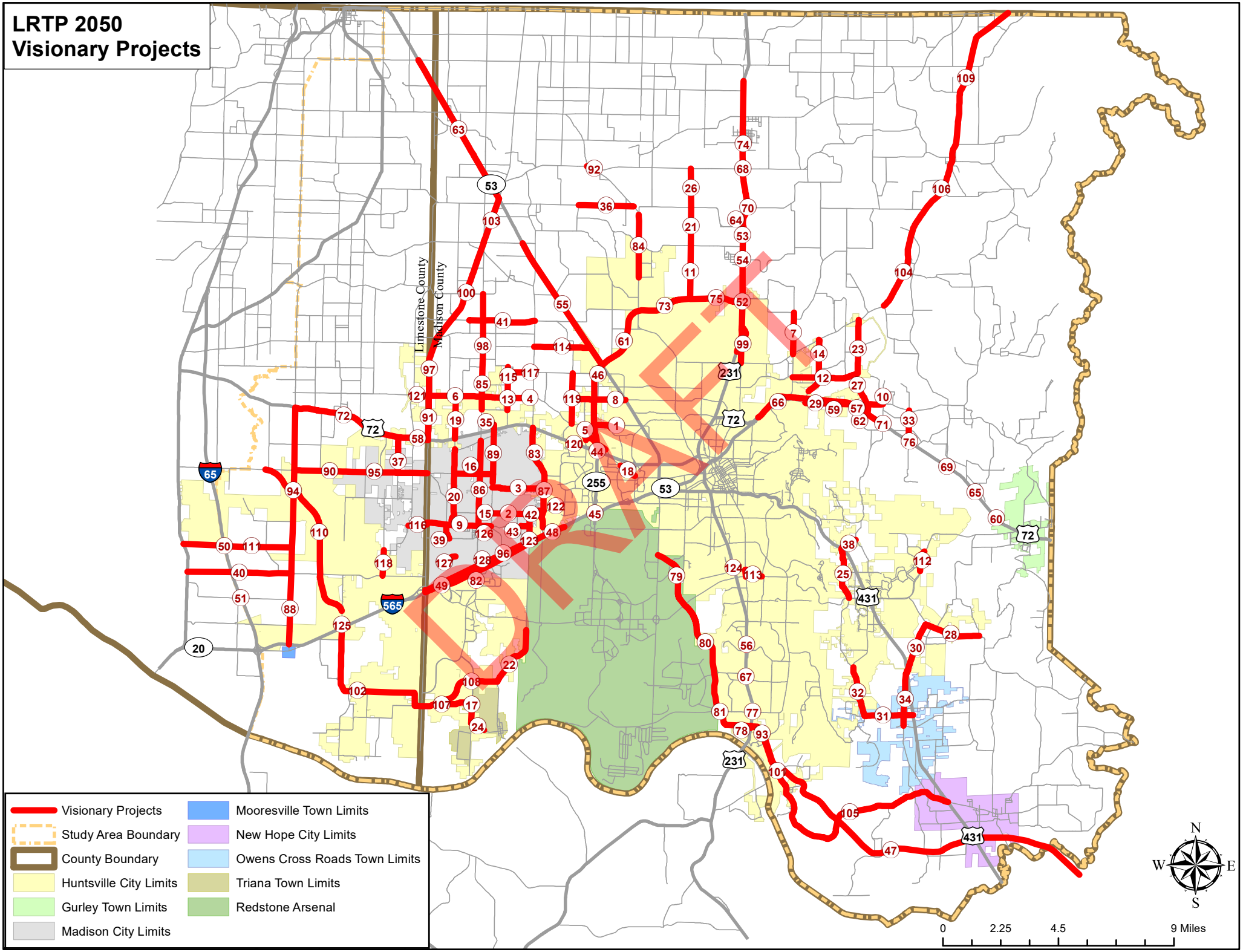
LRTP 2050
Visionary Projects
DRAFT
Limestone County
Madison County
Visionary Projects
Study Area Boundary
County Boundary
Huntsville City Limits
Gurley Town Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
Redstone Arsenal
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2050 Table of Financially Constrained Projects (Federal/State/MPO Funds Only)

CPMS Project IDs	Project Description	Estimated Construction FY	Estimated Federal Cost (Source)	Estimated Total Cost
100037271 100037272 100037275 100077385	SR-53 Additional Lanes from Taurus Dr. to N. of Harvest Rd.	2025	$11,464,800 (NH)	$13,945,200
100067314 100067316 100067318	Additional Lanes on Blake Bottom Rd. from Jeff Rd. to SR-255	2025	$11,647,700 (BUILD)	$26,278,670
100074450 100075124 100075125	Additional Through Lane on US-431 from Longwood Dr. to Cass Cir.	2025	$0 (Rebuild Alabama)	$1,350,000
100048021 100040795 100074512 100061222	Additional Lanes on Winchester Rd. from Dominion Cir. to Naugher Rd.	2025	$26,227,000 (STPHV/ATRIP)	$37,150,000
100061841 100061845 100061846 100061847 100078809 100078810 100078813 100078811 100078814 100078812 100078815 100078816 100061224	Additional Lanes on US-72 from County Line Rd. to Providence Main St. (All phases)	2025	$80,900,000 (NH)	$102,267,000

CPMS Project IDs	Project Description	Estimated Construction FY	Estimated Federal Cost (Source)	Estimated Total Cost
100061837 100061838 100061839 100061840	Access Management and Intersection Improvements on US-231 from Veterans Dr. to 0.2 Mi. S of Weatherly Rd.	2026	$10,553,500 (NH)	$13,187,800
100062240 100062253 100062254 100062255	Intersection Improvements on Slaughter Rd. at Madison Blvd.	2027	$4,300,000 (STPHV)	$5,375,000
100059740 100061458	Additional Lanes on Jeff Rd. from 0.8 Mi. S. of Capshaw Rd. to Douglass Rd.	2029	$9,685,000 (ATRIP)	$14,300,000
100079375 100079376 100079377 100079378	Interchange Modification on I-565 at Exit 13 (Madison Blvd./Resolute Way)	2031	$43,200,000 (STPHV)	$54,000,000
100062241 100062256 100062257 100062258	Additional Lanes on Jeff Rd. from Douglass Rd. to SR-53	2034	$20,560,000 (STPHV)	$25,700,000
100062235 100062236 100062237 100062238	Huntsville Northern Bypass (SR-255) from 1500 Ft. E of US-231/431 to Winchester Rd.	2036	$24,625,600 (STPHV)	$30,782,000
100066444 100066446 100066447 100066448	US-231/431 From Lakewood Dr. to Hollow Rd. Including Overpasses at Stallworth Rd. and Winchester Rd.	2038	$59,054,400 (NH)	$73,818,100

CPMS Project IDs	Project Description	Estimated Construction FY	Estimated Federal Cost (Source)	Estimated Total Cost
100077103 100077104 100077105 100077106	Additional Lanes on Old Big Cove Rd. from Sutton Rd. to Taylor Rd.; and Terry Drake Rd. entire extent	2039	$34,500,000 (STPHV)	$43,125,000
100062194 100043927	Bridge Replacement of SB Bridge on US-231 over TN River	2042	$44,486,900 (Bridge)	$55,608,600
TBD	Huntsville Northern Bypass (SR-255) from Winchester Rd. to US-72	2043	$40,200,000 (STPHV)	$50,250,000
100059100 100059101	Additional Lanes on I-565 from Greenbrier Rd. to Madison Co. Line	2043	$21,771,200 (NH)	$27,214,000
100037271 100037272 100037275 100077385	Redstone Arsenal East Connector from I-565 to Redstone Arsenal Gate 10	2046	$28,658,600 (STPHV)	$35,823,300
100059097 100059099	Additional Lanes on I-565 from I-65 to Greenbrier Rd.	2046	$18,635,100 (NH)	$23,293,900
100057428 100009016 100009018 100009012 100056123	SR-53 Relocation from Limestone CR-117 to I-65	2048	$54,385,300 (NH)	$67,981,600
100032166 100032169 100032160	SR-53 Additional Lanes from N. of Harvest Rd. to Old Railroad Bed Rd.	2049	$15,982,371 (NH)	$19,977,965
100039055 100039056 100039057	US-72 from Maysville Rd. to Shields Rd. (Service Roads Only)	2049	$62,035,900 (NH)	$77,544,900

10. PUBLIC ENGAGEMENT

Introduction

Project successes are achieved when the planning process builds opportunities for close coordination with key audiences to develop plans that are implementable. A crucial component of the Long-Range Transportation Plan (LRTP) is public involvement. Maximum public engagement produces improved outcomes for the community. Documented input opportunities result in fewer challenges to overcome in later phases of the plan.

The Huntsville Area MPO encourages continuous participation by residents in the planning and decision-making process. Public outreach efforts are designed to engage stakeholders from all segments of our diverse community. The Huntsville Area MPO is committed to engaging with the public to develop all transportation plans and programs; the overall goals that guide the transportation planning process are to be open, accessible, transparent, inclusive, and responsive. The MPO's effort to improve transparency for, grant access to, and engage the public in the planning process, is achieved by following these established public participation goals for all documents and programs:

1. **AN OPEN PROCESS**
   To have an open process that encourages early and continued public participation. All MPO and committee meetings are open to the public.

2. **EASY INFORMATION ACCESS**
   To provide complete and timely information regarding plans, programs, procedures, policies, and technical data produced or used during the planning process, to the public and the media. All MPO meeting announcements, documents, maps, and plans can be viewed at www.huntsvillempo.org

3. **NOTICE OF ACTIVITIES**
   To provide timely and adequate public notice of hearings, meetings, reviews, and availability of documents.

4. **PUBLIC INPUT AND ORGANIZATIONAL RESPONSE**
   To demonstrate consideration and recognition of public input and comments, and to provide appropriate responses to public input.

5. AN INCLUSIVE PROCESS

To encourage participation in the planning process by traditionally under-represented segments of the community; low-income groups, minorities, people with disabilities, and the elderly; and to consider the needs of these groups when developing programs, projects, or plans.

Outreach Events and Opportunities

Opportunities for the public to share their thoughts and ideas during public review and comment period will follow in later months, prior to the document draft approval.

Outreach Methods

Outreach efforts rely on a variety of methods and tools to engage diverse audiences and a strong cross section of the community. These methods will include:

1. Newspaper advertisement
2. Project flyers
3. Website
4. Online survey
5. Social media

Appendix A: Socio-Economic Maps

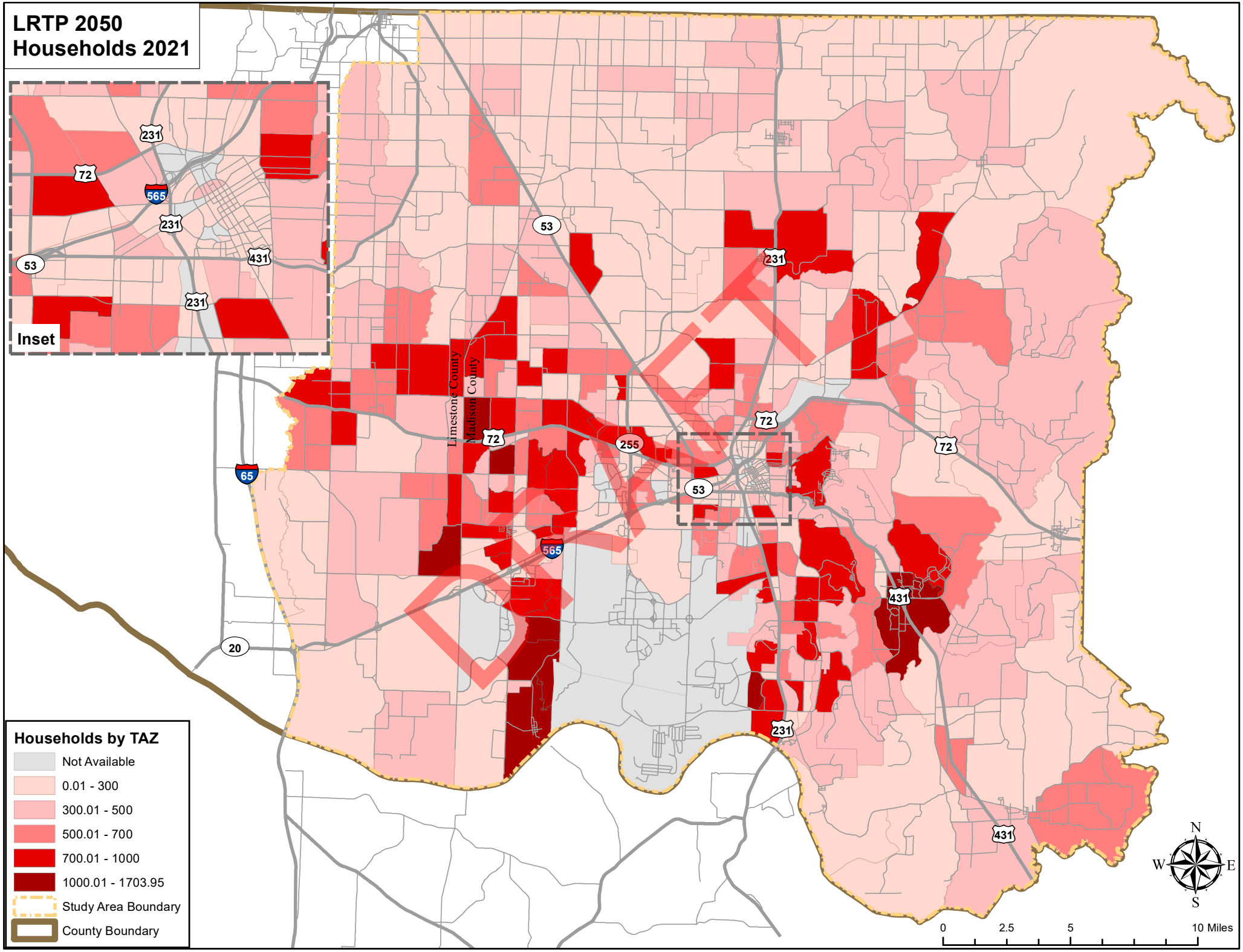
Socio-Economic Maps

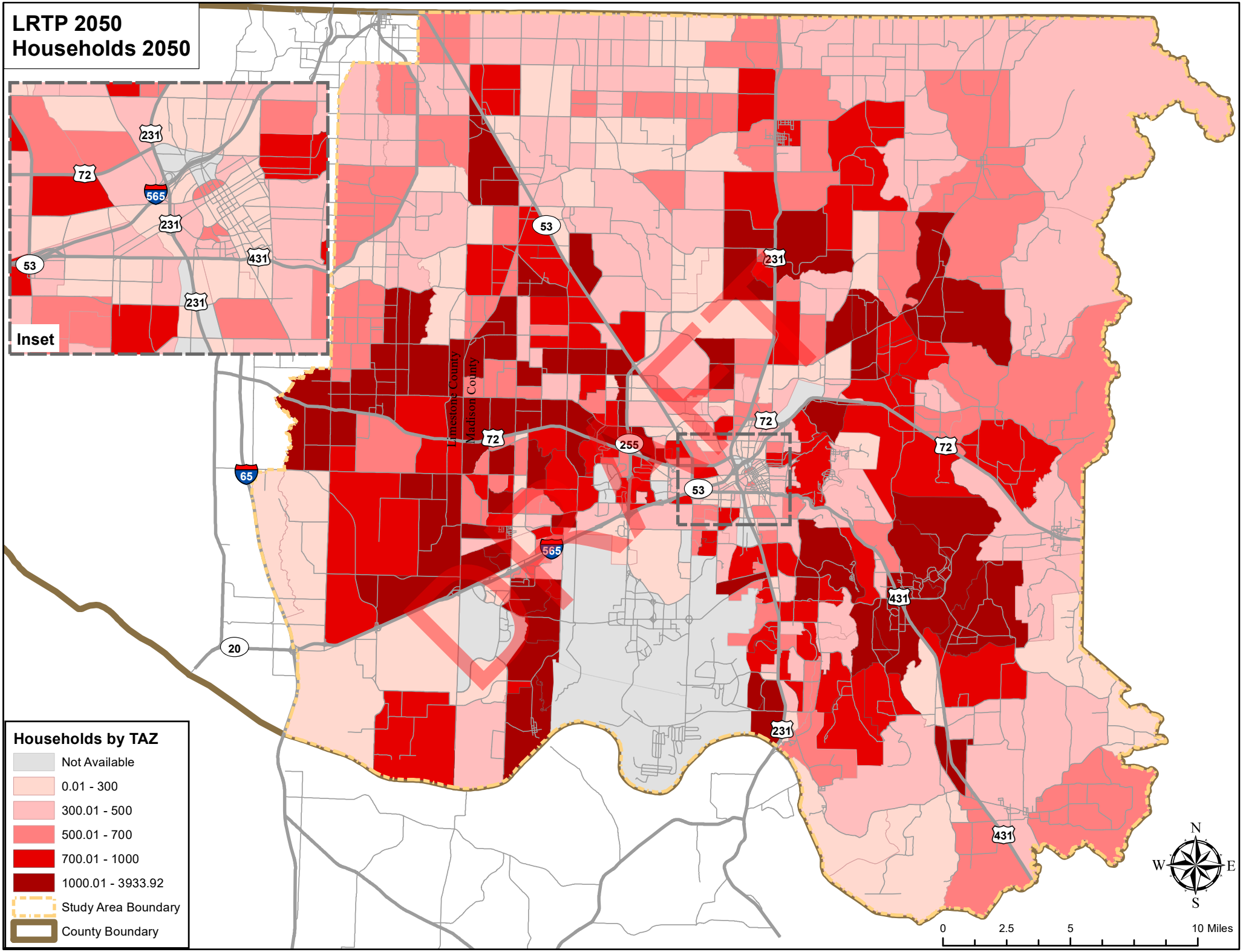
The Huntsville MPO Study Area projections for 2050 show major growth in both households and employment. Between 2020 and 2050 the population is expected to increase by 66 percent, the number of households will increase by 74 percent and total employment will increase by 21 percent. The basis of this growth is the area's diversifying economy; low cost of living compared to peer regions around the country; and solid foundation in aerospace and defense technology, and Federal agencies.

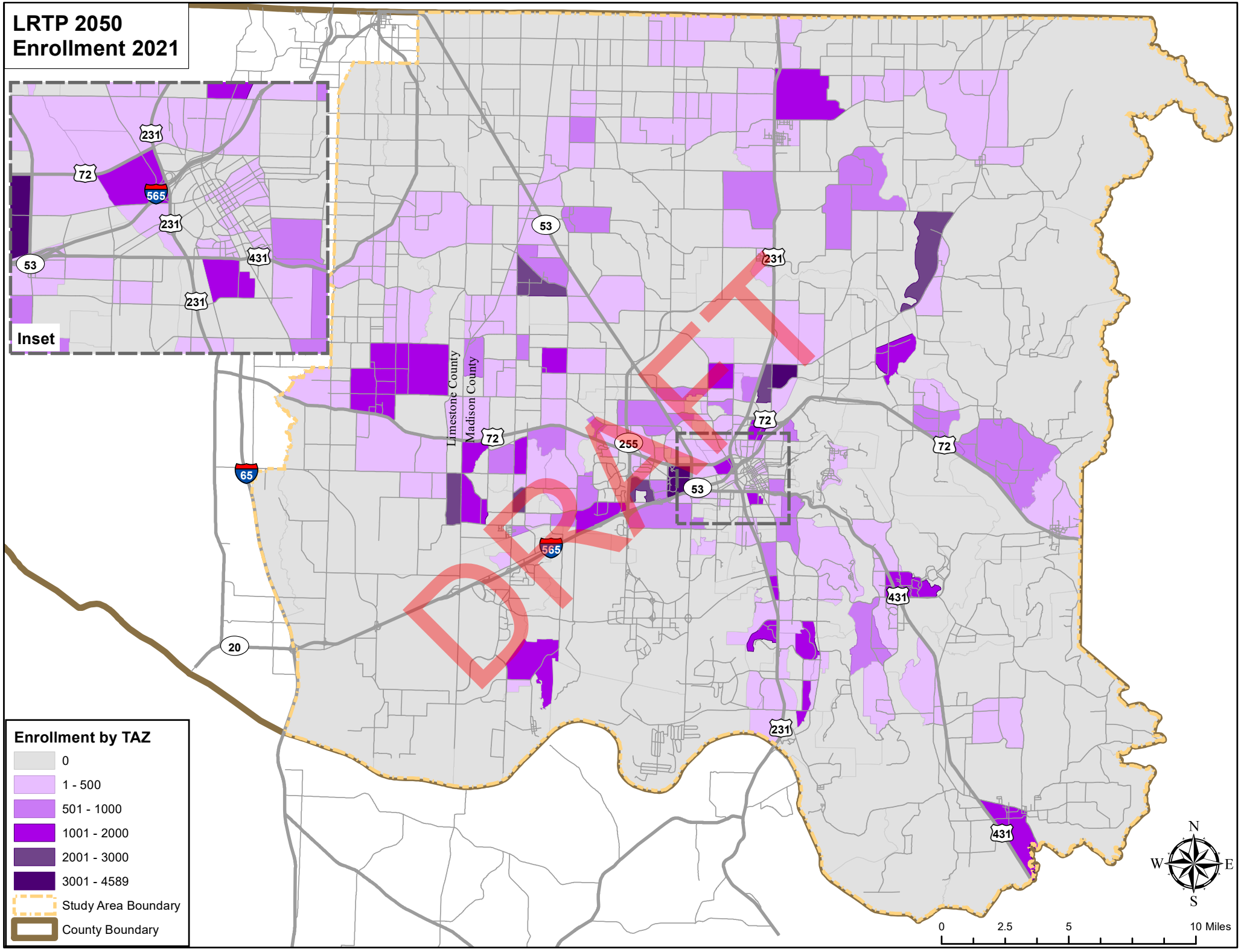
Maps 1a to 5b illustrate current and projected trends in households, income, employment, and school enrollment throughout the MPO study area. Historical data from the Census Bureau and MPO analyses of housing data and developable land were used to project population and household growth through 2050.

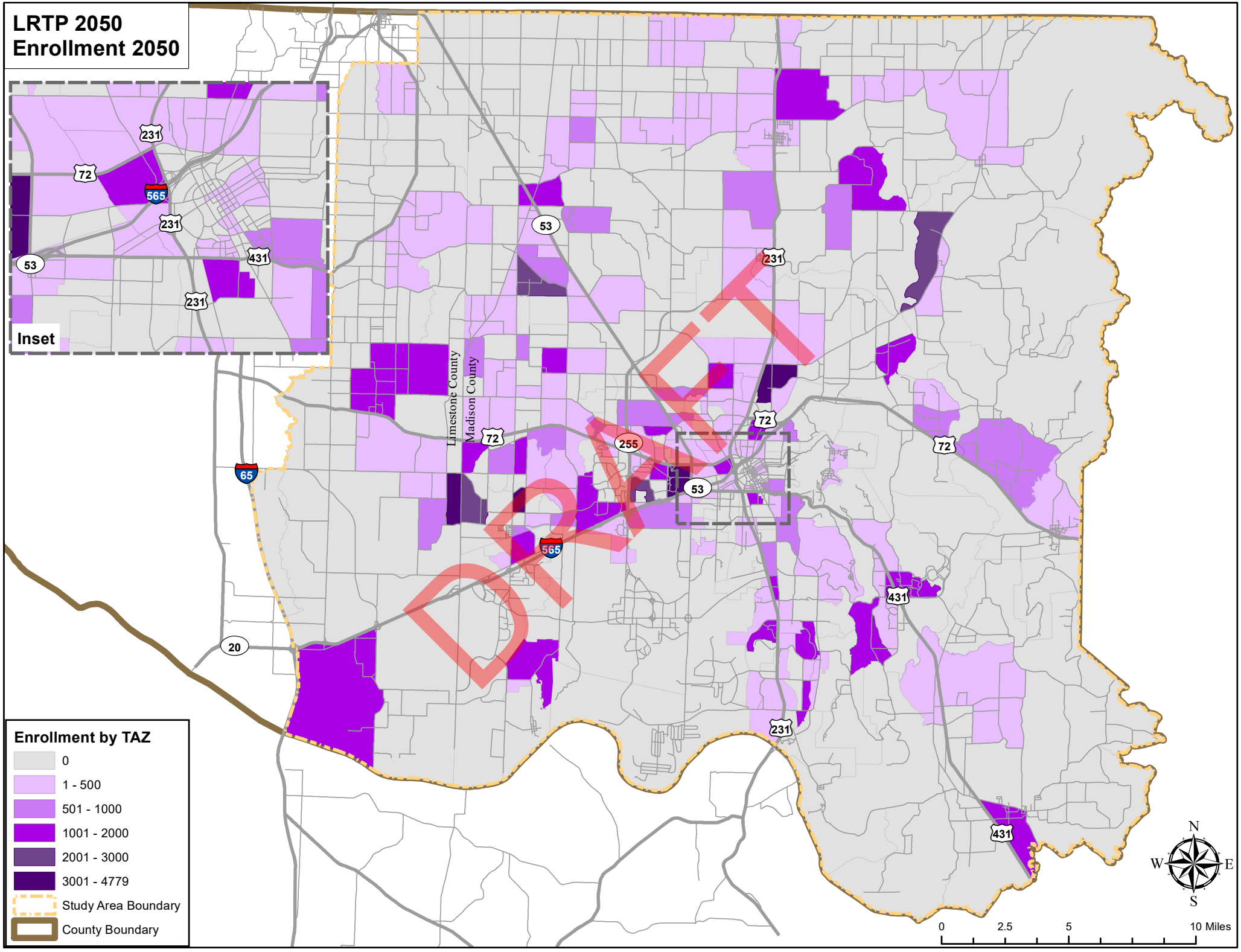
Employment estimates were determined by a modified linear trend based on historical data from Data Axle and input from member jurisdictions on future economic development projects. Total employment is divided into retail and non-retail. Once a total for each variable was obtained, the difference between 2021 and 2050 was divided into traffic analysis zones (TAZ) for the Huntsville MPO Study Area travel demand model.

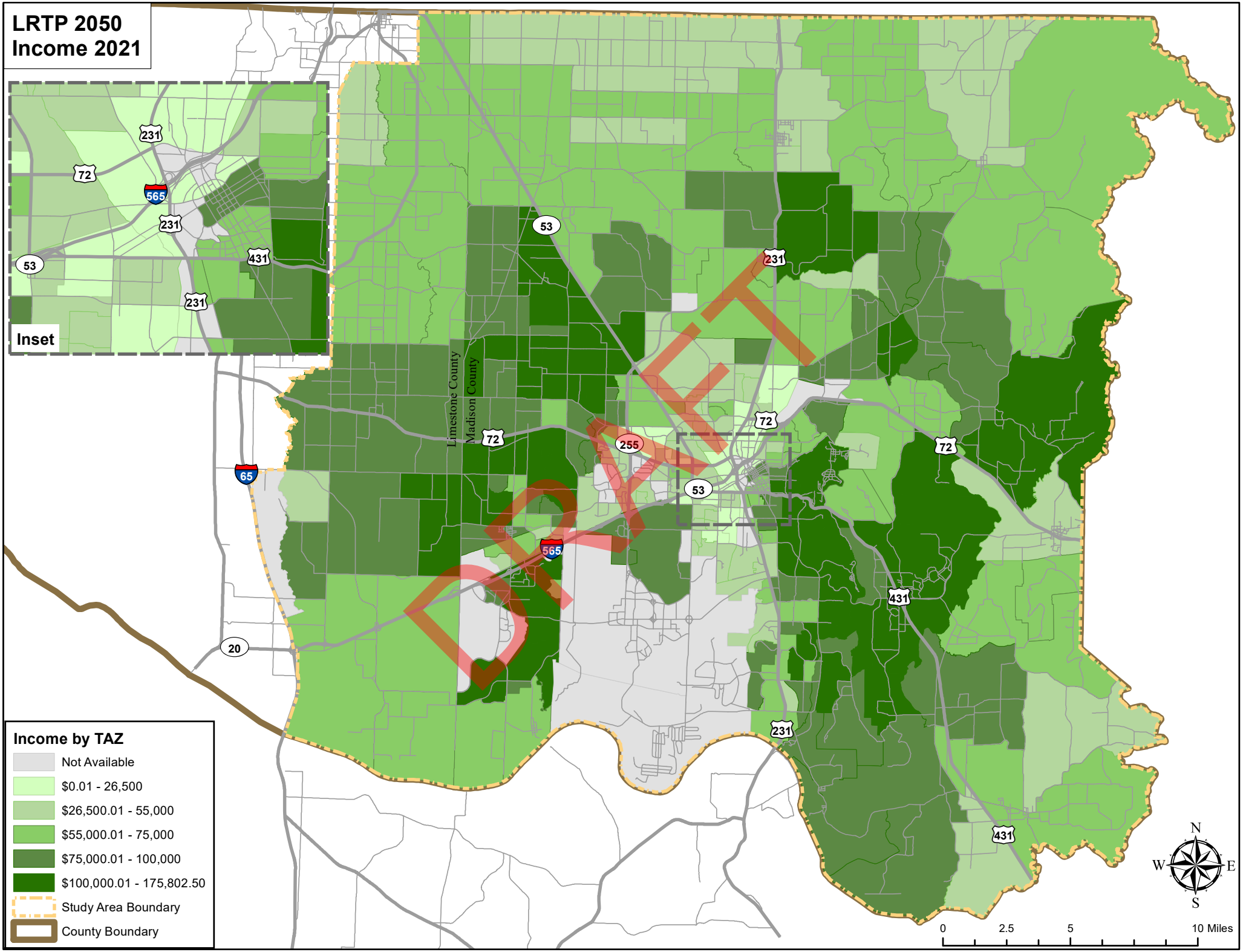
The TAZ level data was formatted for entry into Trip Generation software and is shown on the maps on the following pages.

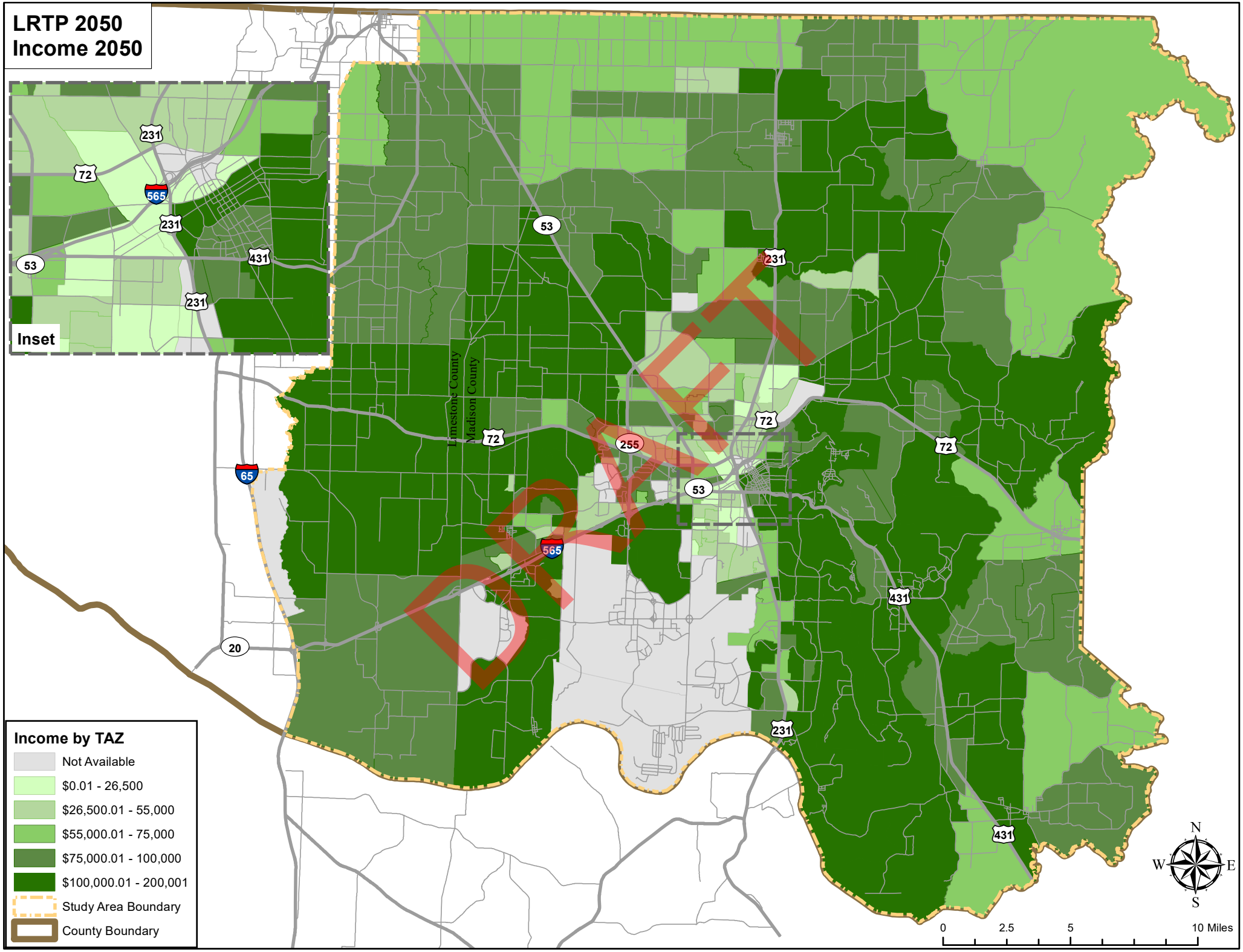

LRTP 2050
Households 2021
Inset
Limestone County
Madison County
Households by TAZ
Not Available
0.01 - 300
300.01 - 500
500.01 - 700
700.01 - 1000
1000.01 - 1703.95
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S

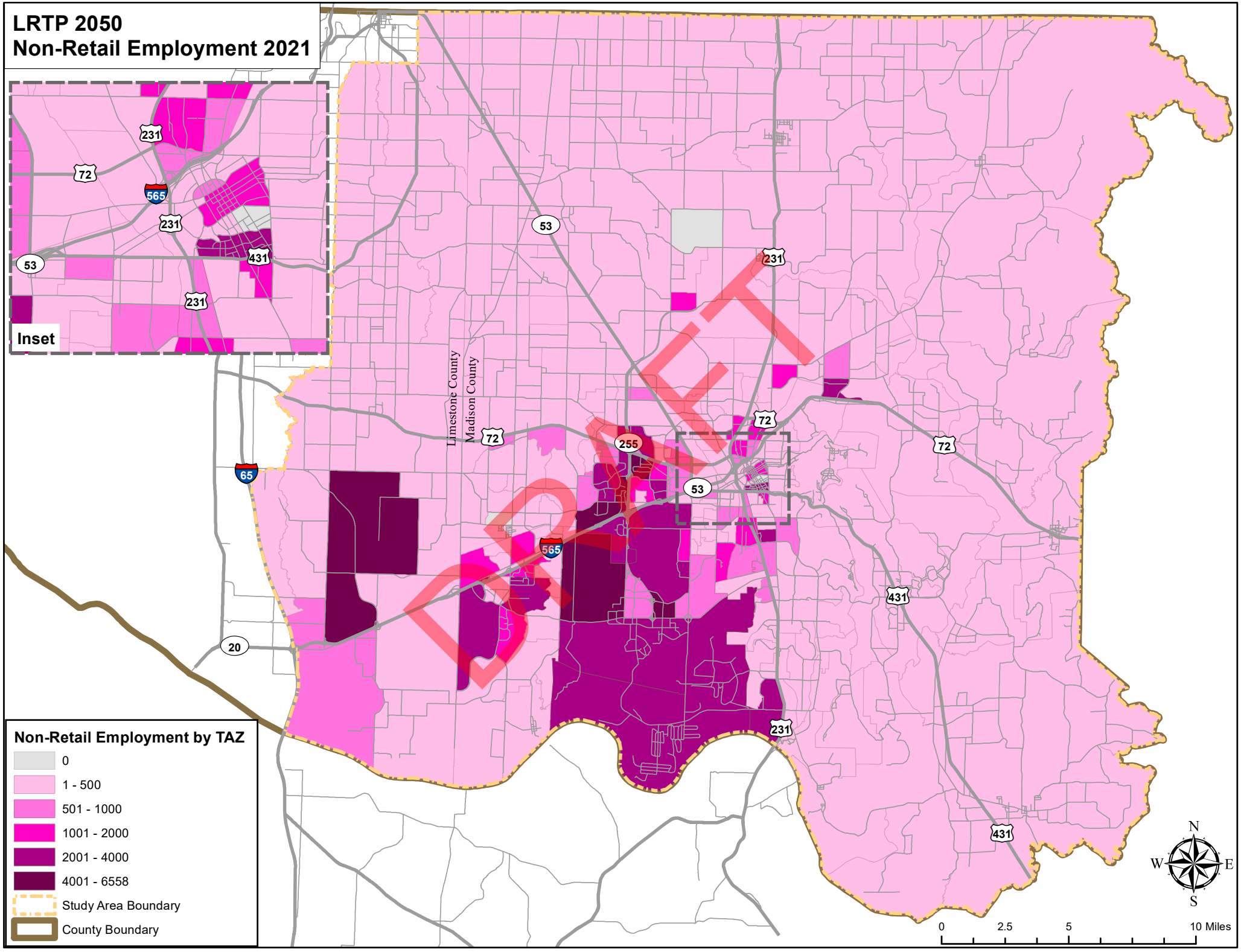

LRTP 2050
Households 2050
Inset
Limestone County
Madison County
231
72
565
53
431
65
255
20
Households by TAZ
Not Available
0.01 - 300
300.01 - 500
500.01 - 700
700.01 - 1000
1000.01 - 3933.92
Study Area Boundary
County Boundary
N
W
E
S
0
2.5
5
10 Miles

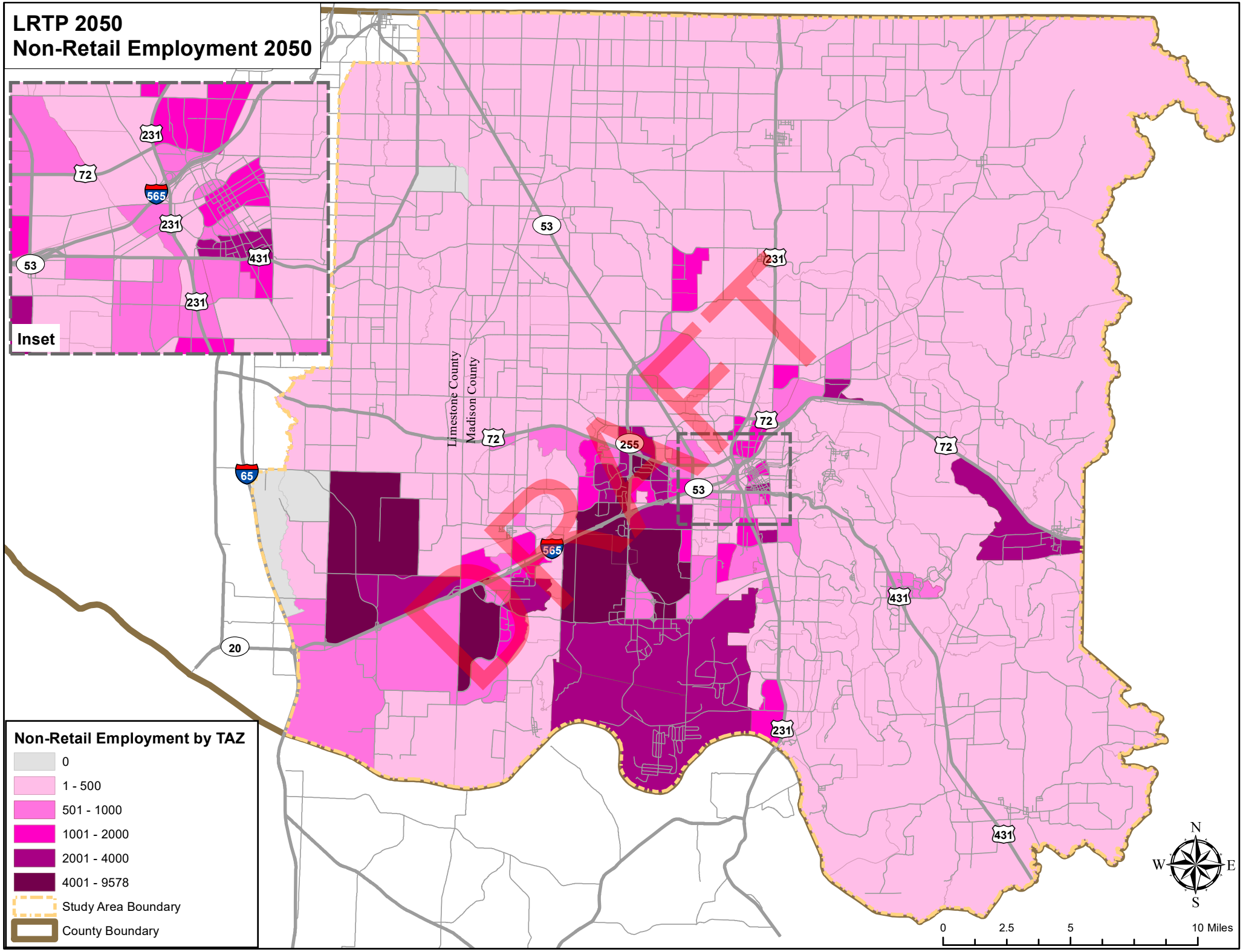

LRTP 2050
Enrollment 2021
Inset
Limestone County
Madison County
DRAFT
Enrollment by TAZ
0
1 - 500
501 - 1000
1001 - 2000
2001 - 3000
3001 - 4589
Study Area Boundary
County Boundary
N
W
E
S
0
2.5
5
10 Miles

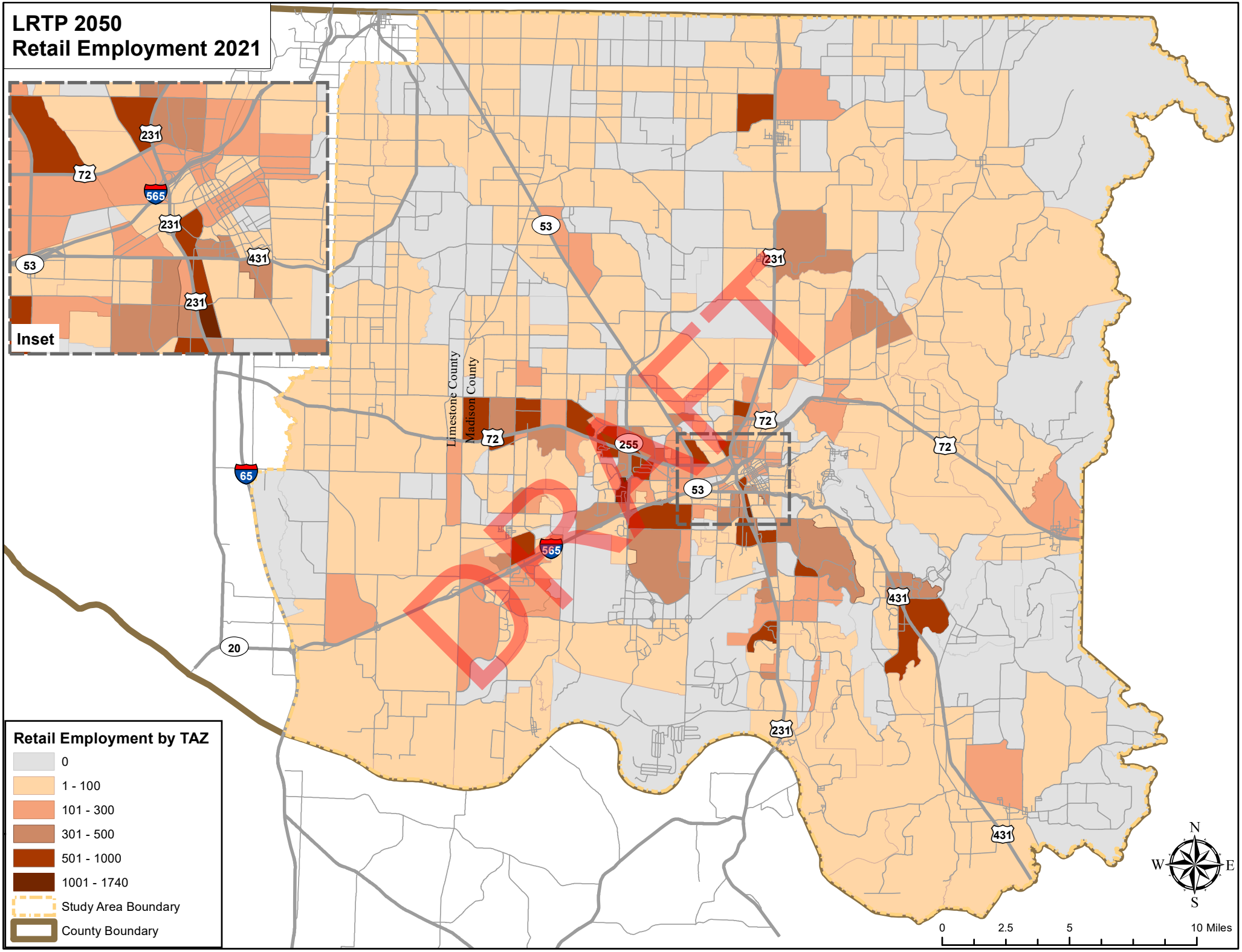

LRTP 2050
Enrollment 2050
Inset
Limestone County
Madison County
DRAFT
Enrollment by TAZ
0
1 - 500
501 - 1000
1001 - 2000
2001 - 3000
3001 - 4779
Study Area Boundary
County Boundary
N
W
E
S
0
2.5
5
10 Miles

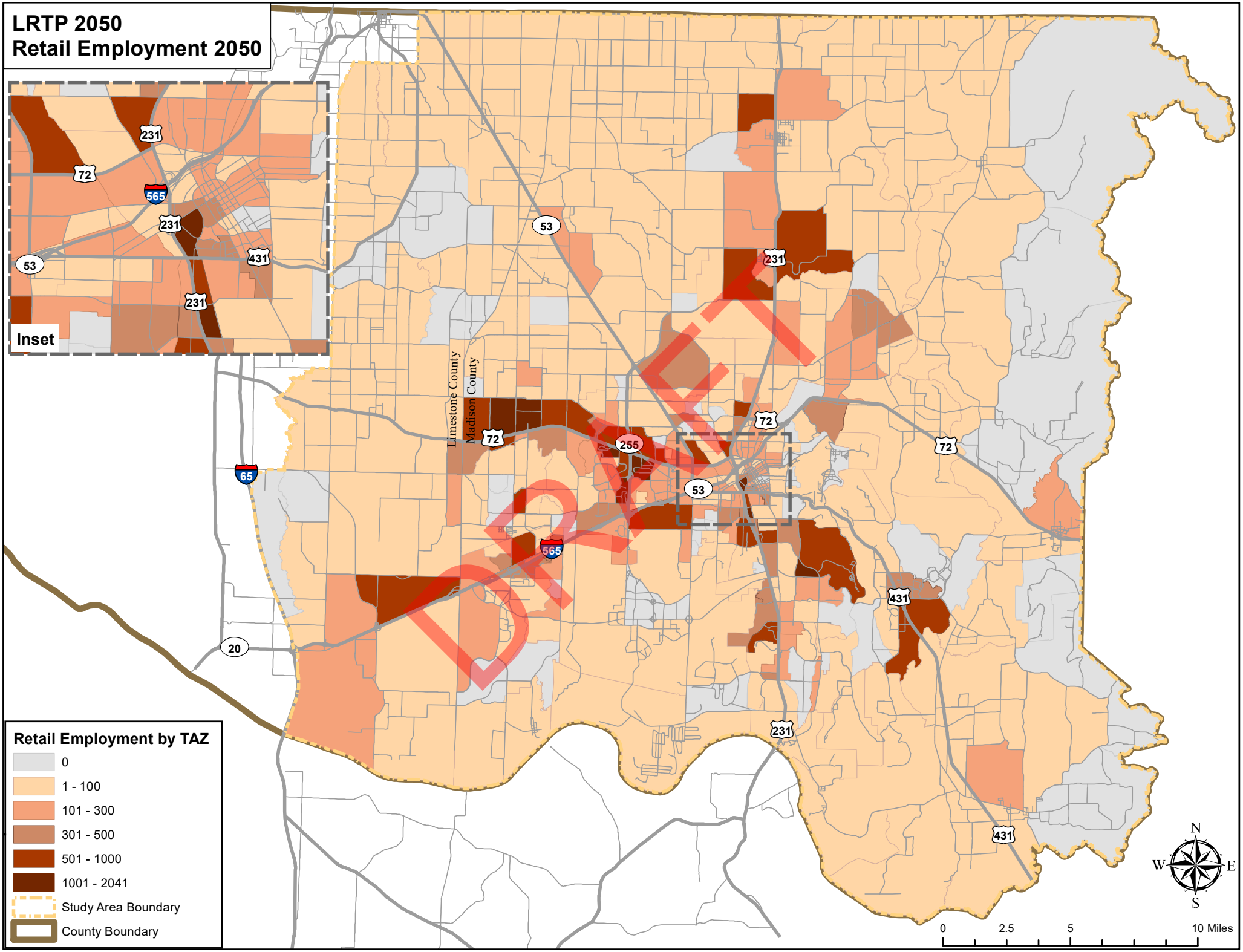

LRTP 2050
Income 2021
Inset
Limestone County
Madison County
231
72
565
53
431
65
255
20
Income by TAZ
Not Available
$0.01 - 26,500
$26,500.01 - 55,000
$55,000.01 - 75,000
$75,000.01 - 100,000
$100,000.01 - 175,802.50
Study Area Boundary
County Boundary
N
W
E
S
0
2.5
5
10 Miles


LRTP 2050
Income 2050
Inset
Limestone County
Madison County
Income by TAZ
Not Available
$0.01 - 26,500
$26,500.01 - 55,000
$55,000.01 - 75,000
$75,000.01 - 100,000
$100,000.01 - 200,001
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S


LRTP 2050
Non-Retail Employment 2021
Inset
Limestone County
Madison County
DRAFT
Non-Retail Employment by TAZ
0
1 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001 - 6558
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S


LRTP 2050
Non-Retail Employment 2050
Inset
Limestone County
Madison County
DRAFT
Non-Retail Employment by TAZ
0
1 - 500
501 - 1000
1001 - 2000
2001 - 4000
4001 - 9578
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S


LRTP 2050
Retail Employment 2021
Inset
Limestone County
Madison County
DRAFT
Retail Employment by TAZ
0
1 - 100
101 - 300
301 - 500
501 - 1000
1001 - 1740
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S


LRTP 2050
Retail Employment 2050
Inset
Limestone County
Madison County
DRAFT
Retail Employment by TAZ
0
1 - 100
101 - 300
301 - 500
501 - 1000
1001 - 2041
Study Area Boundary
County Boundary
0
2.5
5
10 Miles
N
W
E
S

Appendix B: Environmental & Land Use Factors

Environmental & Land Use Factors per Project

Resources for Consultation and Environmental Mitigation

Considerations of potential environmental impacts associated with any transportation projects include but are not limited to the following resources/ issues, listed in Table B1.

Resource/Issue	Why Important	Regulatory Basis	Contact
HAZMAT Sites	Health hazards, costs, delays, liability for both State and federal projects on either existing or acquired right-of-way	State and federal law; Guidelines for Ops; ASTM E- 1527	Phase-I: Design Bureau/ETS, phone 334-242-6154 Phase-II and III: Materials and Tests Bureau, phone 334-206-2284
Air Quality	Public health, welfare, productivity, and the environment are degraded by air pollution	Clean Air Act of 1970; 40 CFR Parts 51 and 93; State Implementation Plan	Design Bureau/ETS, phone 334-242-6147. PM-2.5 – Design Bureau/ETS, phone 334-242-6315
Noise	Noise can irritate, interrupt, and disrupt, as well as generally diminish the quality of life	Noise Control Act of 1972; ALDOT's Highway Traffic Noise Analysis Policy and Guidance	Design Bureau/ETS, phone 334-242-6147 or 6828 or 6710
Wetlands	Flood control, wildlife habitat, water purification; applies to both State and federally funded projects	Clean Water Act of 1977; Executive Order 11990; 23 CFR 777	Design Bureau/ETS, phone 334-242-6145. US Army Corps of Engineers, phone 251-690-2658

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

Table B.1: Resources for Consultation and Environmental Mitigation

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

Environmental Factors and Land-Use

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

1. Air Quality

The Huntsville urban area is presently classified as an attainment area for all criteria pollutants (pollutants for which EPA has promulgated National Ambient Air Quality Standards (NAAQS) under the Clean Air Act). The most recent revision to the National Ambient Air Quality Standard (NAAQS) for ground level ozone was promulgated by EPA on October 26, 2015, further strengthening the standard to provide additional protection of public health and welfare. The primary and secondary 8-hour standard was lowered from 0.075 ppm (parts per million) to 0.070 ppm. Prior to the 2015 revisions to the ozone NAAQS, the standard was revised by EPA on March 27, 2008.

The 2022 edition of Huntsville's Air Quality Report presents detailed local air quality data for the period from 2017 – 2021 and summarizes emissions sources in the Huntsville area. It briefly outlines implemented activities as elements of Huntsville's air pollution control program. Despite a trend toward progressive tightening of the ambient standards over the past twenty five years, dramatic emissions reductions from both stationery and mobile sources have resulted in continued improvements to local air quality and in Huntsville's continued designation as an attainment area.

- Transportation Conformity

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

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

- CMAQ Funds

Reauthorized in 1998 under the Transportation Equity Act for the 21st Century (TEA-21) and again as part of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, the CMAQ program provides over $8.1 billion dollars in funds to State DOTs, MPOs, and transit agencies to invest in projects that reduce emissions from transportation-related sources. Since 1991, the program has provided funding for over 16,000 projects.

1. Cemeteries/Historic Properties

Cemeteries (public and private) were located using information from United States Geological Survey (USGS) Quad Maps and from a cemetery inventory map. Copies of the USGS Quad Maps are kept in file in the City of Huntsville Geographic Information Systems (GIS) office. A copy of the cemetery inventory map is in the Huntsville/Madison County Public Library.

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

2. Potential Protected and Protected Lands/Champion Trees

Potentially Protected and Protected Lands are from an inventory of properties that have been acquired by or have been designated as having the potential to be acquired by the non-profit Huntsville Land Trust. Champion Trees are those trees that are of state and/or national significance due to their outstanding size. This information is available from the Alabama Forestry Commission.

3. Parks and Recreation/Landfills

The parks and recreation facilities inventoried include the City of Huntsville neighborhood and community park and recreation facilities as well as Madison County Park and recreation facilities. This information is kept in file in the City of Huntsville GIS office. The locations of the well-known landfills (licensed and unlicensed) were provided by the Environmental Services Division of the Madison County Health Department.

4. Topography

The topographical features of the study area (including slopes, mountains and depressions) were derived from USGS Quad Maps. Copies of these maps are kept in file in the City of Huntsville GIS office.

5. Floodplains

The locations of the floodplains are designated by the Federal Emergency Management Agency (FEMA). Copies of the maps depicting the locations of the floodplains are kept on file in the City of Huntsville GIS office.

6. Wetlands

The U.S. Fish and Wildlife Service designate the location of wetlands. Copies of the maps depicting the locations of the wetlands are kept on file in the City of Huntsville GIS office.

7. Other

The locations of utility delivery points, universities, public properties, industrial parks, hospitals, water treatment plants, sewage treatment plants, and Redstone Arsenal facilities are found in this category. This information is kept in file in the City of Huntsville GIS office.

Environmental Mitigation and Climate Change

1. Federal Assessment

"According to the FHWA report Integrating Climate Change into the Transportation Planning Process, there is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) may be the predominant cause. The combustion of fossil fuels is by far the biggest source of GHS emissions. In the United States, transportation is the largest source of GHG emissions, after electricity generation. Within the transportation sector, cars and trucks account for most 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. (Source: *Introduction to Integrating Climate Change into the Transportation Planning Process - Federal Highway Administration, Final Report, July 2008*)

2. Local Assessment

All corridors identified for improvement have been analyzed for environmental concerns, so that mitigation activities can be considered during the planning phase. Discussions are also held with other agencies as applicable to determine any environmental concerns regarding the overall proposed future network. It is hoped that through close coordination with the appropriate entities, that creative environmental mitigation strategies may be developed prior to the project design phase.

The aggressive screening of projects, as shown in Table B2, can lead to various mitigation strategies that may achieve a balance between economic concerns and environmental stewardship. Table B2 illustrates the proposed transportation improvements in relation to the environmental and land use factors listed in the previous section. While a more detailed study, such as the Environmental Assessment, is required once a project is selected for design and construction, the overview presented in this plan is only a brief synopsis of preliminary findings.

Table B2: Environmental and Land Use Factors per Project

Fiscally Constrained Projects

Project	From	To	Wetlands	Topography	Floodplain	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
AL Hwy 255	US Hwy 231/431	Winchester Rd	■			■			■	
AL Hwy 255	Winchester Rd	US Hwy 72 East Corridor V			■				■	
AL Hwy 53	Jeff Rd	Harvest Rd	■						■	
AL Hwy 53	Pulaski Pk.	I-65			■	■				
AL Hwy 53	Harvest Rd.	Old RR Bed Rd	■			■				
Arsenal East Connector	I-565	Arsenal Gate 10			■		■		■	■
Blake Bottom Rd	Research Park Blvd	Jeff Rd			■				■	
Capshaw Rd. Phase II	Shellbrook Dr	Jeff Rd			■	■			■	
County Line Rd.	I-565	Boeing Blvd			■	■				
Governors Dr	Longwood Dr	Cass Cir		■			■		■	
Huntsville-Brownsferry Rd.	Holladay Blvd.	Oakland Church			■					
I-565	Madison Blvd	AL Hwy 255		■	■					
I-565	Greenbrier Rd	County Line Rd			■					
I-565	I-65	Greenbrier Rd	■		■		■			
Jeff Rd	Back Nine Rd	Douglass Rd			■				■	
Jeff Rd	Douglass Rd	AL Hwy 53					■		■	
Little Cove Rd/Eastern Bypass	Watson Grande Way	US Hwy 72 East Corridor V	■		■	■			■	

Project	From	To	Wetlands	Topography	Floodplain	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
Old Big Cove Rd.	Sutton Rd	Terry Drake Rd				■			■	
Resolute Way (Phase 1)	Redstone Gateway	I-565		■						
Royal Dr. Phase 1	County Line Rd	Jetplex Ln	■			■				
Slaughter Rd	Alabama Hwy 20	Alabama Hwy 20			■					
Terry Drake Rd	Old Big Cove Rd	Taylor Rd			■				■	
US Hwy 231	Meadowbrook Dr	Veterans Dr							■	
US Hwy 231	TN River	Green Cove Rd	■		■		■			
US Hwy 231/431	Lakewood Dr	Hollow Rd					■		■	■
US Hwy 231/431	Lakewood Dr	Hollow Rd					■		■	■
US Hwy 231/431	I-565				■				■	■
US Hwy 72 East	Maysville Rd.	Shields Rd.		■			■		■	
US Hwy 72 West	Providence Main St	County Line Rd			■				■	
Wall-Triana Hwy.	US Hwy 72 West	McCrary Rd			■				■	
Winchester Rd	Dominion Cir	Naugher Rd							■	

Visionary Projects

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
1	Oakwood Rd	Adventist Blvd	AL Hwy 255						■		
2	Old Madison Pike	Slaughter Rd	Hughes Rd			■				■	
3	Eastview Dr	Slaughter Rd	Hughes Rd		■					■	
4	Capshaw Rd	Jeff Rd	Wall Triana Hwy			■	■			■	
5	Old Monrovia Rd	Claude Cir	Oakwood Rd		■					■	
6	Capshaw Rd	Wall Triana Hwy	Old RR Bed Rd							■	
7	Moores Mill Rd	Winchester Rd	Countess Rd							■	
8	Plummer Rd	Jordan Ln	Indian Creek Rd	■	■	■				■	
9	Mill Rd	Hughes Rd	County Line Rd			■		■	■	■	
10	Ryland Pike	Jordan Rd	Dug Hill Rd						■		
11	Mt Lebanon Rd	Monroe Rd	AL Hwy 255		■		■				
12	Jordan Rd	Moores Mill Rd	Homer Nance Rd	■		■				■	■
13	Nance Rd	McCrary Rd	Capshaw Rd								
14	Shields Rd	NS RR Overpass	Winchester Rd							■	
15	Browns Ferry Rd.	Hughes Rd	Sullivan St								
16	Gillespie Rd	Balch Rd	Hughes Rd		■					■	
17	Wall-Triana Hwy	Harold Murphy Dr	6th St. (Triana)			■	■				
18	Holmes Ave	Sparkman Dr	Wynn Dr	■		■					
19	Balch Rd	US Hwy 72	Capshaw Rd	■		■				■	
20	Balch Rd	Mill Rd	Gooch Ln	■		■				■	
21	Mt Lebanon Rd	Patterson Ln	Monroe Rd	■		■				■	

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
22	Zierdt Rd	Martin Rd	Beadle Ln	■		■				■	
23	Homer Nance Rd	Jordan Rd	Winchester Rd		■	■				■	
24	6th St. (Triana)	Wall-Triana Hwy	E of Lakeside Dr								
25	Old Big Cove Rd	US Hwy 431	Sutton Rd							■	
26	Jack Thomas Rd	Grimwood Rd	Patterson Ln				■				
27	Jordan Rd	Homer Nance Rd	US Hwy 72 East Corridor V			■				■	
28	Cherrytree Rd.	Old Hwy 431	McMullen Rd			■					■
29	Old Gurley Rd	Shields Rd	US Hwy 72 East Corridor V	■						■	
30	Old Hwy 431	US Hwy 431	Cherrytree Rd			■				■	
31	Old Big Cove Rd	South Green Mtn Rd	Old Hwy 431	■	■	■				■	
32	Old Big Cove Rd	Taylor Rd	South Green Mountain Rd	■	■					■	
33	Moontown Rd	Ryland Pike	US Hwy 72 East Corridor V						■	■	
34	Old Hwy 431	US Hwy 431	Wilson Mann Rd			■				■	
35	Brogan Way	Wall-Triana Hwy	Uptown Dr							■	
36	Bo Howard Rd	Bo Howard Rd	Pulaski Pk			■	■				
37	Henderson Ln	US Hwy 72	Huntsville-Browns Ferry Rd							■	
38	King Drake Rd - 431 Connector	King Drake Rd	US Hwy 431		■					■	
39	Mose Chapel Rd.	Mill Rd	Palmer Rd	■		■					

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
40	Old Hwy 20	Mooresville Rd	US Hwy 31	■		■	■		■		
41	Orvil Smith Rd	Orvil Smith Rd	Kelly Spring Rd	■	■					■	
42	Shelton Rd Extension	Madison Blvd	Old Madison Pike	■							
43	Wesley Ln	Barbee Dr	Old Madison Pike				■			■	
44	AL Hwy 255 (Interchange)	US Hwy 72		■		■					
45	AL Hwy 255 (Interchange)	I-565									
46	AL Hwy 255	US Hwy 72	AL Hwy 53			■				■	
47	Memphis to Huntsville to Atlanta Hwy	Arsenal East Connector	Marshall County	■	■	■	■			■	
48	I-565	Wall-Triana Hwy	Madison Blvd Crossover								
49	I-565	County Line Rd	Wall Triana Hwy	■		■				■	
50	I-65	Martin Lime Rd		■		■	■				
51	I-65	Garrett Rd.					■			■	
52	US Hwy 231/431	AL Hwy 255		■		■					
53	US Hwy 231/431	Hollow Rd	Patterson Ln	■	■	■				■	
54	US Hwy 231/431	Meridianville Bottom Rd								■	
55	AL Hwy 53	AL Hwy 255	Harvest Rd	■	■	■				■	
56	US Hwy 231	Meadowbrook Dr	Mountain Gap Rd		■					■	
57	US Hwy 72 East Corridor V	Shields Rd	Dug Hill Rd	■	■	■				■	■

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
58	US Hwy 72 West	County Line Rd	Holladay Blvd		■					■	
59	US Hwy 72 East Corridor V	AL Hwy 255		■						■	
60	US Hwy 72 East Corridor V	Eastern Bypass		■		■				■	
61	AL Hwy 255	AL Hwy 53	Pulaski Pk								
62	US Hwy 72 East Corridor V	Jordan Rd								■	
63	AL Hwy 53	Old Railroad Bed Rd	Pinedale Ln	■	■	■				■	■
64	US Hwy 231/431	Patterson Ln									
65	US Hwy 72 East Corridor V	Industrial access									
66	US Hwy 72 East Corridor V	Maysville Rd	Shields Rd		■						■
67	US Hwy 231	Redstone Rd	Hobbs Rd							■	
68	US Hwy 231/431	Walker Ln					■				
69	US Hwy 72 East Corridor V	Brock Rd							■		
70	US Hwy 231/431	Steger Rd				■			■		■
71	US Hwy 72 East Corridor V	Dug Hill Rd			■						
72	US Hwy 72 West	Holladay Blvd	Mooresville Rd	■		■				■	
73	AL Hwy 255	Pulaski Pk	Mt Lebanon Rd	■	■		■				
74	US Hwy 231/431	Patterson Ln	Bobo Section Rd	■		■			■	■	
75	AL Hwy 255	Mt Lebanon Rd	US Hwy 231/431	■			■			■	

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
76	US Hwy 72 East Corridor V	Moontown Rd			■				■		
77	US Hwy 231	Green Cove Rd								■	
78	US Hwy 231	Hobbs Island Rd/AEC			■						
79	Arsenal East Connector (Ph. 2)	Gate 10	Martin Rd							■	
80	Arsenal East Connector (Ph. 3)	Martin Rd	Redstone Rd	■		■					
81	Arsenal East Connector (Ph. 4)	Redstone Rd	US Hwy 231	■		■		■		■	
82	Wall Triana Hwy	Madison Blvd	Dunlop Blvd							■	
83	Slaughter Rd	Farrow Ln	US Hwy 72							■	
84	Pulaski Pike	Prosperity Dr	Patterson Ln	■	■	■	■				
85	Wall Triana Hwy	McCrary Rd	Pine Grove Rd	■		■				■	
86	Wall Triana Hwy	Browns Ferry Rd	Gooch Ln	■						■	
87	Slaughter Rd	Old Madison Pike	Farrow Ln	■		■				■	
88	Mooresville Rd	I-565	Old Hwy 20							■	
89	Hughes Rd	Millsford Dr	Brogan Dr							■	
90	Huntsville-Brownsferry Rd	Bowers Rd	Mooresville Rd	■		■	■			■	
91	Old RR Bed Rd	US Hwy 72	Capshaw Rd	■	■	■				■	
92	Pulaski Pike	Grimwood Rd	Morris Rd	■						■	
93	Hobbs Island Rd	US Hwy 231	Ditto Landing	■		■					
94	Mooresville Rd	Old Hwy 20	US Hwy 72	■	■	■	■			■	

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
95	Huntsville-Brownsferry Rd	County Line Rd	Bowers Rd	■		■				■	
96	Madison Blvd	I-565	County Line Rd	■	■	■					
97	Old RR Bed Rd	Capshaw Rd	Nick Davis Rd	■						■	
98	Wall Triana Hwy	Pine Grove Rd	Yarbrough Rd	■						■	
99	Meridian St	Winchester Rd	US Hwy 231/431		■					■	
100	Old RR Bed Rd	Nick Davis Rd	Wall Triana Hwy	■	■					■	
101	Hobbs Island Rd	Ditto Landing	Butler Basin Blvd		■	■				■	
102	Swancott Rd	I-565	County Line Rd	■		■	■			■	
103	Old RR Bed Rd	Wall Triana Hwy	AL Hwy 53	■						■	
104	Winchester Rd	Bell Factory Rd	Maysville Rd	■	■	■	■		■	■	■
105	Hobbs Island Rd	Butler Basin Blvd	US 431	■	■	■				■	
106	Winchester Rd	Maysville Rd	New Market Rd	■	■	■	■		■	■	■
107	Swancott Rd	County Line Rd	Wall Triana Hwy	■		■	■				
108	Beadle Ln	Swancott Rd	Zierdt Rd				■			■	
109	Winchester Rd	New Market Rd	TN State Line						■	■	■
110	Greenbrier Parkway	Greenbrier Rd	Huntsville-Browns Ferry Rd	■		■	■				
111	Martin Lime Rd	US Hwy 31	Mooresville Rd	■		■	■			■	
112	Eastern Bypass	Quarter Ln	Little Cove Rd	■	■	■				■	
113	Four Mile Post Rd	Whitesburg Dr	Cadillac Dr		■					■	
114	Douglass Rd	AL Hwy 53	Jeff Rd	■	■	■	■			■	
115	Nance Rd	Capshaw Rd	Spano Rd	■						■	

Map ID#	Project	From	To	Wetlands	Topography	Floodplains	Farmlands	Recreation Areas	Historic Structures	Noise	Environmental Justice
116	Hardiman Rd	County Line Rd	Madison Branch Blvd								
117	Mount Zion Rd	Nance Rd	Jeff Rd								
118	Segers Rd	Old 20	Hardiman Rd								
119	Indian Creek Rd	Old Monrovia Rd	Blake Bottom Rd								
120	Wayne Rd	Old Monrovia Rd	Hidden Cave Way								
121	Capshaw Rd	Old Railroad Bed Rd	Sanderson Rd								
122	Slaughter Rd	RR Tracks	Old Madison Pike								
123	Shelton Rd	Madison Blvd	Shelton Rd Extension								
124	Whitesburg Dr	Martin Rd	Four Mile Post Rd								
125	Greenbrier Parkway	I-565	Hwy 20								
126	Sullivan St	Mill Rd	Browns Ferry Rd								
127	Royal Dr	Jetplex Ln	Westchester Rd								
128	Garner Ave	Life Way	Madison Blvd								

Appendix C: Transit Asset Management Performance Measures

Transit Asset Management Performance Measures

The City of Huntsville, Alabama is a municipality in the 5th Congressional District. The Department of Parking & Public Transit serves the City of Huntsville and was established in 1990. Transit Service Area Population is approximately 240,000 according to the most recent data available. Huntsville Orbit is a fixed route transportation network currently operating along twelve (12) fixed routes/ motorbus, and operates 20 paratransit/ demand response vans in peak service. Hours of operation are 6:00 AM to 9:00 PM, Monday through Friday and from 7 a.m. to 7 p.m. on Saturday and Sunday, excluding official City of Huntsville holidays.

Asset Category - Performance Measure	Asset Class	Targets				
		2025	2026	2027	2028	2029
REVENUE VEHICLES						
Age - % of revenue vehicles within a particular asset class that has met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	N/A				
	AO - Automobile	N/A				
	BR - Over-the-road Bus	N/A				
	BU - Bus	30%	30%	30%	30%	30%
	CU - Cutaway Bus	30%	30%	30%	30%	30%
	DB - Double Decked Bus	N/A				
	FB - Ferryboat	N/A				
	MB - Mini-bus	N/A				
	MV - Mini-van	N/A				
	RT - Rubber-tire Vintage Trolley	N/A				
	SB - School Bus	N/A				
	SV - Sport Utility Vehicle	N/A				
	TB - Trolleybus	N/A				
	VN - Van	N/A				

Orbit Huntsville serves 542 bus stops throughout the city and approximately 108 stops have shelters. The downtown Huntsville Bus Transfer Station is a central transfer point where all fixed routes connect for riders transferring between

fixed routes. There are also several additional transfer points where routes cross and connections can be made. System headways are thirty minutes and one hour. Routes 1, 2, and 4 serve stops every 30 minutes.

All other routes operate on one-hour headways and connect with all buses downtown (except Route 56) at the top of each hour. The City's Public Transit system is a Tier II provider, as identified in the TAM rule. The City does not provide rail service.

Asset Category – Performance Measure	Asset Class	Targets				
		2025	2026	2027	2028	2029
EQUIPMENT						
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	50%	50%	50%	50%	50%
	Steel Wheel Vehicles	N/A				
	Trucks and other Rubber Tire Vehicles	50%	50%	50%	50%	50%
	Custom 1	N/A				
	Custom 2	N/A				
	Custom 3	N/A				
FACILITIES						
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	20%	20%	20%	20%	20%
	Maintenance	20%	20%	20%	20%	20%
	Parking Structures	20%	20%	20%	20%	20%
	Passenger Facilities	20%	20%	20%	20%	20%
	Custom 1	N/A	N/A	N/A	N/A	N/A
	Custom 2	N/A	N/A	N/A	N/A	N/A
	Custom 3	N/A	N/A	N/A	N/A	N/A

Appendix D: Congestion Management Process Procedures and Responsibilities Report

Introduction

On July 8, 2002, the Huntsville Urbanized Area was designated by the Federal Highway Administration and the Federal Transit Administration as a Transportation Management Area (TMA). With that designation came an additional transportation planning mandate; the responsibility of developing, establishing, and implementing a Congestion Management Process (CMP) for the Huntsville Urbanized Area. Federal regulations 23 CFR 500.109 and 23 CFR 450.320 require all TMAs, defined as urbanized areas with a population exceeding 200,000 or upon special request from the Governor, to develop, establish, and implement a Congestion Management Process as part of the metropolitan planning process.

The purpose of this report is to document the development and operation of the CMP for the Huntsville Area Transportation Study – Metropolitan Planning Organization. This report will describe the role of the CMP in the transportation planning process, and will define federal and local MPO objectives guiding CMP procedures. It will also define the parameters of the CMP network study area, identify data collection requirements and responsibilities necessary for the effective implementation of the CMP program, and establish specific performance measures for assessing the condition of the transportation system being studied. Additionally, this report will establish methods to prioritize corridors for further study, will provide a toolbox of strategies to mitigate existing and anticipated congestion, and will define the CMP monitoring and update cycle. The implementation of the procedures established by this document will be incorporated into Chapter 7 of TRiP2050.

Role of CMP in the Transportation Planning Process

23 CFR 450.320 stipulates that congestion be addressed in Transportation Management Areas (TMAs) by mandating the incorporation of CMP within the metropolitan planning process. IIJA/BIL further requires that TMAs "address congestion management through a process that provides for effective management and operation, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing travel facilities…through the use of travel demand reduction and operational management strategies" [IIJA/BIL, Section 1201, amended 134(k)(3)(A)].

The transportation planning regulations also requires the following:

- The CMP is required in metropolitan areas with a population greater than 200,000 (TMAs), as well as in urbanized areas that have requested designation as a TMA.

- In TMAs in nonattainment of national ambient air quality standards for carbon monoxide or ozone, no Federal funds may be spent for capacity-adding projects unless the projects are shown in a CMP.

The Congestion Management Process is intended to be an integral part of the metropolitan planning process, rather than preparation in development of a Long-Range Plan.

The CMP also applies a new way of thinking about regional transportation systems management and operations (TSMO). TSMO is an integrated approach that seeks to optimize the performance of existing infrastructure through the implementation of multi-modal, intermodal, and often cross-jurisdictional systems, services, and projects. This includes regional collaboration and coordination activities between transportation and public safety agencies. TSMO strategies aim at improving service efficiency, enhancing public safety and security, reducing traveler delays, and improving access to information for travelers.

TSMO strategies can include a broad range of activities, including incident management, travel demand management, freeway and arterial management, transit priority strategies, traveler information, and activities that support emergency preparedness and response. While TSMO strategies can enable transportation operators to improve service without costly infrastructure projects, TSMO is also built into many capital improvement programs to maintain efficient use of new capacity over the long term.

IIJA specifically requires consideration of TSMO in the metropolitan planning process. "Promote efficient system management and operation" is specifically identified as one of ten planning factors that must be taken into account in the development of the metropolitan transportation planning process. MPOs must also include "operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods."

Integration of the CMP process into the metropolitan transportation plan (otherwise known as the Long-Range Transportation Plan, or LRTP) is desirable, since the application of mitigation techniques can be incorporated and programmed directly into the plan. Since the overall goal of the metropolitan transportation plan is to reduce congestion in the most efficient and effective method necessary to achieve a free-flow transportation network, incorporation of the CMP into the LRTP is not only ideal, but required.

The incorporation of the CMP into the LRTP further elevates the process to a core planning activity as opposed to a stand-alone plan. Since the CMP is such an integral part of the planning process, rather than a stand-alone effort, it takes advantage of the expertise and understanding of all who contribute to the development of the metropolitan transportation plan.

The intent of the CMP is to support decisions concerning transportation improvements. While the process itself is supported by a system of data collection, monitoring and analysis, and reports which detail various strategies that may effectively address specific congestion problems, the CMP provides a set of tools for identifying and mitigating congestion throughout the transportation planning, financial planning, and project development phases.

Historically, MPOs have developed LRTPs with at least a 20-year horizon, focused on the capital investments (highways, transit, bicycle, and pedestrian facilities) needed to satisfy the anticipated demand. While these demands remain important and must be considered, the reality is that, in most metropolitan areas, this traditional approach is constrained by limited funding, environmental and quality of life consideration, and land use concerns. Additionally, given the long lead times for the capital investments to be constructed, the public remains frustrated by the lack of mobility improvements within a shorter timeframe. The CMP can provide a mix of long-term capital investment and both long-term and near-term operational enhancements to the regional transportation system.

Role of Livability in the Congestion Management Process

The transportation planning process involves the development of investments and policies to support quality of life. There has been a recent focus on livability concepts and their relation to transportation planning. Approaching the CMP from a context of community versus vehicular traffic only, will enhance transportation plans and alternatives to address congestion problems and to support livability in the MPO study area. To meet this goal, the CMP will develop congestion management objectives that account for community issues, not just vehicle traffic; set multimodal performance measures that focus on people, not just vehicles; and identify the most appropriate congestion management strategies for specific locations, based upon their positive contributions to communities and neighborhoods. The livability concepts as well as the assessment of livability in the MPO Study Area are available in Appendix G.

CMP Objectives

The Huntsville Area MPO has identified both federal and local objectives of the Congestion Management Process.

- **Federal**
  According to 23 CFR 500.109(A), an effective Congestion Management Process is a systematic and regionally accepted approach for managing congestion that provides accurate, up-to-date information on transportation system operations and performance and assesses alternative strategies for congestion management that meet State and local needs. From the federal viewpoint, the main objectives of the CMP are to provide decision-makers at the State and local level with a better understanding of existing and future system performance, and to provide them with better information on the effectiveness of congestion management strategies.

  The federal regulations do provide some flexibility to MPOs for developing their CMP to meet these objectives; however, there are specific key elements that must be included in the CMP in order for it to be considered effective. Since the CMP is systematic and methodical, key elements have been identified by the Federal Highway Administration that must be included as part of the Congestion Management Process. The Federal Highway Administration's Congestion Management Process: A Guidebook identifies eight key elements as follows:

  1. Develop Regional Objectives for Congestion Management
  2. Define the CMP Network
  3. Develop Multimodal Performance Measures
  4. Collect Data/Monitor System Performance
  5. Analyze Congestion Problems and Needs
  6. Identify and Assess Strategies
  7. Program and Implement Strategies
  8. Evaluate Strategy Effectiveness

  The development of "Regional Objectives for Congestion Management" relates specifically to the Congestion Management Process, but other objectives and regional priorities can be derived from the vision and goals that are stated as part of the LRTP. These objectives may concentrate on operations, land use, system preservation, and livability.

The Huntsville Area MPO has tailored its CMP to reflect local capabilities, resources, and the desires of the individual agencies involved in the development of the CMP. All of these key elements are part of the Congestion Management Process and are addressed in this document.

- **Huntsville Area MPO**
  Local objectives of the CMP should complement those identified at the federal level. The Huntsville Area MPO will meet the prescribed federal objectives by reporting on the state of existing and anticipated system performance, mitigating existing and anticipated congestion through the implementation of appropriate and effective strategies, and by monitoring system performance and the effectiveness of implemented strategies. In order to meet these objectives, the following guidelines relating to the development and implementation of the local CMP were established:

  1. The CMP must be consistent with federal rules and regulations, as well as federal objectives presented earlier.
  2. The CMP must be somewhat simple to implement, with minimal financial and personnel impacts.
  3. The CMP must support other MPO, County, and municipal transportation monitoring and planning activities.
  4. The CMP must utilize data derived from the most recently approved MPO travel demand model. The model incorporates both housing and employment data throughout the network, giving a more realistic distribution of trips and better indication of congested corridors.
  5. Development of other transportation monitoring programs should consider methods to measure congestion on a real time basis.
  6. The CMP must be devised to identify and evaluate only those strategies appropriate for travel conditions in the local MPO study area. Potential near and long-term strategies for the Huntsville Area MPO may be recommended through the CMP process, but will be addressed for implementation in the MPO's LRTP.

Specific objectives pertaining to identified performance measures are listed in Chapter 7 of TRiP2050.

CMP Oversight

The Technical Coordinating Committee (TCC) of the Huntsville Area MPO has been appointed to review and oversee the development of the local CMP. The TCC is comprised of the specialized representatives from various departments and agencies within the MPO's jurisdiction.

Public participation is also part of the development of these procedures for establishing the local CMP through the MPO's Citizens' Advisory Committee (CAC). The CAC is comprised of citizens from the various jurisdictions represented on the MPO. As customary, meetings of the CAC are advertised through the local news media and the MPO website, and open to the general public. Presentations and mailings are made to the CAC during this process, and public input is gathered as well. The CAC will continue to play a vital role by providing public review and comment on strategies and projects developed through the CMP.

CMP Area, Network, and Modes

Federal rules require that a CMP area and network be defined, based upon transportation system performance standards meeting State and local needs. The CMP should measure both existing and anticipated congestion of the multimodal transportation system within the parameters of study defined by the State and local MPO. The Huntsville Area MPO has selected the CMP area, network, and modes of transportation to be studied.

- **CMP Area**
  The Huntsville CMP Study Area shall be the same as the geographic parameters established for the MPO's most recently adopted LRTP. This study area has been modeled and was used in the development of the MPO's latest LRTP.

- **CMP Network**
  The CMP network shall consist of all functionally-classified roads that are located within the boundaries of the MPO study area.

- **Transportation Modes**
  The modes of transportation selected for study consists of the traditional urban mix of vehicles that have been modeled, and public transit systems that are the recipients of federal transit funds. Public transit services to be studied are fixed route and demand response.

CMP – Concept of Operations

The Congestion Management Process is systematic and is designed to provide the most current and accurate information concerning system performance to the MPO. It enables the MPO to amend the TIP and/or the LRTP, if necessary, to include new projects that will alleviate congested corridors identified through the CMP. The process requires the MPO to:

1. Periodically report on existing and anticipated conditions on the local CMP network
2. Identify local corridors which must be segregated for further study
3. Identify the types of strategies that will most effectively eliminate congestion on priority corridors
4. Recommend specific projects or strategies for implementation
5. Program the project or strategies into the TIP or metropolitan transportation plan if necessary
6. Implement the recommended project or strategy, and
7. Evaluate the results of the project or strategy implementation.

The collection of transportation system data and the application of specific performance measures tailored to meet the Huntsville Area MPO CMP will allow the MPO to carry out the CMP and prepare a report on the state of the system that is incorporated into the LRTP. This section identifies the data collection requirements and performance measures selected by the MPO to carry out the CMP. Additionally, each step in the CMP process will be explained in detail.

Data Collection Requirements and Responsibilities

Coordinated data collection among all jurisdictions is required for an effective CMP. Since the foundation of the CMP is the measurement of existing and anticipated congestion, both recurring and non-recurring, the data needed to support the requirements of the local CMP consists of the most recent base year and future year modeled transportation networks, public transit service data, and active work zone data. While updated traffic count information may be available, it is preferred to use modeled traffic counts, since certain socio-economic characteristics are incorporated and bear influence on how trips are distributed throughout the network.

Additionally, the MPO maintains a current database of detailed information on roadway segments which comprise the CMP network. Data collection responsibilities are as follows:

- **Traffic Count Data**

  Traffic count data is collected by the State of Alabama, City of Huntsville, City of Madison, and Madison County. This data is incorporated, calibrated, and validated in the Base Year travel demand model.

- **Work Zone Data: State of Alabama**

  The Alabama Department of Transportation's North Region tracks transportation improvements in the MPO Study Area from the engineering design phase to the bidding process and eventually onto construction. Work Zone Data can be obtained from the Division Office pertaining to the number of working days that a project is estimated to be under construction and the estimated completion dates. The Division Office can also provide additional data pertaining to detours and construction speed limits.

- **Public Transportation Data:**
  - City of Huntsville

    The City of Huntsville Department of Parking and Public Transit continuously collects service performance data concerning its fixed route service and demand response service to meet annual Federal Transit Administration (FTA) reporting requirements.

    Additionally, the department is required to submit a Title VI Report to FTA every three years, justifying transit system accessibility. Transit service statistics for the past four years from the submitted National Transit Database report provided to FTA, and the latest Title VI Report available will be requested for input in the Congestion Management Process.

  - Madison County

    The Madison County Department of Planning and Economic Development collects and maintains transit service data for its demand response program: TRAM. Service statistics are provided on an annual basis to the Multimodal Office of ALDOT's Bureau of Transportation Planning and Modal Programs in Montgomery. Transit service statistics for the previous four years from the latest report provided to ALDOT, will be requested for input in the Congestion Management Process.

Performance Measures

IIJA/BIL places an increased emphasis on performance management within the Federal-aid highway program and transit programs, and requires use of performance-based approaches in statewide, metropolitan, and non-metropolitan transportation planning. The legislation also emphasizes the integration of various performance-based plans within the overall planning process.

Federal regulations [23 CFR 500.109(b)] specifically requires that the CMP consider "strategies that manage demand, reduce single occupant vehicle (SOV) travel, and improve transportation system management and operations. Where the addition of general-purpose lanes is determined to be an appropriate congestion management strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future demand management strategies and operational improvements that will maintain the functional integrity of those lanes." This is best accomplished through the establishment of multidimensional performance measures. The FHWA's training course, "Congestion Management for Technical Staff", defines the types of congestion management performance measures as congestion based; efficiency based; mobility based; and accessibility based. The training course also recommends that performance measures have the following characteristics:

- Clearly understood (to simplify decision making)
- Sensitive to all travel modes
- Sensitive to time
- Supporting data not too costly or difficult to collect
- Supporting data can be forecast, and
- Ability to measure effects of strategies

The most effective performance measures rely on existing data sources as well as the appropriate application of real-time system performance monitoring capabilities available through Intelligent Transportation Systems (ITS) technologies. At the present time, the application of ITS technologies in the region is in its infancy. Once the regional ITS architecture is developed and projects are implemented, the region's monitoring capability will be greatly enhanced. Given this situation, the Huntsville Area MPO has tailored its specific performance measures to meet the FHWA's recommendations through its current capabilities.

An assessment of various recurring and non-recurring performance measures was conducted, and appears at Table 1 and Table 2. The tables show the category of the performance measure, data required for its use, and its applicability to the CMP. Data collected by previously identified departments and agencies is critical to the CMP process, since the data is applied to performance measures, resulting in graphic representations of mobility trends in the area. Performance measures that are readily applicable to the established CMP area, network, and modes have been selected for inclusion in the CMP.

Data collection responsibilities for each performance measure and the format for data presentation is further identified. It is preferred that performance measures and presentation formats be consistent from year to year so that trend analysis may be easier to perform. Performance measures that focus on livability, such as VMT per person and travel time to work per subarea, have always been utilized. The identification and use of these performance measures is detailed as follows.

- **Congestion Based Measures**

Congestion based measures are facility oriented and show how much of the road or bus capacity is being used within a corridor. There are two measures identified for this category that will be used in the CMP.

  - **V/C Ratios of the CMP Network, both current and projected**

V/C ratios for the current and projected CMP network will be obtained through methods used by the MPO's transportation modeling software, which has been endorsed by the Alabama Department of Transportation and approved by the MPO. Segments displaying a V/C ratio equal to or greater than 1.0 on both sides of the corridor will be considered congested per State and local standards.

  - **Fixed Route Rate of Occupancy**

The fixed route rate of occupancy measures congestion on fixed route buses, either on an average daily basis or during peak times. This number is calculated by dividing the number of average daily riders (or peak service riders) into the capacity of the system. Officials at the City of Huntsville Department of Parking and Public Transit report that there is not a standard peak time of service. Since this is the case, the rate of occupancy will be displayed for average service, and not peak hour service. At the present time, the average system wide rate of occupancy is available. Route specific information will be available in the near future.

- **System Efficiency Based Measures**

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

- **Average Daily Vehicle Miles Traveled (VMT)**

The average daily VMT is calculated by multiplying each segment's average daily traffic count by each segment's length, and then summing the individual segment's VMT.

Table D-1: Assessment of Recurring Performance Measures

Measure of Congestion	Data Requirements	Readily Applicable to CMP Area, Network, Modes?
Congestion Based		
Volume to Capacity Ratio	Results from current and projected transportation model, based upon system wide traffic counts and system wide capacity levels	Yes
Fixed Route Rate of Occupancy	Huntsville Public Transit statistics	Yes
System Efficiency		
Average/Percent Vehicle Miles of Travel	System wide traffic counts per models, mileage of CMP network	Yes
Average/Percent Vehicle Miles of Travel per Person	System wide traffic counts per models, mileage of CMP network, estimated county population	Yes
Duration of Congestion	Hourly traffic counts and roadway capacities, or travel time surveys	Hourly traffic counts not available for all functionally-classified roads; travel time survey not available

Measure of Congestion	Data Requirements	Readily Applicable to CMP Area, Network, Modes?
Number/Percent of Vehicle Miles Traveled Congested	V/C Ratios of CMP network, lengths of congested segments, traffic counts	Yes
Number/Percent of Vehicle Hours Traveled Congested	Hourly traffic counts and roadway capacities, or travel time surveys	Hourly traffic counts not available for all functionally-classified roads; travel time survey not available
Trips by Travel Mode	Assessment of number of trips made by all modes within network area	No
Person Miles Traveled	Vehicle occupancies, traffic volumes, segment lengths	Model data available (estimates)
Total Person Hours Traveled by mode	Vehicle occupancies, traffic volumes, segment lengths, travel time	Model data available (estimates)
System Mobility		
Transit Passengers Served	Transit statistics from Huntsville Public Transit and TRAM	Yes
Transit Revenue Miles	Transit statistics from Huntsville Public Transit and TRAM	Yes
Average Daily Ridership on Fixed Routes	Transit statistics from Huntsville Public Transit	Yes
System Wide Average Ridership	Transit statistics from Huntsville Public Transit and TRAM	Yes
Travel Speed on CMP Network Classifications	Must be ascertained from current model	Yes
Travel Times Along Corridors	Travel time surveys	No – Data source not currently available
System Accessibility		
Percent of Population within "X" Minutes of Selected Areas	Must determine selected areas, must conduct travel time surveys	Yes
Percent of Population within "X" Miles of Transit	Must determine population along current transit routes, establish mileage threshold	Yes

Measure of Congestion	Data Requirements	Readily Applicable to CMP Area, Network, Modes?
Mean Travel Time to Work	Census data	Yes
Transit Accessibility per Population Density and Level of Income	Census data, transit route maps	Yes

Table D-2: Assessment of Non-Recurring Performance Measures

Measure of Congestion	Data Requirements	Readily Applicable to CMP Area, Network, Modes?
Average Delay due to Active Work Zones	Traffic surveillance information	Work underway for Interstate; funded for Expressways
Locations Experiencing Delay due to Work Zones	Current and planned work zone data obtained through the Alabama Department of Transportation, North Region Office	Yes

Average Daily Vehicle Miles Traveled per Person

Average daily vehicle miles of travel per person is calculated by dividing the CMP daily VMT by the countywide population for the year that the VMT was developed. It provides planners with an idea of personal mobility and system utilization, and can establish a relationship between population growth and length of trips in the area.

Roadways Operating at Congested Conditions

The number, percent, and classification of roads operating at congested VMT as well as the base year total congested versus uncongested VMT can be determined by calculating the V/C ratio for each segment on the CMP network and per each roadway classification. Segments with V/C ratios equal to or greater than 1.0 (according to State and local standards) are classified as congested. Multiplying each segment's average daily traffic count (congested versus uncongested and by classification) by each segment's length, and then summing the individual segment's VMT will provide the end result required.

System Mobility Based Measures

Mobility based measures are more trip-oriented. These measures express the ease and freedom with which persons can travel from one location to another. It also measures the number of persons traveling by differing modes within the corridor. The CMP will investigate system mobility on several levels.

Transit Ridership

The mobility of users of fixed route and demand response public transit services provided within the MPO jurisdiction will be investigated by determining total ridership, average daily passengers served by fixed route transit services, and annual revenue miles. This will assist in determining passenger "throughput" on the system.

System wide rate of occupancy, mentioned earlier, can also be applied here since rate of occupancy is also an indicator of the system's ability to accommodate passenger trips. Passenger mobility is affected if the fixed route transit system cannot accommodate the passenger's trip.

The following will be specifically addressed:

- Total ridership
  - Huntsville Transit (Orbit/Access)
  - TRAM
  - MARS
- Average Daily Passengers – Huntsville Orbit
  - Annual Revenue Miles
  - Huntsville Transit (Orbit/Access)
  - TRAM
  - MARS

CMP Transportation Network

Mobility on the CMP transportation network is difficult to measure without actual travel time data. At the present time, the Huntsville Area MPO does not have the resources to conduct such study. Estimated travel speed and estimated travel time will be determined.

System Accessibility Measures

System accessibility measures are activity oriented, and can be used to express the ease that persons are able to access activities such as work, shopping, etc. as well as other modes of transportation. System accessibility is somewhat difficult to measure. The Huntsville Area MPO will measure system accessibility of the City of Huntsville's fixed route Orbit service as well as the entire CMP network.

Public Transit Accessibility

The ease of public access to fixed route transportation services in the City of Huntsville will be investigated. At the present time, the best way to measure public transit accessibility is by referencing the latest Title VI information submitted to FTA. Additionally, maps used in preparation of the Title VI Report will be consulted. These maps are based upon the latest census data, showing specific thresholds of minority population as well as income levels. Locations which meet the established thresholds and are along public transit routes shall indicate public accessibility to the system. These maps will also be used later in the CMP process for strategy screening.

CMP Network Accessibility

Currently the only information available concerning the accessibility of the CMP network is Journey to Work data, reported by the U.S. Census Bureau. Also, the latest Census Transportation Planning Package will be consulted for additional information.

Non-Recurring Congestion Measures

Non-recurring congestion measures tend to measure delay due to incidents and accidents on the CMP network. It is difficult to adequately measure these random events since the time of delay, severity of accidents/incidents, and the time to clear such events vary widely and are unpredictable. The best stable method to assess non-recurring congestion is through the collection of active work zone data. Delay caused by temporary construction activities can impact traffic trying to access the area. While actual time of delay is not recorded, locations experiencing the construction of transportation improvements will typically experience the most delay, causing congestion to occur.

The MPO will develop a Work Zone database, listing the active and planned future work zones and pertinent information.

Development of the CMP

There are two outcomes that result from the CMP: One outcome is an assessment of the overall condition of the CMP network. The other outcome involves the determination of current and future congested corridors and isolated segments, their prioritization, the application of appropriate strategies for solving congestion on the selected corridors, their potential programming into the planning process, possible implementation, and evaluation of effectiveness once implementation occurs. The CMP will include the following sections:

- State of the System – defines system mobility trends per performance measures
- CMP Technical Ranking – lists in priority order all congested corridors
- Strategy Recommendations– summarizes recommendations for mitigating congestion on top-ranked corridors
- Strategy Effectiveness Evaluations – summarizes extent of improvement after strategies are implemented
-

In order to prepare this section and maintain an effective CMP which correlates with local planning goals and initiatives, the following steps in the CMP must be addressed:

Step 1 – Network Monitoring and Evaluation

The first step to be accomplished in the CMP is network monitoring and evaluation. This requires two tiers of analysis. The first tier involves the implementation of the established performance measures, an analysis of system performance based upon the results of the measures, and the establishment of CMP objectives to be met in the future.

The second tier of analysis requires a study of the CMP network to determine which existing and anticipated segments are classified as congested. For the purpose of the CMP, both current and future volume/capacity (V/C) ratios will be calculated for each segment on the CMP network using the methods established by the State's current transportation planning modeling software. Current traffic volumes will be taken from the Base Year transportation network model. Current roadway capacities are indicated by the MPO's transportation planning model. Future traffic volumes will be taken from the projected volume for each segment. Future "improved" roadway capacity for each segment will be indicated by the MPO's transportation planning model. The "improved" roadway capacity takes into account all future improvements programmed into the TIP and the adopted LRTP.

Segments indicating a V/C ratio of 1.0 or greater will be considered as congested, according to current State and local standards.

Step 2 – Corridor Ranking

Once existing and anticipated segments with v/c ratios equal to or greater than 1.0 are identified, they will be segregated and ranked according to a prioritization process. There may be numerous segments of roadway identified that are congested. Since it is not feasible to identify congestion mitigation strategies for all of these roadways simultaneously, a systematic method for determining which segments to study first was devised. Although this technique results in a numerically ranked list - the CMP Technical Ranking - it does not supersede any project priority list approved by the MPO. Segments are only ranked for consideration purposes only.

The prioritization process involves assigning points to each segment based upon extent of congestion, existing traffic volume, traffic accident history, multi-modal connectivity, and prior funding commitments.

Once all appropriate points have been assigned to each segment and calculations have been made, each segment will be ranked in order from highest score to lowest. If any one segment appears toward the top of the list, and surrounding links are contiguous or near contiguous, the whole congested link will be presented for study. This will be done until all corridors have been identified.

For the purpose of the CMP, corridors are defined as a collection of segments that are contiguous or near contiguous and involve multiple intersections.

Step 3 – Corridor and Segment Strategy Screening

3A. General

The CMP requires through its legislation, the identification and evaluation of strategies to determine the most effective method(s) to address congestion. According to the FHWA publication Congestion Management Process: A Guidebook the recommended categories of strategies, or combination of strategies to be considered are:

- Transportation demand management strategies, including promoting alternatives, managing and pricing assets, land use, and work patterns
- Traffic operations strategies
- Public transit strategies
- Road capacity strategies, where necessary

While legislation does not dictate a specific order to how these strategies are to be considered, it is implied that construction of additional system capacity should be the last option examined for MPOs that are at non-attainment for air quality.

IIJA requires that for "transportation management areas classified as nonattainment for ozone or carbon monoxide pursuant to the Clean Air Act, Federal funds may not be advanced in such area for any highway project that will result in a significant increase in the carrying capacity for single-occupant vehicles unless the project is addressed through a congestion management process." [In part, amended 134(n)(1)].

Furthermore, the CMP must give priority to strategies that reduce congestion and improve the mobility of people, goods, and services without requiring the construction of additional roadway capacity. Capacity adding projects are not prohibited, but the CMP requires the MPO to consider alternative strategies to capacity increases, and that measures be incorporated into the project to make the most efficient use of the new capacity once it has been constructed. The Huntsville urbanized area is currently at attainment, but will in good faith address construction of additional system capacity lastly.

In reality, all reasonable strategies must be considered and incorporated in future plans even if additional system capacity is determined to be the appropriate fix, since the corridor must be effectively managed once improvements are made and for years to come. 23 CFR 500.109(a) states that "Where the addition of general-purpose lanes is determined to be an appropriate congestion management strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future demand management strategies and operational improvements that will maintain the functional integrity of those lanes."

The interim legislation pertaining to congestion management, which was in effect from 1994 until 1997, provided greater detail and more examples of strategies to be considered.

These examples were studied at great length, and most strategies mentioned in the interim legislation were deemed viable and worthy of inclusion in the final strategy categories selected for analysis.

Many congestion management strategies that may be identified in the CMP may help to support livable communities. Increasing transit, bicycling, and walking options provides more transportation choices, which in turn can decrease household transportation costs, reduce dependence on fuel, improve air quality, and promote public health.

Strategies that better manage and operate the transportation system can enhance economic competitiveness by decreasing travel times for commuters and freight operators, reducing fuel consumption. Coordinating land use and transportation planning can help to not only manage congestion, but to promote healthy, safe, and walkable communities.

Using the CMP to support livability involves a comprehensive approach that allows for congestion to be assessed in the context of multiple goals to include economic vitality, safety, multimodal options, and the environment. Placing an emphasis on demand management and operational strategies can help to preserve the current infrastructure, support existing communities, and improve multimodal travel choices.

3B. Huntsville Area Transportation Study CMP Strategy Determination

To ensure that all levels of strategies are appropriately considered, the Huntsville area MPO devised a strategy screening matrix including specific questions to be considered in each strategy category. The questions, when applied to the top 10 corridors, may assist in devising potential strategies to mitigate congestion. Maps and charts displaying socio-economic and transportation characteristics have been prepared to aid in answering some questions. Additionally, maps and graphics pertaining to livability should be referenced as well. Larger maps suitable for more in- depth analysis can be made available to jurisdictions upon request.

Once the CMP Technical Ranking list is developed, the process of congestion mitigation must begin. Jurisdictions will be notified of the ranking results. Those jurisdictions with corridors and/or isolated segments presented in the CMP Technical Ranking list and chosen for strategy evaluations will be responsible for formulating solutions to address congestion problems. The strategy screening matrix is meant to be used as a guide for identifying various strategies to mitigate congestion. It is not meant to be an inflexible tool.

Jurisdictions are not limited to considering these specific strategies, but may identify other strategies that may work as well or better. It is not necessary to answer every single question presented, nor is it the intent of the legislation that all potential strategies be extensively studied. Each jurisdiction should determine the extent of using the matrix; however, all strategy categories should be considered. The goal should be to identify those strategies that can be reasonably implemented for a specific corridor or deficiency.

In some instances, strategies may or may not be feasible for implementation due to political, technical, and/or operational support. All potential strategies will be included in the screening matrix, since the areas political, technical, and/or operational environment may change in the future. The screening matrix for each strategy follows each level's definition, and is shown below. The five strategy categories have been assigned to levels, and are considered in the following order:

Level One	Strategies that Eliminate or Reduce Trips
Level Two	Strategies that Involve Traffic Operational Improvements and Access Management
Level Three	Strategies that Shift Trips from Single Occupancy Vehicles to Public Transit, Other High Occupancy Vehicles (HOVs), and Other Modes
Level Four	Strategies that Involve Implementation of TSMO
Level Five	Strategies that Add Capacity for All Vehicles

Table D-3: Congestion Mitigation Strategy Levels

Step 4 – Strategy Development

4A. Selection of Appropriate Strategies

Once the chosen corridors and isolated segments are put through the screening process, the selection of appropriate strategies must be accomplished. This is the responsibility of the jurisdiction conducting the screening. A positive response to the screening questions indicates the strategy is potentially applicable; however, the questioning process should not stop at the first positive answer. There may be multiple strategies that are applicable, and it will be the responsibility of each jurisdiction to determine the most effective strategy or combination of strategies to be used to mitigate identified congestion problems. Strategies 1 through 5 should be considered for corridors identified as deficient. The MPO's CMP Strategy Screening Forms are available electronically for use by jurisdictions completing this process.

Some flexibility is required when considering strategies to be implemented. There may be instances where a specific strategy may be initially considered, but upon further investigation the strategy may not be applicable or effectively address congestion problems experienced in the area as once determined. Some strategies may provide a temporary fix; however, strategies must be considered and implemented which provide a more permanent solution to the deficiency. Due to financial constraints or other concerns, there may be some instances where it may not be possible to mitigate corridor deficiencies by alternative CMP strategies or by roadway widening. Overall, the strategies selected for a specific corridor or isolated segment must have a good potential for success and must also effectively eliminate the deficiency.

4B. Strategy Recommendations

The strategy screening process alone typically will not provide enough information to justify project funding and implementation. After potential strategies are identified, additional study must be conducted by the appropriate jurisdiction before the strategy is even considered for possible future programming or funding, and implementation. The depth of study required is dependent upon the strategy selected. For instance, if traffic signal timing improvements are deemed an effective strategy, then a traffic engineering study should be conducted to determine appropriate changes to be made along the corridor.

The type of additional studies conducted as a result of strategy recommendations could range from low-cost traffic engineering studies and analysis to more expensive major investment studies. Additional data collection and analysis may not be necessary if it is obvious to the Technical Coordinating Committee and the MPO that the overriding strategy recommendation for a specific corridor is the only viable option, and a decision can be readily made concerning the appropriate action to take. It is then that additional study can be focused on actual project implementation rather than analyzing which recommendation to implement. The CMP will include the potential strategies for each corridor and isolated segment as well as the next action recommended - which may be a more thorough study, design, or implementation.

- Level One - Strategies that Eliminate or Reduce Trips

  Level One strategies attempt to eliminate or reduce the need for making trips. The strategies to be studied in this category include such options as growth management, the development of activity centers, congestion pricing, and certain types of transportation demand management.

- Level Two - Strategies that Involve Traffic Operational Improvements and Access Management

Level Two strategies emphasize actions that could be taken to optimize the corridor or segment operation for all trips that use highway facilities and modes. These strategies could include intersection widening, channelization, turning restrictions, signalization improvements, computerized signal systems, incident management, construction zone management, and driveway and median controls.

- Level Three – Strategies that Shift Trips from Single Occupancy Vehicles to Public Transit, Other HOVs, and Other Modes

Level Three strategies attempt to encourage the use of and provide availability of other modes for trip-making instead of relying on SOV use. The largest barrier to this strategy is personal. It requires the modification of the public's personal behavior, which may prove to be difficult. Various items could be implemented in this category, but until behavior is modified, the strategy may not appear to be beneficial.

- Level Four – Strategies that Involve Implementation of Intelligent Transportation Systems for Traffic Management

Level Four strategies involve the use of Intelligent Transportation Systems to manage traffic congestion.

- Level Five - Strategies that Add Capacity for All Vehicles

Level Five strategies include actions that increase roadway capacity by adding lanes to the roadway system.

Step 5 – Programming

As mentioned earlier, it is not the intent of the CMP strategy evaluation procedures or strategy recommendations to supersede the decision-making process of the LRTP and the TIP. However, the primary purpose of the recommended strategies and associated CMP is to support and complement these documents by providing additional information on the status of the local transportation system as well as the benefits of appropriate congestion management strategies.

If a corridor is selected for further study, has been evaluated, and a project selected, that does not necessarily mean that the recommended project will be funded immediately through the TIP. New projects may be identified through the CMP process for possible funding and implementation, but all TIP projects will equally compete against each other for funding. The CMP is not intended to be the tool for prioritizing projects.

The overall metropolitan and statewide planning process will determine which improvements best address the transportation goals and objectives for the State and for the Huntsville Area MPO.

It is important to understand that the final decision to implement an appropriate strategy or group of strategies may not be known until the MPO goes through the TIP update cycle. It is then that the MPO will have a better understanding of funding priorities and the availability of funding for specific projects. Some improvements, such as re-timing traffic signals, may bypass the programming process and not go through the MPO for funding. Such improvements can be handled with the jurisdiction's operating funds.

Step 6 – Strategy Implementation

If the TIP is amended to include projects identified through the CMP process, strategy or project implementation procedures that currently apply to the TIP will be followed. Strategy or project implementation may include preliminary engineering, design, right- of-way acquisition; or depending upon the strategy, actual construction.

Step 7 – Strategy Effectiveness Evaluations

Federal guidelines require strategies be evaluated after implementation to determine their overall efficiency and effectiveness. The results will be written in the CMP's Strategy Effectiveness Evaluations section as a brief commentary, with information provided by the project's sponsoring jurisdiction. Strategy effectiveness evaluations will compare pre-implementation system performance with post-implementation system performance based upon the area's established performance measures and other analysis that may be necessary. If the implemented strategies do not appear to be effectively solving the congestion problem, other strategies may be determined for implementation along the corridor or isolated segment. This will be documented to provide guidance to jurisdictions on selection of effective strategies for future implementation as well as justify the need to look at alternative solutions.

Summary

The purpose of this report is to document the CMP of the Huntsville Area MPO. The CMP is one of several management systems mandated by federal legislation. The CMP is managed at the local level and is a coordinated effort among all member jurisdictions of the MPO to include the Alabama Department of Transportation. Federal rules allow local flexibility in the development of the CMP, taking into consideration local resources and data availability. The Huntsville Area MPO meets the federal CMP objectives presented through the implementation of this report.

The Huntsville Area MPO CMP plays a supporting role in the overall transportation planning process. The CMP uses a methodical approach to identify locations which currently experience or may experience future congestion, and to develop and recommend strategies to mitigate congestion problems. The CMP, when incorporated with the LRTP and TIP, yields informed decisions and minimizes data collection and analysis costs.

CMP performance measures are used to identify system wide trends and congested areas on the CMP network. These measures are currently supported by information obtained through the LRTP's modeled networks and data collected by the ALDOT and member jurisdictions of the MPO. This data is summarized in conjunction with the preparation of the LRTP by the MPO and these results, as well as recommended strategies for alleviating congestion, will be published within the LRTP.

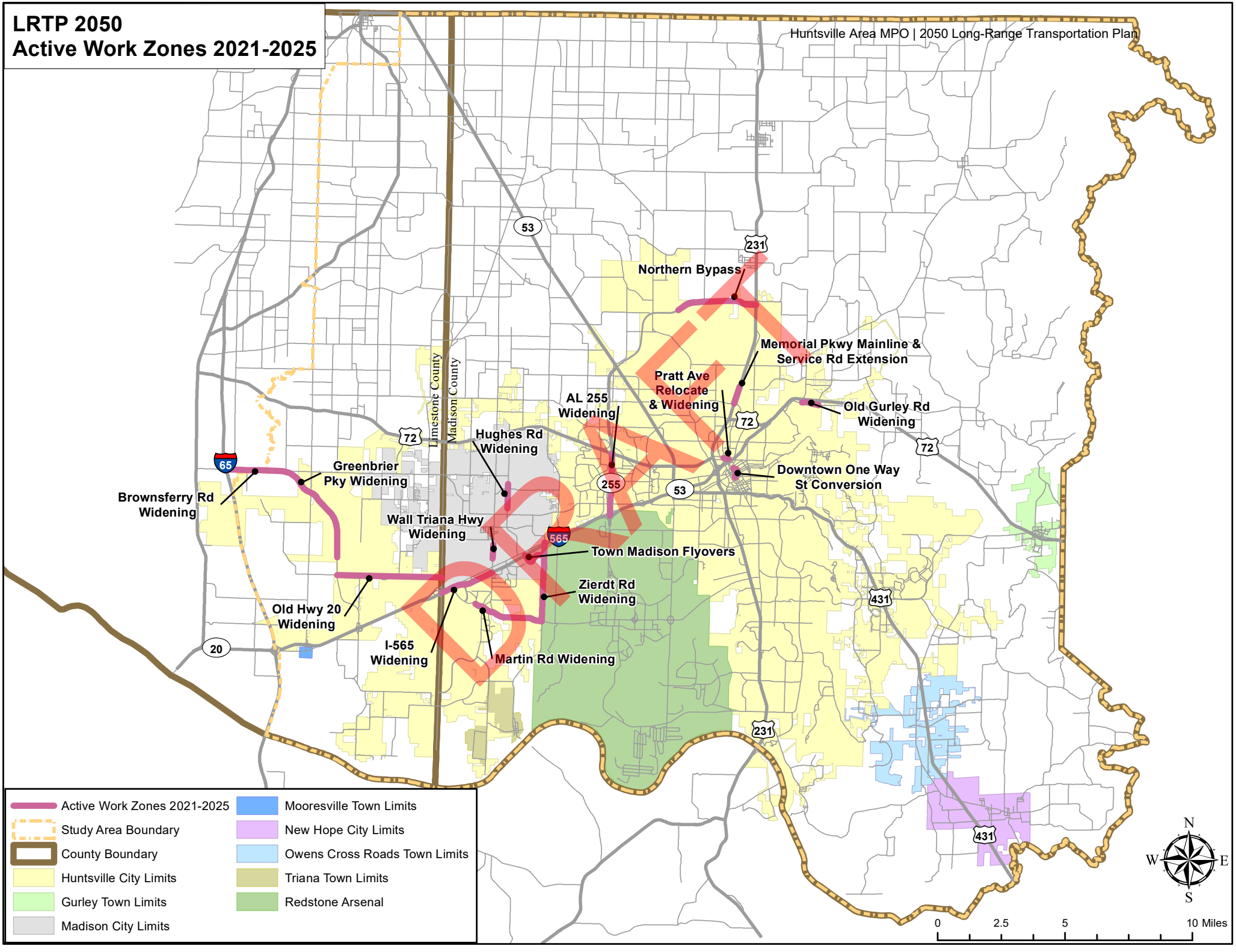
The Technical Coordinating Committee of the MPO was responsible for overseeing the development of the local CMP and will continue in its oversight role for updating the CMP procedures if necessary. Members of the committee will also play a vital role in strategy development, strategy recommendations, and strategy implementation for each of their jurisdictions. Citizen involvement and public participation in this process will also continue, as public review and comment on strategies developed through the CMP process will be conducted.

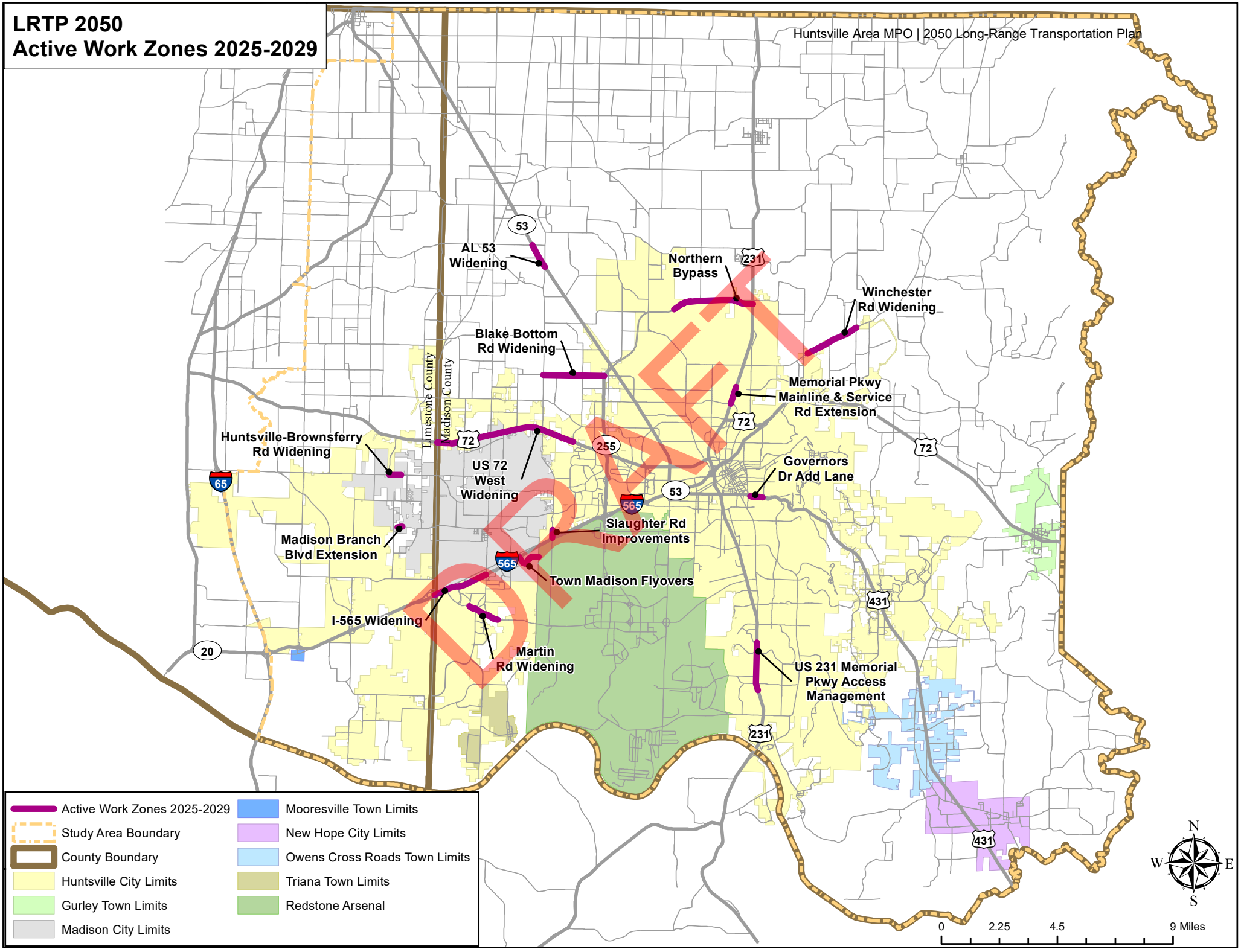
The MPO will review the CMP and will make recommendations for projects to be included in the TIP and the LRTP as necessary, understanding that the overall transportation planning process should sort out project priorities. The TIP is fiscally-constrained, and projects that have been identified through the CMP process may not be funded immediately.

If projects resulting from the CMP are approved, funded, and implemented, federal rules require the strategies be evaluated to determine its efficiency and effectiveness. Strategy effectiveness evaluations will be conducted and the information received by the project's sponsoring jurisdiction will be included in the CMP. The CMP will be updated in conjunction with the LRTP and will be published as part of that document.

Appendix E: Congestion Management

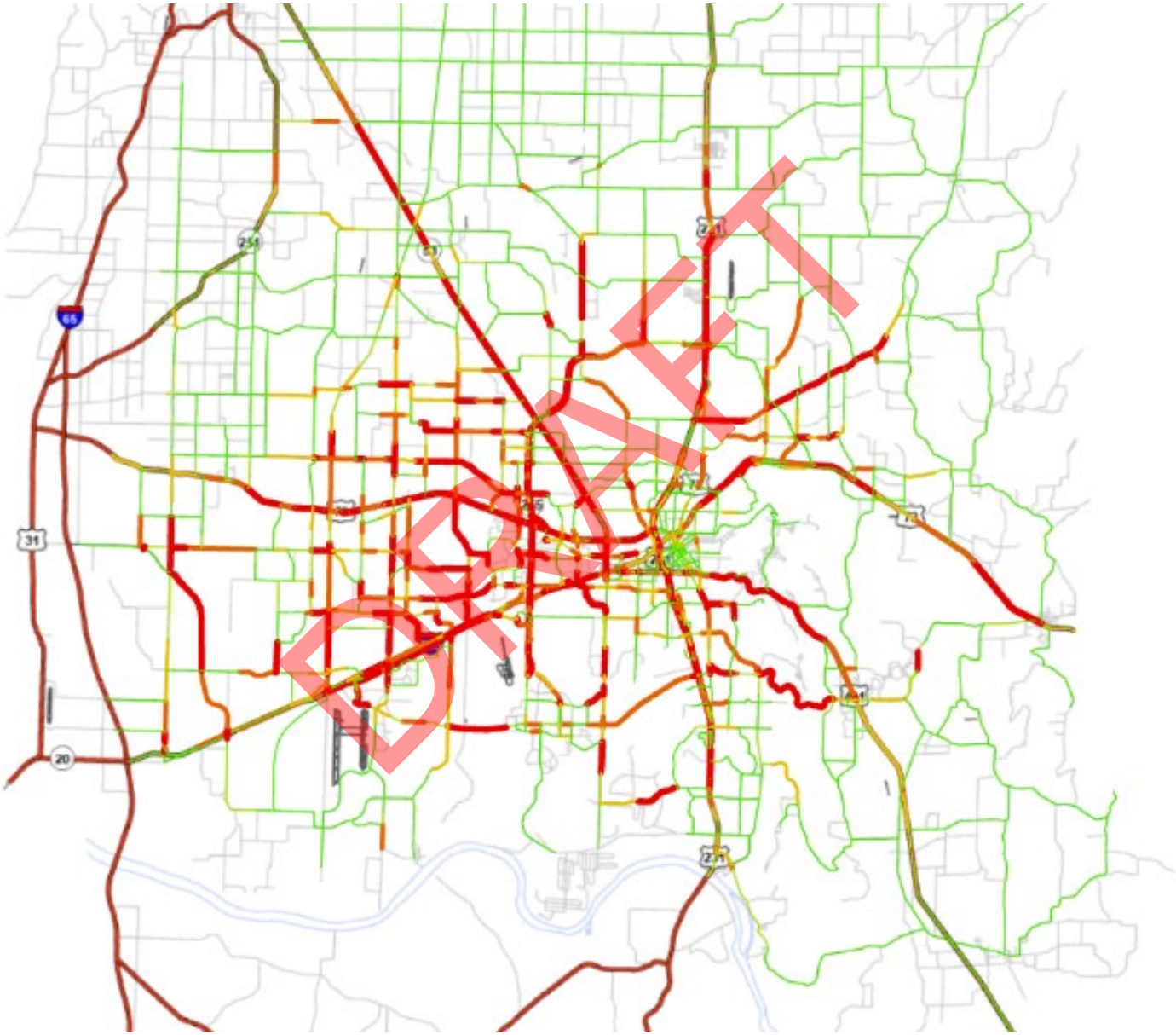
LRTP 2050
Active Work Zones 2021-2025




LRTP 2050
Active Work Zones 2025-2029
Huntsville Area MPO | 2050 Long-Range Transportation Plan
AL 53 Widening
Northern Bypass
Winchester Rd Widening
Blake Bottom Rd Widening
Memorial Pkwy Mainline & Service Rd Extension
Huntsville-Brownsferry Rd Widening
US 72 West Widening
Governors Dr Add Lane
Slaughter Rd Improvements
Madison Branch Blvd Extension
Town Madison Flyovers
I-565 Widening
Martin Rd Widening
US 231 Memorial Pkwy Access Management
Limestone County
Madison County
DRAFT
Active Work Zones 2025-2029
Study Area Boundary
County Boundary
Huntsville City Limits
Gurley Town Limits
Madison City Limits
Mooresville Town Limits
New Hope City Limits
Owens Cross Roads Town Limits
Triana Town Limits
Redstone Arsenal
0
2.25
4.5
9 Miles
N
W
E
S

Map: 2021 Base Year Congestion

Map: 2050 Fiscally Constrained Scenario Congestion



Appendix F: Freight

Freight Movement

The following is a list of truck-rail, drayage, cartage, warehousing, and chassis leasing companies, as well as motor freight carriers, serving the Huntsville area. Drayage consists of trucking goods between a warehouse and rail yard.

Rail-Highway Companies

- Norfolk Southern Corporation (256) 772-7084
- TOFC/COFC/Double Stack
- TOFC – Trailer on flat car (with wheels)
- COFC – Container on flat car (without wheels)
- Double Stack – Containers stacked two high on flat car
- CV Depot Services
- Mechanical Repair & Maintenance
- Chassis leasing services

Custom Brokers and Freight Forwarders

Companies serving the International Intermodal Center:

Company	Location	Contact Number
BAX Global	Madison	**(256) 461-8018**
CH Robinson	Madison	**(256) 461-8994**
DSV	Huntsville	**(256) 772-9149**
Eagle Global Logistics	Huntsville	**(256) 772-6585**
Expeditors International	Huntsville	**(256) 774-1156**
J.F. Lumpkin, Chb	Madison	**(256) 461-0042**
Kuehne + Nagel, Inc	Huntsville	**(256) 464-0888**
Landstar Logistics	Huntsville	**(256) 461-7183**
Page & Jones, Inc.	Huntsville	**(256) 772-0231**
Team Worldwide	Huntsville	**(256) 461-7770**

Company	Location	Contact Number
UPS Supply Chain Solutions	Huntsville	**(256) 461-1880**
Averitt Express	Madison	**(256) 350-9141**
Fr. Meyer's Sohn NA	Reading, PA	**(610) 396-9550**
DHL	Birmingham	**(800) 225-5345**
Flexport	ATL	**(855) 353-9123**
Kerry	Huntsville	**(256) 799-1999**

Motor Freight Carriers

Company	Location	Contact Number
AAA Cooper Transportation	Decatur	**(256) 355-9610**
Averitt Express	Madison	**(256) 350-9141**
BJJJ Trucking, Inc.	Huntsville	**(256) 464-7857**
Comtrak, Inc.	Madison	**(256) 464-7995**
Con-Way	Decatur	**(256) 351-0390**
FirstFleet, Inc.	Huntsville	**(256) 772-5304**
Huntsville Air Freight	Huntsville	**(256) 772-9800**
Old Dominion	Madison	**(256) 464-9086**
Overnight Express	Huntsville	**(256) 533-0394**
Overnight Transportation	Huntsville	**(256) 533-0394**
Roadway Express	Huntsville	**(256) 772-9216**
SAIA Motor Freight Line, Inc.	Madison	**(256) 464-0200**
Service Transport Inc.	Madison	**(256) 772-0002**
Southeastern Freight Lines	Madison	**(256) 772-0096**
Steve Cagle Trucking Co.	Huntsville	**(256) 881-0098**

Company	Location	Contact Number
USA Motor Express	Florence	**(800) 897-0690**
Yellow Transportation	Decatur	**(256) 353-8511**
Watkins Motor Lines	Huntsville	**(800) 553-5425**
Wilson Trucking	Madison	**(256) 774-5201**

Draymen Serving Rail-Highway Facilities

(Companies that transport goods via trucks from a warehouse to a rail yard or vice-versa)

Company	Location	Contact Number
Averitt Express	Madison	**(256) 350-9141**
Comtrak Logistics	Madison	**(256) 464-7905**
Cowan Trucking	Nashville	**(615) 255-4615**
Diamond Express	Birmingham	**(205) 591-0661**
Diamond Express	Chattanooga	**(423) 266-2164**
House's Loading Service	Madison	**(256) 772-4659**
Jim Potter & Sons	Sheffield	**(256) 383-7836**
Liberty Transport	Huntsville	**(256) 704-3635**
Mason Dixon	Madison	**(256) 772-1301**
Mainstream Transportation	Memphis	**(800) 762-1223**
Midwest Carriers	Florence	**(256) 246-0047**
Old Dominion	Madison	**(256) 464-9086**
Phoenix Transit	Nashville	**(615) 469-2273**
Sea Lane Express, Inc.	Madison	**(256) 461-9334**
TCW	Birmingham	**(205) 252-4786**
RoadLink USA	Tarrant	**(205) 841-1169**

Company	Location	Contact Number
Evans	Huntsville	**(256) 704-3635**
Universal	Huntsville	**(256) 318-6852**
Jones Logistics	Shelbyville	**(931) 680-2426**
Fast Freight	Birmingham & Huntsville	**(205) 727-8033**
Forward Air	Nashville	**(615) 242-2551**
IMC	Huntsville	**(256) 261-2001**
White Oak	Decatur	**(256) 353-8897**
Horizon	Huntsville	**(205) 965-2257**
HUB	Chicago	**(630) 437-6327**
Roadone	Nashville	**(781) 961-8200**

Truck Routes

Ordinance No. 96-810 established truck routes within the City of Huntsville. Designated truck routes on state highways include I-565, U.S. 431, U.S. 231, U.S. 72 East and West, Alabama Highway 53, Alabama Highway 20, and Research Park Boulevard. Truck routes established on the city of Huntsville streets include the following:

- Jordan Lane from I-565 to Redstone Arsenal
- Triana Boulevard south of Bob Wallace Avenue
- Johnson Road from Triana Boulevard to Leeman Ferry Road
- Airport Road from Leeman Ferry Road to Carl T. Jones Road
- Carl T. Jones Road from Airport Road to Bailey Cove Road
- Bailey Cove Road from Carl T. Jones Road to Green Cove Road
- Bob Wallace Avenue from I-565 to Memorial Parkway
- Pulaski Pike from University Drive to city limits
- Sparkman Drive west of Jordan Lane
- Pratt Avenue between Memorial Parkway and Meridian Street

- Meridian Street north of Pratt Avenue
- Oakwood Avenue between Jordan Lane and Andrew Jackson Way
- Moores Mill Road between U.S. Highway 72 East and Winchester Road
- Winchester Road from Pulaski Pike to city limits
- Stringfield Road between Alabama Highway 53 and Pulaski Pike
- Mastin Lake Road between Pulaski Pike and Memorial Parkway
- Old Madison Pike from I-565 to city limits
- Martin Road in its entirety
- Green Cove Road from Memorial Parkway to Bailey Cove Road
- Whitesburg Drive from Airport Road to Memorial Parkway

Waterway Facilities in the Vicinity of Huntsville

Terminal	River/ Mile	Contact Info	GIS Coordinates
NUCOR, Inc	Tennessee/ Mile 298	4301 Iverson Blvd, Trinity, AL 35673 (256) 301-3500 (256) 560-4975 www.nucor.com	**34.662498, -87.08277**
Boeing Company- United Launch Alliance, Decatur	Tennessee/ Mile 298.2	100 Decatur Way, MC6010-1001, Trinity, AL. 35673 (256) 432-1000 (256) 432-1460 www.ulalaunch.com	**34.657248, -87.06970**
Kinder Morgan Terminals, Decatur Mallard-Fox Creek Port	Tennessee/ Mile 298.5	1802 Red Hat Road, Decatur, AL 35602 (256) 353-4553 (256) 353-4951 www.kindermorgan.com	**34.65611, -87.06889**

Terminal	River/ Mile	Contact Info	GIS Coordinates
B.P Decatur Works	Tennessee/ Mile 299.5	1401 Findley Island Road, P.O. Box 2215, Decatur, AL 35603 (256) 340-5200 (256) 301-5443 www.bp.com	**34.649444, -87.05361**
Cronimet Corporation	Tennessee/ Mile 301	1220 State Docks Road, Decatur, AL 35601 (256) 350-7776 (256) 350-7662 www.cronimet.com	**34.637775, -87.03426**
Gavilon	Tennessee/ Mile 301.4	1030State Docks Road, Decatur, AL 35601 (256) 351-7002 (256) 351-8012 www.gavilon.com	**34.6375, -87.03306**
Cemex, Inc	Tennessee/ Mile 301.4	1216 State Docks Road, Decatur, AL 35601 (256) 351-6336 (256) 353-7795	**34.638056, -87.03444**
Decatur-Morgan County Port - Cronimet Corp	Tennessee/ Mile 301.4	1220 State Docks Road, Decatur, AL 35601 Phone: (256) 353-7762 FAX: (256) 350-7776 Web: www.cronimet.com	**34.63889, -87.03417**
Ascend Performance Inc., Decatur Chemical Dock	Tennessee/ Mile 301.9	P.O. Box 2204, Decatur, AL 35609-2204 (256) 552-2011 (256) 552-2153 www.ascendmaterials.com	**34.636435, -87.01765**

Terminal	River/ Mile	Contact Info	GIS Coordinates
Ascend Performance Inc., Decatur Chemical Dock	Tennessee / Mile 301.9	1050 Chemstrand Ave. Decatur, AL 35601 (256) 552-2011 (256) 552-2153 www.ascendmaterials.com	**34.636435, -87.01765**
Port of Decatur, Decatur Transit, Inc	Tennessee/ Mile 304.1	P.O. Box 1784, 500 Market Street NW Decatur, AL 35602 (256) 353-9601 (256) 353-1777 www.Decaturtransit.com	**34.619722, -86.98555**
Port of Decatur- Fleeting	Tennessee/ Mile 304.2	P.O. Box 1784, Decatur, AL 35602 (256) 353-9601 (256) 353-1777 www.Decaturtransit.com	**34.619767, -86.98114**
Agriliance- AFC, LLC, Decatur Fertilizer Wharf	Tennessee/ Mile 305.2	905 Market Street, Decatur, AL 35601 (256) 308-1733 (256) 560-2733 www.agri-afc.com	**34.610180, -86.97197**
Alabama Farmers CO-OP- Grain	Tennessee/ Mile 305.3	800A Market St. Decatur, AL 35601 (256) 353-6844 (256) 560-2671 www.alafarm.com	**34.606852, -86.96439**

Terminal	River/ Mile	Contact Info	GIS Coordinates
Bunge Corporation	Tennessee/ Mile 305.6	P.O. Box 2248, 1400 Market Street SE, Decatur, AL 35602 (256) 301-4000 (256) 309-2258 www.bunge.com	**34.606389, -86.96444**
Conagra-Decatur Flour Mill	Tennessee/ Mile 306.3	2050 Market Street, Decatur, AL 35601 (256) 552-4707 (256) 552-4709 www.conagrafoods.com	**34.601389, -86.95694**
Army Missile Command (Inactive)	Tennessee/ Mile 323.5	Building 5302, Redstone Arsenal, AL 35898 (256) 876-4515 (256) 876-1190	**34.587385, -86.68557**
NASA Marshall Space Flight Center	Tennessee/ Mile 324	Address AS20, Marshall Space Flight Center, Huntsville, AL 35812 (256) 544-9451 (256) 544-1693 www.nasa.gov	**34.585833, -86.6808**
Huntsville-Madison Co. Marina & Port Authority (Inactive)	Tennessee/ Mile 333.8	P.O. Box 14250, Huntsville, AL 35815 (256) 882-1057 (256) 880-7620 www.dittolanding.com	**34.576496, -86.55938**

Terminal	River/ Mile	Contact Info	GIS Coordinates
Alliance Sand, Inc. – Huntsville Port	Tennessee/ Mile 336.6	500 Bill Mathews Road, Huntsville, AL 35803 (256) 881-4951 (256) 213-9687	**34.536111, -86.54527**

Appendix G: Funding Sources

Federal Programs

Federal funding amounts shown in this section reflect the Alabama Department of Transportation's projections of future funds. Various categories of federal funds are available for transportation improvements.

1. Highway Safety Improvement Program funds
   These funds have been retained by IIJA/BIL to continue comprehensive funding to states for specific types of safety projects.

2. National Highway Performance Program (NHPP) funds
   NHPP funds the National Highway System (NHS) and the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. These routes in the Huntsville urban area, include the following: I-565, U.S. 72, U.S. 231, U.S. 431, and Research Park Boulevard (SR-255) from I-565 to University Drive. Under IIJA/BIL, this funding category consolidated the National Highway System, Interstate Maintenance activities, and National Highway System Bridge Projects.

3. Surface Transportation Program (STP) funds
   Surface Transportation Program (STP) funds are typically divided into several different categories as designated by Congress. STP funds dedicated to road construction are split into two major categories: STP Any Area (STPAA) and STP Huntsville (STPHV). STPAA dedicated projects are funded with federal and state matching money and can be used anywhere in the state. STPHV dedicated projects are funded with federal and local matching money and can be used only within the Huntsville Metropolitan Planning Area. STPHV revenues are contingent upon the local area's ability to provide the typical 20 percent matching funds to finance transportation projects within their jurisdictions.

4. Federal Transit Authority (FTA) funds
   The estimated amount to be received during the next 25 years in the urbanized area falls below the transit system's capital needs discussed in Chapter 6: Multi-Modal Infrastructure. To make up for this projected deficiency, additional federal funds will need to be allocated, or other creative funding will need to be identified.

   The rural program assumes consistent funding and will continue to provide services based upon their future allocations. A full discussion of transit grant fund programs that the MPO area receives is provided in Chapter 6: Multi-Modal Infrastructure.

5. Transportation Alternatives Program (TAP)
   The TAP was authorized under MAP-21/FAST Act (Section 1122) and replaces most of the project activities under SAFETEA-LU Transportation Enhancement guidelines. The TAP provides some flexibility in shifting funds to and from other programs. Eligible projects provide for pedestrian, bicycle, and non-motorized modes of transportation, as well as recreational trails, these funds are at the discretion of the MPO.

6. Carbon Reduction Program (CRP)
   The CRP was authorized under IIJA/BIL, and provides funds "for projects designed to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on-road highway sources" (Source). Similar to STBG and TAP, there are CRP funds specifically allocated to the Huntsville Metropolitan Planning Area based on population. CRP-eligible projects include lighting; Intelligent Transportation Systems deployment and upgrades; and transit rolling stock purchases.

Innovative Financing

1. Alabama Transportation Rehabilitation and Improvement Program (ATRIP)
   ATRIP is an innovative financing program initiated by the State of Alabama that funds projects of local interest related to the state highway system. Jurisdictions throughout the State are encouraged to apply for ATRIP funds that required matching local monies.

2. Restore Our Roads Program
   The Restore Our Roads Program is an initiative between the State of Alabama and the City of Huntsville to construct critical transportation improvements in the City of Huntsville. This special agreement between the two entities commits a total of $250 million to needed road improvements, with both jurisdictions splitting the cost on a 50/50 basis.

3. Rebuild Alabama Act
   Rebuild Alabama is a program utilizing a state fuel tax increase enacted by the Alabama Legislature in 2019. The competitive grant program is similar to ATRIP, though projects can be on any public road or bridge.

Appendix H: Acronyms & Glossary

Acronyms & Glossary of Transportation Planning Tools

The following acronyms and planning terms may appear in this document and are commonly used by the MPO when communicating transportation plans and initiatives to the public.

Acronyms

3-C	Cooperative, Continuous, Comprehensive
ADA	Americans with Disabilities Act
ADEM	Alabama Department of Environmental Management
ADT	Average Daily Traffic
ALDOT	Alabama Department of Transportation
BEA	Bureau of Economic Analysis
BIL	Bipartisan Infrastructure Law (see also IIJA)
CAC	Citizens Advisory Committee
CBER	Center for Bureau and Economic Research - University of Alabama
CMP	Congestion Management Process
CN	Construction
DBE	Disadvantaged Business Enterprise
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FONSI	Finding No Significant Impact
FTA	Federal Transit Administration
GIS	Geographical Information Systems
HATS	Huntsville Area Transportation Study
IIJA	Infrastructure Investment and Jobs Act (see also BIL)
ISTEA	Intermodal Surface Transportation Efficiency Act (1991)
ITS	Intelligent Transportation Systems
LRTP	Long Range Transportation Plan

Acronyms Continued

MAP-21	Moving Ahead for Progress in the 21st Century
MO	Maintenance and Operations
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
PE	Preliminary Engineering
PIP/PPP	Public Involvement Plan/Public Participation Plan or Process
PS&E	Plans, Specifications, and Estimates
RW	Right of Way
SAFETEA– LU	Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users
STIP	State Transportation Improvement Program
TAP	Transportation Alternatives Program
TAZ	Traffic Analysis Zone
TCC	Technical Coordinating Committee
TDM	Travel Demand Management
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TSM	Transportation System Management
TSMO	Transportation Systems Management and Operations
UPWP	Unified Planning Work Program
VMT	Vehicle Miles Traveled
YOE	Year of Expenditure

Glossary

- 8-Hour Ozone NAAQS – The 8-hour ozone national ambient air quality standard codified at 40 CFR 50.10.
- Air Quality Conformity – The link between air quality planning and transportation planning
- Airport – A landing area regularly used by aircraft for receiving or discharging passengers or cargo.
- Allocation – An administrative distribution of funds for programs that do not have statutory distribution formulas.
- American Association of State Highway and Transportation Officials (AASHTO) – A nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.
- American Institute of Certified Planners (AICP) – The American Planning Association's professional institute that provides recognized leadership nationwide in the certification of professional planners, ethics, professional development, planning education, and the standards of planning practice.
- American Planning Association (APA) – A nonprofit public interest and research organization committed to urban, suburban, regional, and rural planning. APA and its professional institute, the American Institute of Certified Planners, advance the art and science of planning to meet the needs of people and society.
- American Public Transportation Association (APTA) – Acting as a leading force in advancing public transportation, APTA serves and leads its diverse membership through advocacy, innovation, and information sharing to strengthen and expand public transportation.
- Americans With Disabilities Act (ADA) – The legislation defining the responsibilities of and requirements for transportation providers to make transportation accessible to individuals with disabilities.
- Apportionment – 1) A term that refers to a statutorily prescribed division or assignment of funds. An apportionment is based on prescribed formulas in the law and consists of dividing authorized obligation authority for a specific program among the States. 2) The distribution of funds as prescribed by a statutory formula.
- Appropriation – Authorization of funding expenditures from Congress.
- Appropriations Act – Action of a legislative body that makes funds available for expenditure with specific limitations as to amount, purpose, and duration. In most cases, it permits money previously authorized to be obligated and payments made, but for the highway program operating under contract authority, the appropriations act specifies amounts of funds that Congress will make available for the fiscal year to liquidate obligations.
- Arterial – A class of roads serving major traffic movements (high-speed, high volume) for travel between major points.
- Arterial Highway – A major highway used primarily for through traffic.

- Arterial Street – A class of street serving major traffic movements (high-speed, high volume) for travel between major points.
- Asphalt – A dark brown to black cement-like material containing bitumen as the predominant constituent. The definition includes crude asphalt and finishes products such as cement, fluxes, the asphalt content of emulsions, and petroleum distillates blended with asphalt to make cutback asphalt. Asphalt is obtained by petroleum processing.
- Attainment Area – An area considered to have air quality that meets or exceeds the U.S. Environmental Protection Agency (EPA) health standards used in the Clean Air Act. Nonattainment areas are areas considered not to have met these standards for designated pollutants. An area may be an attainment area for one pollutant and a non-attainment area for others.
- Audit – Periodic investigation of financial statements and their relationships to planned or permitted expenditures.
- Authorization – Basic substantive legislation or that which empowers an agency to implement a particular program and establishes an upper limit on the amount of funds that can be appropriated for that program. It also may refer to the act of approving project funds.
- Authorization Act – Basic substantive legislation that establishes or continues Federal programs or agencies and establishes an upper limit on the amount of funds for the program(s). The current authorization act for surface transportation programs is the Transportation Equity Act for the 21st Century (TEA-21).
- Average Annual Daily Traffic (AADT) – The total volume of traffic on a highway segment for one year, divided by the number of days in the year.
- Average Annual Daily Truck Traffic (AADTT) – The total volume of truck traffic on a highway segment for one year, divided by the number of days in the year.
- Bikeway – 1) Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. (23CFR217) 2) A facility designed to accommodate bicycle travel for recreational or commuting purposes. Bikeways are not necessarily separated facilities; they may be designed and operated to be shared with other travel modes.
- Bipartisan Infrastructure Law (BIL)- See Infrastructure Investment and Jobs Act (IIJA).
- Bureau Of Economic Analysis (BEA) – The Bureau of Economic Analysis is an agency of the U.S. Department of Commerce.
- Bureau Of Labor Statistics (BLS) – The Bureau of Labor Statistics (BLS) is the principal fact-finding agency for the Federal Government in the broad field of labor economics and statistics. The BLS is an independent national statistical

agency that collects, processes, analyzes, and disseminates essential statistical data to the American public, the U.S. Congress, other Federal agencies, State and local governments, business, and labor. The BLS also serves as a statistical resource to the Department of Labor. BLS data must satisfy several criteria, including relevance to current social and economic issues, timeliness in reflecting today's rapidly changing economic conditions, accuracy and consistently high statistical quality, and impartiality in both subject matter and presentation.

- Bureau of Transportation Statistics (BTS) – The Bureau was organized pursuant to section 6006 of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 (49 U.S.C. 111) and was formally established by the Secretary of Transportation on December 16, 1992. BTS has an intermodal transportation focus whose missions are to compile, analyze and make accessible information on the Nation's transportation systems; to collect information on intermodal transportation and other areas; and to enhance the quality and effectiveness of DOT's statistical programs through research, the development of guidelines, and the promotion of improvements in data acquisition and use. The programs of BTS are organized in six functional areas and are mandated by ISTEA to 1) Compile, analyze, and publish statistics 2) Develop a long-term data collection program 3) Develop guidelines to improve the credibility and effectiveness of the Department's statistics 4) Represent transportation interests in the statistical community 5) Make statistics accessible and understandable and 6) Identify data needs.
- Bus – Large motor vehicle used to carry more than 10 passengers, includes school buses, intercity buses, and transit buses.
- Bus Lane – 1) A street or highway lane intended primarily for buses, either all day or during specified periods, but sometimes also used by carpools meeting requirements set out in traffic laws. (APTA1) 2) A lane reserved for bus use only. Sometimes also known as diamond lane.
- Calendar Year – The period between January 1 and December 31 of any given year. (DOE6)
- Capacity – A transportation facility's ability to accommodate a moving stream of people or vehicles in each period.
- Carpool – An arrangement where two or more people share the use and cost of privately owned automobiles in traveling to and from pre-arranged destinations together.
- Census – The complete enumeration of a population or groups at a point in time with respect to well-defined characteristics for example, population, production, traffic on roads. In some connections the term is associated with the data collected rather than the extent of the collection so that the term sample census has a distinct meaning. The partial enumeration resulting from a failure to cover the whole population, as distinct from a designed sample enquiry, may be referred to as an incomplete census.
- Clean Air Act Amendments (CAAA) – The original Clean Air Act was passed in 1963, but the national air pollution control program is based on the 1970 version of the law. The 1990 Clean Air Act Amendments are the most far-

reaching revisions of the 1970 law. The 1990 Clean Air Act is the most recent version of the 1970 version of the law. The 1990 amendments made major changes in the Clean Air Act.

- Code of Federal Regulations (CFR) – A compilation of the general and permanent rules of the executive departments and agencies of the Federal Government as published in the Federal Register. The code is divided into 50 titles that represent broad areas subject to Federal regulation.
- Collector (Highway) – In rural areas, routes that serve intercounty rather than statewide travel. In urban areas, streets provide direct access to neighborhoods and arterials.
- Commercial Service Airport – Airport receiving scheduled passenger service and having 2,500 or more enplaned passengers per year.
- Commute – Regular travel between home and a fixed location (e.g., work, school).
- Commuter – A person who travels regularly between home and work or school.
- Conformity – Process to assess the compliance of any transportation plan, program, or project with air quality implementation plans. The conformity process is defined by the Clean Air Act.
- Congestion Management System (CMS) – Systematic process for managing congestion. Provides information on transportation system performance and finds alternative ways to alleviate congestion and enhance the mobility of people and goods, to levels that meet state and local needs.
- Congestion Mitigation and Air Quality Improvement Program (CMAQ) – A categorical Federal-aid funding program created with the ISTEA. Funding goes to the States, who allocate to MPOs in non-conformity for certain pollutants. MPOs must use the funding on projects that contribute to meeting National air quality standards. CMAQ funds generally may not be used for projects that result in the construction of new capacity available to SOVs (single-occupant vehicles).
- Constant Dollars – Dollar value adjusted for changes in the average price level by dividing a current dollar amount by a price index. See also Chained Dollar and Current Dollar.
- Corridor – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain several streets, highways and transit route alignments. (APTA1)
- Crash (Highway) – An event that produces injury and/or property damage, involves a motor vehicle in transport, and occurs on a trafficway or while the vehicle is still in motion after running off the trafficway.
- Dedicated Funds – Any funds raised specifically for transit purposes, and which are dedicated at their source (e.g., sales taxes, gasoline taxes, and property taxes), rather than through an allocation from the pool of general funds. (FTA1)

- Demand Responsive Vehicle (Transit) – A nonfixed-route, nonfixed-schedule vehicle that operates in response to calls from passengers or their agents to the transit operator or dispatcher.
- Department of Health and Human Services (HHS) – The Department of Health and Human Services is the United States government's principal agency for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves.
- Department of Housing and Urban Development (HUD) – HUD's mission is to increase homeownership, support community development and increase access to affordable housing free from discrimination. To fulfill this mission, HUD will embrace high standards of ethics, management and accountability and forge new partnerships--particularly with faith-based and community organizations--that leverage resources and improve HUD's ability to be effective on the community level.
- Department of Transportation (DOT) – Establishes the nation's overall transportation policy. Under its umbrella there are ten administrations whose jurisdictions include highway planning, development and construction; urban mass transit; railroads; aviation; and the safety of waterways, ports, highways, and oil and gas pipelines. The Department of Transportation (DOT) was established by act of October 15, 1966, as amended (49 U.S.C. 102 and 102 note), "to assure the coordinated, effective administration of the transportation programs of the Federal Government" and to develop "national transportation policies and programs conducive to the provision of fast, safe, efficient, and convenient transportation at the lowest cost consistent therewith."
- Environmental Impact Statement (EIS) – Report developed as part of the National Environmental Policy Act requirements, which details any adverse economic, social, and environmental effects of a proposed transportation project for which Federal funding is being sought. Adverse effects could include air, water, or noise pollution; destruction or disruption of natural resources; adverse employment effects; injurious displacement of people or businesses; or disruption of desirable community or regional growth.
- Environmental Justice (EO 12898) – Environmental justice assures that services and benefits allow for meaningful participation and are distributed fairly to avoid discrimination. Prohibits disproportionally high and adverse human health or environmental effects on minority and low-income populations.
- Environmental Protection Agency (EPA) – The federal regulatory agency responsible for administering and enforcing federal environmental laws, including the Clean Air Act, the Clean Water Act, the Endangered Species Act, and others.
- Environmental Restoration – Re-establishment (including all site preparation activities) of natural habitats or other environmental resources on a site where they formerly existed or currently exist in a substantially degraded state. This can include the restitution for the loss, damage, or destruction of natural resources arising out of the accidental

discharge, dispersal, release or escape into or upon the land, atmosphere, watercourse, or body of water of any commodity transported by a motor carrier. This also may include the on-site or offsite replacement of wetlands and other natural habitats lost through development activities. (49CFR387 and 23CFR 777)

- Environmentally Sensitive Area – An area of environmental importance having natural resources which if degraded may lead to significant adverse, social, economic or ecological consequences. These could be areas in or adjacent to aquatic ecosystems, drinking water sources, unique or declining species habitat, and other similar sites. (49CFR194)
- Evaluation of Alternatives – A synthesis of the information generated by an analysis in which judgments are made on the relative merits of alternative actions.
- Expenditures – 1) Actual cash (or electronic transfer) payments made to the States or other entities. Outlays are provided as reimbursement for the Federal share of approved highway program activities. 2) A term signifying disbursement of funds for repayment of obligations incurred. An electronic transfer of funds, or a check sent to a state highway or transportation agency for voucher payment, is an expenditure or outlay.
- Expressway – A controlled access, divided arterial highway for through traffic, the intersections of which are usually separated from other roadways by differing grades.
- Fatality – For purposes of statistical reporting on transportation safety, a fatality is considered a death due to injuries in a transportation crash, accident, or incident that occurs within 30 days of that occurrence.
- Federal Aviation Administration (FAA) – FAA provides a safe, secure, and efficient global aerospace system that contributes to national security and the promotion of US aerospace safety. As the leading authority in the international aerospace community, FAA is responsive to the dynamic nature of customer needs, economic conditions, and environmental concerns.
- Federal Finance System (FFS) – An automated accounting system used by the DOI for tracking obligations and expenditures.
- Federal Highway Administration (FHWA) – A branch of the US Department of Transportation that administers the federal-aid Highway Program, providing financial assistance to states to construct and improve highways, urban and rural roads, and bridges. The FHWA also administers the Federal Lands Highway Program, including survey, design, and construction of forest highway system roads, parkways and park roads, Indian reservation roads, defense access roads, and other Federal lands roads. Federal agency within the U.S. Department of Transportation responsible for administering the Federal-Aid Highway Program. Became a component of the Department of Transportation in 1967 pursuant to the Department of Transportation Act (49 U.S.C. app. 1651 note). It administers the highway transportation programs of the Department of Transportation under pertinent legislation
- Federal Lands Highway Program (FLHP) – Provides funds to construct roads and trails within (or, in some cases,

providing access to) Federal lands. There are four categories of FLHP funds: Indian Reservation Roads, Public Lands Highways, Park Roads and Parkways, and Refuge Roads. Funds available to the US Forest Service may be used for forest development roads and trails. To be eligible for funding, projects must be open to the public and part of an approved Federal land management agency general management plan. 23 U.S.C. 204.

- Federal Register – Daily publication which provides a uniform system for making regulations and legal notices issued by the Executive Branch and various departments of the Federal government available to the public.
- Federal-aid Highway Program (FAHP) - An umbrella term for most of the Federal programs providing highway funds to the States. This is not a term defined in law. As used in this document, FAHP is comprised of those programs authorized in Titles I and V of TEA-21 that are administered by FHWA.
- Federal-Aid Highways - Those highways eligible for assistance under Title 23 U.S.C. except those functionally classified as local or rural minor collectors. (23CFR500)
- Federal Transit Administration (FTA) – A branch of the US Department of Transportation that is the principal source of federal financial assistance to America's communities for planning, development, and improvement of public or mass transportation systems. FTA provides leadership, technical assistance, and financial resources for safe, technologically advanced public transportation to enhance mobility and accessibility, to improve the Nation's communities and natural environment, and to strengthen the national economy. (Formerly the Urban Mass Transportation Administration) operates under the authority of the Federal Transit Act, as amended (49 U.S.C. app. 1601 et seq.). The Federal Transit Act was repealed on July 5, 1994, and the Federal transit laws were codified and re-enacted as chapter 53 of Title 49, United States Code.
- The Federal Transit Administration was established as a component of the Department of Transportation by section 3 of Reorganization Plan No. 2 of 1968 (5 U.S.C. app.), effective July 1, 1968. The missions of the Administration are 1) to assist in the development of improved mass transportation facilities, equipment, techniques, and methods, with the cooperation of mass transportation companies both public and private. 2) to encourage the planning and establishment of area wide urban mass transportation systems needed for economical and desirable urban development, with the cooperation of mass transportation companies both public and private. and 3) to provide assistance to State and local governments and their instrumentalities in financing such systems, to be operated by public or private mass transportation companies as determined by local needs; and 4) to provide financial assistance to State and local governments to help implement national goals relating to mobility for elderly persons, persons with disabilities, and economically disadvantaged persons.
- Financial Analysis – Estimating costs, establishing a revenue baseline, comparing revenues with costs and evaluating new revenue sources.

- Financial Capacity – Refers to the ISTEA requirement that an adequate financial plan for funding and sustaining transportation improvements be in place prior to programming Federally-funded projects. Generally, it refers to the stability and reliability of revenue in meeting proposed costs.
- Financial Planning – The process of defining and evaluating funding sources, sharing the information, and deciding how to allocate the funds.
- Financial Programming – A short-term commitment of funds to specific projects identified in the regional Transportation Improvement Program (see TIP).
- Fiscal Constraint – Making sure that a given program or project can reasonably expect to receive funding within the time allotted for its implementation.
- Fiscal Year (FY) – The yearly accounting period beginning October 1 and ending September 30 of the subsequent calendar year. Fiscal years are denoted by the calendar year in which they end (e.g. FY 1991 began October 1, 1990, and ended September 30, 1991).
- Fixed-Route – Term applied to transit service that is regularly scheduled and operates over a set route; usually refers to bus service.
- Formula Capital Grants – Federal transit funds for transit operators; allocation of funds overseen by FTA.
- Freedom of Information Act (FOIA) – Allows all U.S. citizens and residents to request any records in possession of the executive branch of the federal government. The term records include documents, papers, reports, letters, films, photographs, sound recordings, computer tapes and disks
- Freeway – A divided arterial highway designed for the unimpeded flow of large traffic volumes. Access to a freeway is rigorously controlled and intersection grade separations are required.
- Future Needs – Represents the gap between the vision and the current or projected performance of the system
- General Aviation – 1) All civil aviation operations other than scheduled air services and nonscheduled air transport operations for taxis, commuter air carriers, and air travel clubs that do not hold Certificates of Public Convenience and Necessity. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations, Parts 121, 123, 127, and 135. The types of aircraft used in general aviation range from corporate multiengine jet aircraft piloted by professional crews to amateur-built single-engine piston-driven acrobatic planes to balloons and dirigibles.
- Geographic Information System (GIS) – 1) Computerized data management system designed to capture, store, retrieve, analyze, and display geographically referenced information. 2) A system of hardware, software, and data for collecting, storing, analyzing, and disseminating information about areas of the Earth. For Highway Performance Monitoring System (HPMS) purposes, Geographical Information System (GIS) is defined as a highway network (spatial data which

graphically represents the geometry of the highways, an electronic map) and its geographically referenced component attributes (HPMS section data, bridge data, and other data including socioeconomic data) that are integrated through GIS technology to perform analyses. From this, GIS can display attributes and analyze results electronically in map form. (FHWA2)

- Grants – A federal financial assistance award making payment in cash or in kind for a specified purpose. The federal government is not expected to have substantial involvement with the state or local government or other recipient while the contemplated activity is being performed. The term grants-in-aid is commonly used program by States and local government agencies to fund various activities.
- High Occupancy Vehicle (HOV) – Vehicles carrying two or more people. The number that constitutes HOV for the purposes of HOV highway lanes may be designated differently by different transportation agencies.
- High Occupancy Vehicle Lane – Exclusive Road or traffic lane limited to buses, vanpools, carpools, and emergency vehicles.
- Highway – Is any road, street, parkway, or freeway/expressway that includes rights- of-way, bridges, railroad-highway crossings, tunnels, drainage structures, signs, guardrail, and protective structures in connection with highways. The highway further includes that portion of any interstate or international bridge or tunnel and the approaches thereto (23 U.S.C. 101a).
- Highway Trust Fund (HTF) – An account established by law to hold Federal highway user taxes that are dedicated for highway and transit related purposes. The HTF has two accounts: the Highway Account, and the Mass Transit Account.
- Historic Preservation – Protection and treatment of the nation's significant historic buildings, landmarks, landscapes, battlefields, tribal communities, and archeological sites; prominent federally-owned buildings; and State and privately- owned properties. [National Park Service, Historic Preservation Services]
- Infrastructure – 1) In transit systems, all the fixed components of the transit system, such as rights-of-way, tracks, signal equipment, stations, park-and-ride lots, but stops, maintenance facilities. 2) In transportation planning, all the relevant elements of the environment in which a transportation system operates. (TRB1) 3) A term connoting the physical underpinnings of society at large, including, but not limited to, roads, bridges, transit, waste systems, public housing, sidewalks, utility installations, parks, public buildings, and communications networks.
- Infrastructure Investment and Jobs Act (IIJA)- Federal transportation legislation, adopted in 2021. Also known as the Bipartisan Infrastructure Law (BIL).
- Intelligent Transportation Systems (ITS) – The application of advanced technologies to improve the efficiency and safety of transportation systems.

- Intermodal – The ability to connect, and the connections between, modes of transportation.
- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) – Legislative initiative by the U.S. Congress that restructured funding for transportation programs. ISTEA authorized increased levels of highway and transportation funding from FY92-97 and increased the role of regional planning commissions/MPOs in funding decisions. The Act also required comprehensive regional and statewide long- term transportation plans and places an increased emphasis on public participation and transportation alternatives.
- International Airport – 1) Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic. 2) An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service. 3) A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use. 4) Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial transport and/or international general aviation.
- Intersection – 1) A point defined by any combination of courses, radials, or bearings of two or more navigational aids. 2). Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.
- Interstate – Limited access divided facility of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.
- Interstate Commerce – Trade, traffic, or transportation in the United States which is between a place in a State and a place outside of such State (including a place outside of the United States) or is between two places in a State through another State or a place outside of the United States. (49CFR390)
- Interstate Highway – Limited access, divided highway of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.
- Interstate Highway (Freeway or Expressway) – A divided arterial highway for through traffic with full or partial control of access and grade separations at major intersections. (FHWA3)
- Interstate Highway System (IHS) – The system of highways that connects the principal metropolitan areas, cities, and industrial centers of the United States. Also connects the US to internationally significant routes in Canada and Mexico.
- Interstate Maintenance (IM) – The Interstate Maintenance (IM) program provides funding for resurfacing, restoring, rehabilitating and reconstructing (4R) most routes on the Interstate System.
- Intrastate – Travel within the same state.
- Intrastate Commerce – Any trade, traffic, or transportation in any State which is not described in the term interstate commerce. (49CFR390)

- Land Use – Refers to the way portions of land or the structures on them are used, i.e. commercial, residential, retail, and industrial, etc.
- Land Use Plan – A plan which establishes strategies for the use of land to meet identified community needs.
- Level of Service (LOS) – 1) A qualitative assessment of a road's operating conditions. For local government comprehensive planning purposes, level of service means an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of service indicates the capacity per unit of demand for each public facility. 2) This term refers to a standard measurement used by transportation officials which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.
- Limitation on Obligations – Any action or inaction by an officer or employee of the United States that limits the amount of Federal assistance that may be obligated during a specified period. A limitation on obligations does not affect the scheduled apportionment or allocation of funds, it just controls the rate at which these funds may be used.
- Local Street – Street intended solely for access to adjacent properties.
- Long Range Transportation Plan (LRTP) – A document resulting from regional or statewide collaboration and consensus on a region or state's transportation system and serving as the defining vision for the region's or state's transportation systems and services. In metropolitan areas, the plan indicates all of the transportation improvements scheduled for funding over the next 20 years. (See Metropolitan Transportation Plan.)
- Long Term – In transportation planning, refers to a time span of, generally, 20 years. The transportation plan for metropolitan areas and for States should include projections for land use, population, and employment for the 20-year period.
- Maintenance Area – Maintenance area is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently designated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.
- Management Systems – (1) Systems to improve identification of problems and opportunities throughout the entire surface transportation network, and to evaluate and prioritize alternative strategies, actions and solutions. (2) A systematic process, designed to assist decision makers in selecting cost-effective strategies/actions to improve efficiency and safety of, and protect the investment in, the nation's transportation infrastructure.
- Mass Transportation – Another name for public transportation.
- Memorandum of Understanding (MOU) – A document providing a general description of the responsibilities that are to be assumed by two or more parties in their pursuit of some goal(s).

- Metropolitan Planning Area – The geographic area in which the metropolitan transportation planning process required by 23 U.S.C. 134 and section 8 of the Federal Transit Act (49 U.S.C. app. 1607) must be carried out. (23CFR420) Metropolitan Planning Organization (MPO) – 1) Policy body, required in urbanized areas with populations over 50,000, and designated by local officials and the governor of the state. Responsible in cooperation with the state and other transportation providers for carrying out the metropolitan transportation planning requirements of federal highway and transit legislation. 2) Formed in cooperation with the state, develops transportation plans and programs for the metropolitan area.

  For each urbanized area, a Metropolitan Planning Organization (MPO) must be designated by agreement between the Governor and local units of government representing 75% of the affected population (in the metropolitan area), including the central cities or cities as defined by the Bureau of the Census, or in accordance with procedures established by applicable State or local law (23 U.S.C. 134(b)(1)/Federal Transit Act of 1991 Sec. 8(b)(1)).
- Metropolitan Statistical Area (MSA) – Areas defined by the U.S. Office of Management and Budget. A Metropolitan Statistical Area (MSA) is 1) A county or a group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or 2) An urbanized area of at least 50,000 inhabitants and a total MSA population of at least 100,000 (75,000 in New England). The contiguous counties are included in an MSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, MSAs consist of towns and cities rather than counties.
- Metropolitan Status – A building classification referring to the location of the building either located within a Metropolitan Statistical Area (MSA) or outside a MSA.
- Metropolitan Transportation Plan (MTP) – The official intermodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the metropolitan planning area, in accordance with 23 U.S.C. 134, 23 USC 135 and 49 U.S.C. 5303. See Long Range Transportation Plan.
- Mile – A statute mile (5,280 feet). All mileage computations are based on statute miles.
- Minor Arterials (Highway) – Roads linking cities and larger towns in rural areas. In urban areas, roads that link but do not penetrate neighborhoods within a community.
- Mobility – The ability to move or be moved from place to place.
- Mode – A specific form of transportation, such as automobile, subway, bus, rail, or air.
- Motorbus (Transit) – A rubber-tired, self-propelled, manually steered bus with a fuel supply onboard the vehicle. Motorbus types include intercity, school, and transit.
- Motorcycle – A two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters,

minibikes, and mopeds.

- Motorized Vehicle – Includes all vehicles that are licensed for highway driving. Specifically excluded are snow mobiles and minibikes.
- Multimodal – The availability of transportation options using different modes within a system or corridor.
- National Ambient Air Quality Standards (NAAQS) – Federal standards that set allowable concentrations and exposure limits for various pollutants. The EPA developed the standards in response to a requirement of the CAA. Air quality standards have been established for the following six criteria pollutants: ozone (or smog), carbon monoxide, particulate matter, nitrogen dioxide, lead, and sulfur dioxide.
- National Environmental Policy Act of 1969 (NEPA) – Established a national environmental policy requiring that any project using federal funding or requiring federal approval, including transportation projects, examine the effects of proposed and alternative choices on the environment before a federal decision is made.
- National Highway System (NHS) – This system of highways designated and approved in accordance with the provisions of 23 U.S.C. 103b). (23CFR500)
- National ITS Architecture – A systems framework to guide the planning and deployment of ITS infrastructure. The national ITS architecture is a blueprint for the coordinated development of ITS technologies in the U.S. It is unlikely that any single metropolitan area or state would plan to implement the entire national ITS architecture.
- Nonattainment Area (NAA) – Any geographic area that has not met the requirements for clean air as set out in the Clean Air Act of 1990.
- Noncompliance – Failure to comply with a standard or regulation issued under 46 U.S.C. Chapter 43, or with a section of the statutes.
- Objectives – Specific, measurable statements related to the attainment of goals.
- Obligation – The Federal government's legal commitment (promise) to pay or reimburse the States or other entities for the Federal share of a project's eligible costs.
- Obligation Limitation – A restriction, or ceiling on the amount of Federal assistance that may be promised (obligated) during a specified period. This is a statutory budgetary control that does not affect the apportionment or allocation of funds. Rather, it controls the rate at which these funds may be used.
- Obligational Authority (OA) – The total amount of funds that may be obligated in a year. For the Federal-Aid Highway Program this is comprised of the obligation limitation amount plus amounts for programs exempt from the limitation.
- Occupancy – The number of persons, including driver and passenger(s) in a vehicle. Nationwide Personal Transportation Survey (NPTS) occupancy rates are generally calculated as person miles divided by vehicle miles.

- Occupant – Any person who is in or upon a motor vehicle in transport. Includes the driver, passengers, and people riding on the exterior of a motor vehicle (e.g., a skateboard rider who is set in motion by holding onto a vehicle).
- Occupant (Highway) – Any person in or on a motor vehicle in transport. Includes the driver, passengers, and people riding on the exterior of a motor vehicle (e.g., a skateboard rider holding onto a moving vehicle). Excludes occupants of parked cars unless they are double parked or motionless on the roadway.
- Other Freeways and Expressways (Highway) – All urban principal arterials with limited access but not part of the Interstate system.
- Other Principal Arterials (Highway) – Major streets or highways, many of multi-lane or freeway design, serving high-volume traffic corridor movements that connect major generators of travel.
- Other Revenue Vehicles (Transit) – Other revenue-generating modes of transit service, such as cable cars, personal rapid transit systems, monorail vehicles, inclined and railway cars, not covered otherwise.
- Outlays – Actual cash (or electronic transfer) payments made to the States or other entities. Outlays are provided as reimbursement for the Federal share for approved highway program activities.
- Paratransit – 1) Comparable transportation service required by the American Disabilities Act (ADA) for individuals with disabilities who are unable to use fixed route transportation systems. (49CFR37) (APTA1) 2) A variety of smaller, often flexibly scheduled-and-routed transportation services using low-capacity vehicles, such as vans, to operate within normal urban transit corridors or rural areas. These services usually serve the needs of people that standard mass-transit services would serve with difficulty, or not at all. Often, the patrons include the elderly and people with disabilities.
- Parkway – A highway that has full or partial access control, is usually located within a park or a ribbon of park-like developments and prohibits commercial vehicles. Buses are not considered commercial vehicles in this case.
- Particulate Matter (PM2.5 and PM10) – Particulate matter consists of airborne solid particles and liquid droplets. Particulate matter may be in the form of fly ash, soot, dust, fog, fumes, etc. These particles are classified as coarse if they are smaller than 10 microns, or fine if they are smaller than 2.5 microns. Coarse airborne particles are produced during grinding operations, or from the physical disturbance of dust by natural air turbulence processes, such as wind. Fine particles can be a by- product of fossil fuel combustion, such as diesel and bus engines. Fine particles can easily reach remote lung areas, and their presence in the lungs is linked to serious respiratory ailments such as asthma, chronic bronchitis and aggravated coughing. Exposure to these particles may aggravate other medical conditions such as heart disease and emphysema and may cause premature death. In the environment, particulate matter contributes to diminished visibility and particle deposition (soiling).
- Particulate Matter Emissions (PM) – Particulate matter (PM) is the general term used for a mixture of solid particles

and liquid droplets found in the air. They originate from many different stationery and mobile sources as well as from natural sources, including fuel combustion from motor vehicles, power generation, and industrial facilities, as well as from residential fireplaces and wood stoves. Fine particles are most closely associated with such health effects as increased hospital admissions and emergency room visits for heart and lung disease, increased respiratory symptoms and disease, decreased lung function, and even premature death.

- Parts Per Million (PPM) – A measure of air pollutant concentrations.
- Passenger Car – A motor vehicle designed primarily for carrying passengers on ordinary roads, includes convertibles, sedans, and stations wagons.
- Passenger Mile – 1) One passenger transported one mile. Total passenger miles are computed by summation of the products of the aircraft miles flown on each inter- airport flight stage multiplied by the number of passengers carried on that flight stage. 2) The cumulative sum of the distances ridden by each passenger.
- Pedestrian – Any person not in or on a motor vehicle or other vehicle. Excludes people in buildings or sitting at a sidewalk cafe. The National Highway Traffic Safety Administration also uses another pedestrian category to refer to pedestrians using conveyances and people in buildings. Examples of pedestrian conveyances include skateboards, nonmotorized wheelchairs, roller skates, sleds, and transport devices used as equipment.
- Pedestrian Corridor, Walkway (or Walkway) – A continuous way designated for pedestrians and separated from the through lanes for motor vehicles by space or barrier. (23CFR217)
- Performance Measures – Indicators of how well the transportation system is performing regarding such things as average speed, reliability of travel, and accident rates. Used as feedback in the decision-making process.
- Person Trip – A trip taken by an individual. For example, if three people from the same household travel together, the trip is counted as one household trip and three person trips.
- Person-Miles – An estimate of the aggregate distances traveled by all persons on a given trip based on the estimated transportation-network-miles traveled on that trip.
- Planning Funds (PL) – Primary source of funding for metropolitan planning designated by the FHWA.
- Program Development – An element in the planning process in which improvements are formalized in the transportation improvement program and provides more detailed strategies.
- Programming – Prioritizing proposed projects and matching those projects with available funds to accomplish agreed upon, stated needs.
- Project – A locally sponsored, coordinated, and administered program, or any part thereof, to plan, finance, construct, maintain, or improve an intermodal passenger terminal, which may incorporate civic or cultural activities where feasible in an architecturally or historically distinctive railroad passenger terminal. (49CFR256)

- Public Entity – 1) Any state or local government; 2) Any department, agency, special purpose district, or other instrumentality of one or more state or local governments; and 3) The National Railroad Passenger Corporation (Amtrak) and any commuter authority. (49CFR37)
- Public Meeting or Hearing – A public gathering for the express purpose of informing and soliciting input from interested individuals regarding transportation issues.
- Public Participation – The active and meaningful involvement of the public in the development of transportation plans and programs.
- Public Transit – Passenger transportation services, usually local in scope, that is available to any person who pays a prescribed fare. It operates on established schedules along designated routes or lines with specific stops and is designed to move relatively large numbers of people at one time.
- Public Transit Agencies – A public entity responsible for administering and managing transit activities and services. Public transit agencies can directly operate transit services or contract out for all, or part of the total transit service provided.
- Public Transit System – An organization that provides transportation services owned, operated, or subsidized by any municipality, county, regional authority, state, or other governmental agency, including those operated or managed by a private management firm under contract to the government agency owner.
- Public Transportation – Transportation by bus, rail, or other conveyance, either publicly or privately owned, which provides to the public general or special service on a regular and continuing basis. Also known as mass transportation, mass transit and transit.
- Public Road – Any road under the jurisdiction of and maintained by a public authority (federal, state, county, town or township, local government, or instrumentality thereof) and open to public travel.
- Rail – A rolled steel shape laid in two parallel lines to form a track for carrying vehicles with flanged steel wheels.
- Rural Planning Organizations (RPO) – RPOs are generally defined as associations of local governments that plan rural transportation systems and advises each state's DOT on rural transportation policy, programs, and projects. In general, most RPOs assist state DOTs in the development and prioritization of short- and long-range transportation plans, provide a forum for rural transportation interests, and establish a link to other regional transportation planning organizations and providers. Additionally, RPOs assist rural communities to identify transportation needs and possible solutions.
- Regional Railroad – Railroad defined as line haul railroad operating at least 350 miles of track and/or earns revenue between $40 million and $266.7 million.
- Regionally Significant Project – means a transportation project (other than projects that may be grouped in the TIP

and/or STIP or exempt projects as defined in EPA's transportation conformity regulation (40 CFR part 93)) that is on a facility which serves regional transportation needs (such as access to and from the area outside the region; major activity centers in the region; major planned developments such as new retail malls, sports complexes, or employment centers; or transportation terminals) and would normally be included in the modeling of the metropolitan area's transportation network. At a minimum, this includes all principal arterial highways and all fixed guideway transit facilities that offer a significant alternative to regional highway travel. (23 CFR 450.104)

- Reliability – Refers to the degree of certainty and predictability in travel times on the transportation system. Reliable transportation systems offer some assurance of attaining a given destination within a reasonable range of an expected time. An unreliable transportation system is subject to unexpected delays, increasing costs for system users
- Remote Areas – Sparsely populated areas such as mountains, swamps, and large bodies of water.
- Research – Investigation or experimentation aimed at the discovery of new theories or laws and the discovery and interpretation of facts or revision of accepted theories or laws in the light of new facts. (49CFR171)
- Revenue – Remuneration received by carriers for transportation activities.
- Revenue Vehicle-Miles (Transit) – One vehicle (bus, trolley bus, or streetcar) traveling one mile, while revenue passengers are on board, generates one revenue vehicle- mile. Revenue vehicle-miles reported represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.
- Right of Way – The land (usually a strip) acquired for or devoted to highway transportation purposes.
- Road – An open way for the passage of vehicles, persons, or animals on land. (DOI4)
- Road Class – The category of roads based on design, weather ability, their governmental designation, and the Department of Transportation functional classification system.
- Road Functional Classification – The classification of a road in accordance with the Bureau of Land Management (BLM) 9113.16. Code as follows C-collector, L-local, R- resource.
- Rural Highway – Any highway, road, or street that is not an urban highway.
- Rural Mileage (Highway) – Roads outside city, municipal district, or urban boundaries.
- Safety Management System – A systematic process that has the goal of reducing the number and severity of transportation related accidents by ensuring that all opportunities to improve safety are identified, considered and implemented as appropriate.
- Smart Growth – A set of policies and programs design to protect, preserve, and economically develop established communities and valuable natural and cultural resources.
- Sprawl – Urban form that connotatively depicts the movement of people from the central city to the suburbs. Concerns

associated with sprawl include loss of farmland and open space due to low-density land development, increased public service costs, and environmental degradation as well as other concerns associated with transportation.

- Stakeholder – Person or group affected by a transportation plan, program or project.
- State – As defined in chapter 1 of Title 23 of the United States Code, any of the 50 States, comprising the United States, plus the District of Columbia and the Commonwealth of Puerto Rico. However, for some purposes (e.g., highway safety programs under 23 U.S.C. 402), the term may also include the Territories (the U.S. Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands) and the Secretary of the Interior (for Indian Reservations). For the purposes of apportioning funds under sections 104, 105, 144, and 206 of Title 23, United States Code, the term State is defined by section 1103(n) of the TEA-21 to mean any of the 50 States and the District of Columbia.
- State Implementation Plan (SIP) – Produced by the state environmental agency, not the MPO. A plan mandated by the CAA that contains procedures to monitor, control, maintain, and enforce compliance with the NAAQS. Must be considered in the transportation planning process.
- State Infrastructure Bank (SIB) – A revolving fund mechanism for financing a wide variety of highway and transit projects through loans and credit enhancement. SIBs are designed to complement traditional Federal-aid highway and transit grants by providing States with increased flexibility for financing infrastructure investments.
- State Planning and Research Funds (SPR) – Primary source of funding for statewide long-range planning.
- State Transportation Agency – The State highway department, transportation department, or other State transportation agency to which Federal-aid highway funds are apportioned. (23CFR420)
- State Transportation Improvement Program (STIP) – A staged, multi-year, statewide, intermodal program of transportation projects, consistent with the statewide transportation plan and planning processes as well as metropolitan plans, TIPs, and processes.
- Statewide Transportation Plan – The official statewide intermodal transportation plan that is developed through the statewide transportation planning process.
- Surface Transportation Program (STP) – Federal-aid highway funding program that funds a broad range of surface transportation capital needs, including many roads, transit, sea and airport access, vanpool, bike, and pedestrian facilities.
- Telecommuting – Communicating electronically (by telephone, computer, fax, etc.) with an office, either from home or from another site, instead of traveling to it physically.
- Title VI – Title VI of the Civil Rights Act of 1964. Prohibits discrimination in any program by receiving federal assistance.
- Trafficway (Highway) – Any right-of-way open to the public as a matter of right or custom for moving persons or

property from one place to another, including the entire width between property lines or other boundaries.

- Transit Vehicle – Includes light, heavy, and commuter rail; motorbus; trolley bus; van pools; automated guideway; and demand response vehicles.
- Transportation Conformity – Process to assess the compliance of any transportation plan, program, or project with air quality implementation plans. The conformity process is defined by the Clean Air Act.
- Transportation Control Measures (TCM) – Transportation strategies that affect traffic patterns or reduce vehicle use to reduce air pollutant emissions. These may include HOV lanes, the provision of bicycle facilities, ridesharing, telecommuting, etc. Such actions may be included in a SIP if needed to demonstrate attainment of the NAAQS.
- Transportation Demand Management (TDM) – Programs designed to reduce demand for transportation through various means, such as the use of transit and of alternative work hours.
- Transportation Enhancement Activities (TE) – Provides funds to the States for safe bicycle and pedestrian facilities, scenic routes, beautification, restoring historic buildings, renovating streetscapes, or providing transportation museums and visitors centers. 23 U.S.C. 101(a) and 133(b)(8).
- Transportation Equity Act for the 21st Century (TEA-21) – Authorized in 1998, TEA- 21 authorized federal funding for transportation investment for fiscal years 1998- 2003. Approximately $217 billion in funding was authorized, which was used for highway, transit, and other surface transportation programs.
- Transportation Improvement Program (TIP) – A document prepared by a metropolitan planning organization that lists projects to be funded with FHWA/FTA funds for the next one- to three-year period.
- Transportation Management Area (TMA) – 1) All urbanized areas over 200,000 in population, and any other area that requests such designation. 2) An urbanized area with a population over 200,000 (as determined by the latest decennial census) or other area when TMA designation is requested by the Governor and the MPO (or affect local officials), and officially designated by the Administrators of the FHWA and the FTA. The TMA designation applies to the entire metropolitan planning area(s). (23CFR500)
- Trust Fund – A fund credited with receipts that are held in trust by the government and earmarked by law for use in carrying out specific purposes and programs in accordance with an agreement or a statute.
- Trust Funds – Accounts that are designated by law to carry out specific purposes and programs. Trust Funds are usually financed with earmarked tax collections.
- Unified Planning Work Program (UPWP) – The management plan for the (metropolitan) planning program. Its purpose is to coordinate the planning activities of all participants in the planning process. The UPWP is essentially the working budget for a fiscal year.
- Urban Highway – Any road or street within the boundaries of an urban area. An urban area is an area including and

adjacent to a municipality or urban place with a population of 5,000 or more. The boundaries of urban areas are fixed by state highway departments, subject to the approval of the Federal Highway Administration, for purposes of the Federal-Aid Highway Program.

- Urbanized Area – Area that contains a city of 50,000 or more population plus incorporated surrounding areas meeting size or density criteria as defined by the U.S. Census.
- Vanpool (Transit) – Public-sponsored commuter service operating under prearranged schedules for previously formed groups of riders in 8- to 18-seat vehicles. Drivers are also commuters who receive little or no compensation besides the free ride.
- Vehicle Miles of Travel (VMT) – The number of miles traveled nationally by vehicles for a period of 1 year. VMT is either calculated using 2 odometer readings or, for vehicles with less than 2 odometer readings, imputed using a regression estimate.
- Vehicle-Miles (Highway) – Miles of travel by all types of motor vehicles as determined by the states because of actual traffic counts and established estimating procedures.
- Vehicle-Miles (Transit) – The total number of miles traveled by transit vehicles. Commuter rail, heavy rail, and light rail report individual car-miles, rather than train-miles for vehicle-miles.
- Visioning – A variety of techniques that can be used to identify goals.
- Zone – The smallest geographically designated area for analysis of transportation activity. A zone can be from one to ten square miles in area. Average zone size depends on the total size of study area.

Source: https://www.fhwa.dot.gov/planning/glossary/index.cfm

Appendix I: Legislative Compliance

Legislative Compliance

Federal Public Participation Requirements

Title 23 United State Code (USC) 134 and 135

23 USC 134 is a codification of the law establishing planning policy, defining MPO organizational structure, and delineating MPO and State responsibilities in the transportation planning process.

Infrastructure Investment and Jobs Act (IIJA)/ Bipartisan Infrastructure Law (BIL)

This is the most recent transportation legislation, signed into law by President Joe Biden on November 15, 2021. This law was initially an infrastructure package that included provisions related to federal highway aid, transit, highway safety, motor carrier, research, hazardous materials and rail programs. It was later amended to add funding for broadband access, clean water and electric grid renewal.

23 Code of Federal Regulations (CFR) 450

23 CFR 450 is FHWA/FTA interpretation of 23 USC 134 and 135, providing specific requirements and actions for MPOs and the State implementing agency, the DOT. The applicable language for both is found, respectively, in 450.210(1) (I and others) ("…the State shall…") and 450.316(1) (vii and others) ("…the MPO shall…"). Furthermore, federal regulation 23 CFR 450.316 requires MPOs to develop and use a documented participation plan that defines a process of providing reasonable opportunities for the public as well as transportation users and providers among various modes, to be involved in the metropolitan planning process. The federal regulation requires that the participation plan be developed by the MPO in consultation with all interested parties and shall, at a minimum, describe explicit procedures, strategies, and desired outcomes.

Clean Air Act

A series of acts aimed at reducing smog and air pollution, the most recent of which is the Clean Air Act Extension of 1970, with amendments in 1977 and 1990. The 1990 amendment established the State Implementation Plan (SIP), under which states are obligated to notify the public of plans for pollutant control and allow opportunities for input into the process. As recently as 2022, the Inflation Reduction Act was enacted to invest in domestic energy production while promoting clean energy. The law was signed by President Joe Biden on August 16, 2022.

Civil Rights Act of 1964, 42 USC 2000d, et seq. 42 USC 2000d

This legislation prohibits exclusion from participation in any federal program based on race, color, or national origin. This is the seminal or shaping expression of the law. Title VI of the Civil Rights Act of 1964 prohibits discrimination in any program receiving federal assistance, and local MPOs must follow those provisions. The implementing regulations of Title VI are found at 49 CFR 21 and 23 CFR 200.

23 CFR 200.5(p) includes other civil rights provisions of federal statues and related authorities that prohibit discrimination in programs and activities receiving federal assistance. In general, all local MPO plans and programs comply with the prohibition against discrimination in federally funded programs in accordance with the provisions of Title VI.

Further legislation concerning civil rights and discrimination is as follows:

- 23 USC 324 – This is the law prohibiting discrimination based on sexual orientation. This requirement is found in 23 CFR 450.334(1).
- 29 USC 794 (Rehabilitation Act of 1973, and Section 504 of that Act) and the Americans with Disabilities Act (ADA) of 1992 - These are laws prohibiting discrimination based on a disability, and in terms of access to the transportation planning process.
- 42 USC 6101 (Age Discrimination Act) – This is the law that indicates "no person shall on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."
- Executive Order 12898 – Executive Orders by the President as the head of the Executive Branch typically carry the weight of the law. This is not actually true unless the order has been given discretionary power through an Act of Congress, or a later act gives Congressional weight to the order. Significant orders by Presidents in the past affect the ability of segments of the population to gain access, and in this case, the planning process. Order 12898 often simply called "Environmental Justice," requires federal agencies to identify "disproportionally high and adverse human and health environmental effects of its programs on minority populations and low-income populations…" and prohibits actions that would adversely affect a disproportionally high number among these populations. Section 5-5 addresses the public involvement part of the order.
- Limited English Proficiency Persons (LEP) and Language Assistance Plan – As required by Title VI of the Civil Rights Act of 1964, Executive Order 13166, and FTA Circular FTA C4702.1B, October 2012, the MPO has completed a Four

Factor Analysis of the Huntsville Metropolitan Planning Area to determine requirements for compliance with the Limited English Proficiency Persons (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 Language Assistance Plan has been developed as follows:

- A total of 0.83% of the population of the Huntsville Area Metropolitan Planning Area are not proficient speakers of English, therefore the MPO is required to develop a Language Assistance Plan. Spanish is the largest representative language spoken by 3.3% of those residing in the MPO Study Area.
- The MPO can provide language assistance services by having available persons that are fluent in Spanish. Assistance with other languages may be available upon request and as resources allow.
- Notice about the availability of language assistance to LEP people is provided through the MPO staff and the Public Participation Plan.
- The MPO monitors, evaluates, and updates the LEP annually through update of the PPP and staff reports.
- Training of the MPO staff to provide language assistance is done under the guidance of the Alabama Department of Transportation.

The MPO periodically reviews the above steps to ensure that inadvertent discrimination based on national origin is not occurring. In addition to the above actions, the MPO will provide the following:

- Notice of MPO meetings and hearings in the secondary language as requested.
- Translation services for meetings or hearings on request.
- Translation services, verbal only, of planning documents, subject to 2-week notice.
- Title VI Complaint Form(s) in the secondary language as requested.

State Public Involvement Requirements

Alabama Open Meetings Act

All meetings associated with the Huntsville Area MPO are open to the public in accordance with the Alabama Open Meetings Act, Act No. 2005-40, which sets forth the general rule of law for open meetings. The Act requires that all governmental agencies, boards, committees, and institutions comply.

Appendix J: Project Ranking

Project Ranking

The following is a list of Visionary Projects across several functional classifications.

Visionary Projects					
Functional Class: Freeway/Expressway					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
1	44	AL Hwy 255 (Interchange)	US Hwy 72		Interchange Modification
2	48	I-565	Wall Triana Hwy	Madison Blvd Crossover	Additional Lanes
3	45	AL Hwy 255 (Interchange)	I-565		Interchange Modification
4	49	I-565	County Line Rd	Wall Triana Hwy	Additional Lanes
5	46	AL Hwy 255 (Interchange)	US Hwy 72	AL Hwy 53	Additional Lanes
NR	50	I-65	Martin Lime Rd.		New Interchange
NR	51	I-65	Garrett Rd.		New Interchange
NR	47	Memphis to Huntsville to Atlanta Hwy.	Arsenal East Connector	Marshall County	New Road

Visionary Projects					
Functional Class: Major Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
1	66	US Hwy 72 East Corridor V	Maysville Rd	Shields Rd.	New overpasses at Moores Mill and Shields
2	57	US Hwy 72 East Corridor V	Shields Rd	Dug Hill Road	Freeway upgrade
3	63	AL Hwy 53	Old Railroad Bed Rd	Pinedale Ln	Additional Lanes
4	52	US Hwy 231/431	AL Hwy 255		New interchange
5	53	US Hwy 231/431	Hollow Rd	Patterson Rd.	Additional Lanes
6	54	US Hwy 231/431	Meridianville Bottom Rd		New interchange
7	55	AL Hwy 53	AL Hwy 255	Harvest Road	Additional Lanes
8	56	US Hwy 231	Meadowbrook Dr.	Mountain Gap Rd	New interchanges, service roads
9	58	US Hwy 72 West	County Line Rd	Holladay Blvd.	Additional Lanes
10	59	US Hwy 72 East Corridor V	Northern Bypass		New interchange
11	60	US Hwy 72 East Corridor V	Eastern Bypass		New interchange
12	62	US Hwy 72 East Corridor V	Jordan Road		New interchange
13	61	AL Hwy 255	AL Hwy 53	Pulaski Pike	Mainline extension; Interchange at Pulaski

Visionary Projects					
Functional Class: Major Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
14	64	US Hwy 231/431	Patterson Ln		New interchange
15	65	US Hwy 72 East Corridor V	Industrial access		New interchange
16	67	US Hwy 231	Redstone Rd.	Hobbs Rd.	New interchanges, service roads
17	68	US Hwy 231/431	Walker Ln		New interchange
18	69	US Hwy 72 East Corridor V	Brock Rd		New interchange
19	70	US Hwy 231/431	Steger Rd		New interchange
20	71	US Hwy 72 East Corridor V	Dug Hill Rd		New interchange
21	72	US Hwy 72 West	Holladay Blvd	Mooresville Rd	Additional Lanes
22	75	AL Hwy 255	Mt Lebanon Rd	US Hwy 231/431	Mainline Extension
23	73	AL Hwy 255	Pulaski Pk	Mt Lebanon Rd	Mainline Extension; Interchange at Mt. Lebanon
24	74	US Hwy 231/431	Patterson Ln	Bobo Section Rd	Additional Lanes
25	76	US Hwy 72 East Corridor V	Moontown Rd		New interchange
26	77	US Hwy 231	Green Cove Rd		New interchange
27	78	US Hwy 231	Hobbs Island Rd/AEC		New interchange
NR	79	Arsenal East Connector (Ph. 2)	Gate 10	Martin Rd.	New Road

Visionary Projects					
Functional Class: Major Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
NR	80	Arsenal East Connector (Ph. 3)	Martin Rd	Redstone Rd	New Road
NR	81	Arsenal East Connector (Ph. 4)	Redstone Rd	US Hwy 231	New Road

Visionary Projects					
Functional Class: Minor Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
1	82	Wall Triana Hwy	Madison Blvd	Dunlop Blvd	Additional Lanes
2	83	Slaughter Rd	Farrow Ln	US Hwy 72	Additional Lanes
3	125	Greenbrier Parkway	I-565	Hwy 20	Additional Lanes
4	84	Pulaski Pike	Prosperity Dr	Patterson Ln	Additional Lanes
5	85	Wall Triana Hwy	McCrary Rd	Pine Grove Rd	Additional Lanes
6	122	Slaughter Rd	RR Tracks	Old Madison Pike	Additional Lanes
7	124	Whitesburg Dr	Martin Rd	Four Mile Post Rd	Additional Lanes
8	86	Wall Triana Hwy	Browns Ferry Rd	Gooch Ln	Additional Lanes
9	87	Slaughter Rd	Old Madison Pike	Farrow Ln	Additional Lanes
10	88	Mooresville Rd	I-565	Old Hwy 20	Additional Lanes

Visionary Projects					
Functional Class: Minor Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
11	89	Hughes Rd	Millsford Dr	Brogan Dr	Additional Lanes
12	90	Huntsville-Brownsferry Rd	Bowers Rd	Mooresville Rd	Additional Lanes
13	96	Madison Blvd.	I-565	County Line Rd	Additional Lanes
14	91	Old RR Bed Rd	US Hwy 72	Capshaw Rd	Additional Lanes
15	92	Pulaski Pike	Grimwood Rd	Morris Rd	Additional Lanes
16	110	Greenbrier Parkway	Greenbrier Rd	Huntsville-Browns Ferry Rd	Freeway upgrade; new interchanges at Old 20, MTMUS, Mooresville
17	112	Eastern Bypass	Quarter Ln	Little Cove Rd	Additional Lanes
18	126	Sullivan St	Mill Rd	Browns Ferry Rd	Additional Lanes
19	93	Hobbs Island Rd	US Hwy 231/431	Ditto Landing	Additional Lanes
20	94	Mooresville Rd	Old Hwy 20	US Hwy 72	Additional Lanes
21	95	Huntsville-Brownsferry Rd	County Line Rd	Bowers Rd	Additional Lanes
22	97	Old RR Bed Rd	Capshaw Rd	Nick Davis Rd	Additional Lanes
23	100	Old RR Bed Rd	Nick Davis Rd	Harvest Rd	Additional Lanes
24	98	Wall Triana Hwy	Pine Grove Rd	Yarbrough Rd	Additional Lanes
25	99	Meridian St	Winchester Rd	US Hwy 231/431	Additional Lanes
26	103	Old RR Bed Rd	Harvest Rd	AL Hwy 53	Additional Lanes

Visionary Projects					
Functional Class: Minor Arterial					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
27	101	Hobbs Island Rd	Ditto Landing	Butler Basin Blvd	Additional Lanes
28	102	Swancott Rd	I-565	County Line Rd	Additional Lanes, Realignment
29	104	Winchester Rd	Bell Factory Rd	Maysville Rd	Additional Lanes
30	105	Hobbs Island Rd	Butler Basin Blvd	US Hwy 431	Additional Lanes
31	106	Winchester Rd	Maysville Rd	New Market Rd	Additional Lanes
32	107	Swancott Rd	County Line Rd	Wall Triana Hwy	Additional Lanes
33	108	Beadle Ln	Swancott Rd	Zierdt Rd	Additional Lanes
34	109	Winchester Rd	New Market Rd	TN State Line	Additional Lanes

Visionary Projects					
Functional Class: Collector					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
1	118	Segers Rd	Old 20	Hardiman Rd	Additional Lanes
2	1	Oakwood Rd	Adventist Blvd	AL Hwy 255	Additional Lanes
3	2	Old Madison Pk	Slaughter Rd	Hughes Rd	Additional Lanes
4	117	Mount Zion Rd	Nance Rd	Jeff Rd	Additional Lanes

Visionary Projects					
Functional Class: Collector					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
5	3	Eastview Dr	Slaughter Rd	Hughes Rd	Additional Lanes
6	113	Four Mile Post Rd	Whitesburg Dr	Cadillac Dr	Additional Lanes
7	4	Capshaw Rd	Jeff Rd	Wall Triana Hwy	Additional Lanes
8	5	Old Monrovia Rd	Claude Cir	Oakwood Rd	Additional Lanes
9	8	Plummer Rd	AL Hwy 53	Indian Creek Rd	Additional Lanes
10	116	Hardiman Rd	County Line Rd	Madison Branch Blvd	Additional Lanes
11	121	Capshaw Rd	Old RR Bed Rd	Sanderson Rd.	Additional Lanes
12	6	Capshaw Rd	Wall Triana Hwy	Old RR Bed Rd	Additional Lanes
13	7	Moores Mill Rd	Winchester Rd	Countess Rd	Additional Lanes
14	123	Shelton Rd	Madison Blvd	Shelton Rd Extension	Additional Lanes
15	9	Mill Rd	Hughes Rd	County Line Rd	Additional Lanes
16	120	Wayne Rd	Old Monrovia Rd	Hidden Cave Way	Additional Lanes
17	10	Ryland Pk	Jordan Rd	Dug Hill Rd	Additional Lanes
18	11	Mt Lebanon Rd	Monroe Rd	AL Hwy 255	Additional Lanes
19	115	Nance Rd	Capshaw Rd	Spano Rd	Additional Lanes
20	12	Jordan Rd	Moores Mill Rd	Homer Nance Rd	Additional Lanes

Visionary Projects					
Functional Class: Collector					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
21	13	Nance Rd	McCrary Dr	Capshaw Rd	Additional Lanes
22	15	Browns Ferry Rd	Hughes Rd	Sullivan St	Additional Lanes
23	14	Shields Rd	NS Railroad Overpass	Winchester Rd	Additional Lanes
24	16	Gillespie Rd	Balch Rd	Hughes Rd	Additional Lanes
25	114	Douglass Rd	AL 53	Jeff Rd	Additional Lanes
26	119	Indian Creek Rd	Old Monrovia Rd	Blake Bottom Rd	Additional Lanes
27	17	Wall Triana Hwy	Harold Murphy Dr	6th St (Triana)	Additional Lanes
28	18	Holmes Ave	Sparkman Dr	Wynn Dr	Additional Lanes
29	19	Balch Rd	US Hwy 72	Capshaw Rd	Additional Lanes
30	20	Balch Rd	Mill Rd	Gooch Ln	Additional Lanes
31	21	Mt Lebanon Rd	Patterson Ln	Monroe Rd	Additional Lanes
32	22	Zierdt Rd	Martin Rd	Beadle Ln	Additional Lanes
33	23	Homer Nance Rd	Jordan Rd	Winchester Rd	Additional Lanes
34	24	6th St (Triana)	Wall Triana Hwy	Lakeside Dr	Additional Lanes
35	25	Old Big Cove Rd	US Hwy 431	Sutton Rd	Additional Lanes
36	26	Jack Thomas Rd	Grimwood Rd	Patterson Ln	Additional Lanes

Visionary Projects					
Functional Class: Collector					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
37	27	Jordan Rd	Homer Nance Rd	US Hwy 72 East Corridor V	Additional Lanes
38	28	Cherrytree Rd	Old Hwy 431	McMullen Rd	Additional Lanes
39	29	Old Gurley Rd	Shields Rd	US Hwy 72 East Corridor V	Additional Lanes
40	30	Old Hwy 431	US Hwy 431	Cherrytree Rd	Additional Lanes
41	31	Old Big Cove Rd	South Green Mountain Rd	Old Hwy 431	Additional Lanes
42	32	Old Big Cove Rd	Taylor Rd	South Green Mountain Rd	Additional Lanes
43	33	Moontown Rd	Ryland Pk	US Hwy 72 East Corridor V	Additional Lanes
44	34	Old Hwy 431	US Hwy 431	Wilson Mann Rd	Additional Lanes
NR	35	Brogan Way	Wall Triana Hwy	Uptown Dr	New Road
NR	36	Bo Howard Rd	Bo Howard Rd	Pulaski Pk	New Road
NR	128	Garner St	Life Way	Madison Blvd	New Road
NR	37	Henderson Ln	US Hwy 72 West	Huntsville-Brownsferry Rd	New Road
NR	38	King Drake Rd-431 Connector	King Drake Rd	US Hwy 431	New Road
NR	39	Mose Chapel Rd	Mill Rd	Palmer Rd	New Road
NR	40	Old Hwy 20	Mooresville Rd	US Hwy 31	New Road
NR	41	Orvil Smith Rd	Orvil Smith Rd	Kelly Spring Rd	New Road

Visionary Projects					
Functional Class: Collector					
Rank	**Map ID #**	**Project**	**From**	**To**	**Description**
NR	127	Royal Dr	Jetplex Ln	Westchester Rd	New Road
NR	42	Shelton Rd Extension	Shelton Rd	Old Madison Pk	New Road
NR	43	Wesley Ln	Barbee Dr	Shelton Rd Extension	New Road
NR	111	Martin Lime Rd	US Hwy 31	Mooresville Rd	New Road

Appendix K: System Performance Report

Background

Pursuant to the Moving Ahead for Progress in the 21st Century Act (MAP-21) Act enacted in 2012, Fixing America's Surface Transportation Act (FAST Act) enacted in 2015, and Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law (IIJA/BIL) enacted in 2021, state departments of transportation (DOT) and Metropolitan Planning Organizations (MPOs) must apply a transportation performance management approach in carrying out their federally required transportation planning and programming activities. The process requires the establishment and use of a coordinated, performance-based approach to transportation decision-making to support national goals for the federal-aid highway and public transportation programs. Performance Management is a strategic approach to connect investment and policy decisions to help achieve performance goals. Performance measures are quantitative criteria used to evaluate progress. Performance measure targets are the benchmarks against which collected data is gauged. IIJA/BIL requires State DOTs and MPOs to conduct performance-based planning by tracking performance measures and setting data-driven targets to improve those measures. Performance based planning ensures the most efficient investment of federal transportation funds by increasing accountability, transparency, and providing for better investment decisions that focus on key outcomes related to seven national goals:

- Improving Safety;
- Maintaining Infrastructure Condition;
- Reducing Traffic Congestion;
- Improving System Reliability;
- Improving Freight Movement and Support Economic Development;
- Protecting the Environment; and,
- Reducing Delays in Project Delivery.

The FAST Act established timelines for State DOTs and MPOs to comply with the requirements of MAP-21. State DOTs are required to establish statewide targets and MPOs have the option to support the statewide targets or adopt their own.

The System Performance Report for Huntsville Area Metropolitan Planning Organization includes performance measures for: Highway Safety (PM1), Bridge and Pavement (PM2), System Performance (PM3), Transit Asset

Management (TAM) and Transit Safety Performance (PTASP).

The Huntsville Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the *TRiP 2050* directly reflects the goals, objectives, performance measures, and targets as they are described in other public transportation plans and processes, including the current Huntsville Area MPO Transportation Improvement Program (TIP).

The Huntsville Area MPO TIP considers potential projects that fall into specific investment priorities. Federally funded projects identified in the State TIP (STIP) can be implemented using current and proposed revenue sources based on the Alabama Department of Transportation (ALDOT) Work Program and locally designated transportation revenues. The Huntsville Area MPO TIP includes the following investment priorities:

Safety. For the Huntsville Area MPO, this includes the Bridge and Capacity, Bicycle/Pedestrian, Transportation Alternative, Transportation Systems Management and Operations (TSMO), Public Transportation, Resurfacing, and other miscellaneous categories in the TIP. The expectation of the TIP projects in each of these categories is to improve safety and to reduce fatalities once these projects are constructed.

Bridge and Pavement. The Bridge projects identified in the TIP will maintain the bridges classified in Good Condition and assist in improving the bridges classified in Poor Condition. Widening and Resurfacing Projects in the TIP will assist in improving the Interstate and Non-Interstate National Highway System pavements that are classified in Poor Condition as well as improving reliability of freight movement for interstate and Non-Interstate National Highway System roadways.

System Performance. The Huntsville Area MPO will use the performance of interstate and non-interstate system, freight movement, traffic congestion, and mobile source emissions to address system reliability and congestion mitigation.

Transit Asset Management (TAM). The Transit projects identified in the TIP will assist in keeping the transit vehicles and facilities in a State of Good Repair.

The TIP includes specific investment priorities that support the MPO's goals including safety, efficiency, connectivity, economic vitality, security, quality of life, and the planning process which guides the Evaluation Criteria. The Evaluation Criteria in the LRTP filters down to the TIP.

Purpose

This document provides language that Alabama's Metropolitan Planning Organizations (MPO) may incorporate in Long-Range Transportation Plan (LRTP) System Performance Reports to meet the federal transportation performance management rules.

The document is consistent with the Transportation Performance Management Agreement developed jointly by the Alabama Department of Transportation (ALDOT), the Huntsville Area Metropolitan Planning Organization, and Huntsville Public Transit Agency. This document outlines the minimum roles of ALDOT, the MPOs, and the public transportation providers in the MPO planning areas to ensure consistency to the maximum extent practicable in satisfying the transportation performance management requirements promulgated by the United States Department of Transportation in Title 23 Parts 450, 490, 625, and 673 of the Code of Federal Regulations (23 CFR). The document is organized as follows:

- Part 1 covers the Highway Safety measures (PM1);
- Part 2 covers the Pavement and Bridge Condition measures (PM2);
- Part 3 covers System Performance measures (PM3);
- Part 4 covers Transit Asset Management (TAM) measures; and
- Part 5 covers Transit Safety measures.

Part 1: Highway Safety Measures (PM1)

Safety was the first national goal identified in the FAST Act. In March of 2016, the Highway Safety Improvement Program (HSIP) and Safety Performance Management Measures Rule (Safety PM Rule) was finalized and published in the Federal Register. The rule requires MPOs to set targets for the following safety-related performance measures and report progress to the State DOT:

- Number of Fatalities;
- Number of Serious Injuries;
- Number of Nonmotorized Fatalities and Serious Injuries;
- Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT); and
- Rate of Serious Injuries per 100 Million VMT.

The Alabama Departments of Transportation (ALDOT) Strategic Highway Safety Plan (SHSP) 2022 focused on how to accomplish the vision of eliminating fatalities and reducing serious injuries on all public roads. The SHSP development process included review of safety-related goals, objectives, and strategies in MPO plans. The SHSP guides ALDOT, MPOs, and other safety partners in addressing safety and defines a framework for implementation activities to be carried out. ALDOT establishes Safety Targets based on federal requirements. Each Alabama MPO can either create their own or adopt ALDOT's targets and measures annually within 180 days of state approval.

The SHSP highlights the continued commitment toward a vision of zero deaths. The SHSP documents the statewide performance measures ***Toward Zero Deaths*** for all transportation system users and the goal to ***reduce fatalities and serious injuries by 50 percent by 2040***.

The most recent Statewide Safety Performance Measurement (PM1) Targets approved by ALDOT and supported by the Huntsville Area MPO as of the adoption of the LRTP are listed below:

Metric	Target
Number of Fatalities	1,000
Rate of Fatalities per 100 Million Vehicle Miles Traveled	6,300
Number of Serious Injuries	1,440
Rate of Serious Injuries per 100 Million Vehicle Miles Traveled	9,800
Number of Combined Non-Motorized Fatalities and Serious Injuries	400

Table K-1: Safety Performance Measurement (PM1) Targets for 2025

Statewide system conditions for each safety performance measure are included in Table K-1 along with system conditions in the Alabama transportation planning area. The latest safety conditions will be updated annually on a rolling five-year window and reflected within each subsequent system performance report, to track performance over time in relation to baseline conditions and established targets.

Baseline Conditions

The Huntsville Area MPO supports the states' Baseline Safety Performance Measures.

Trends Analysis

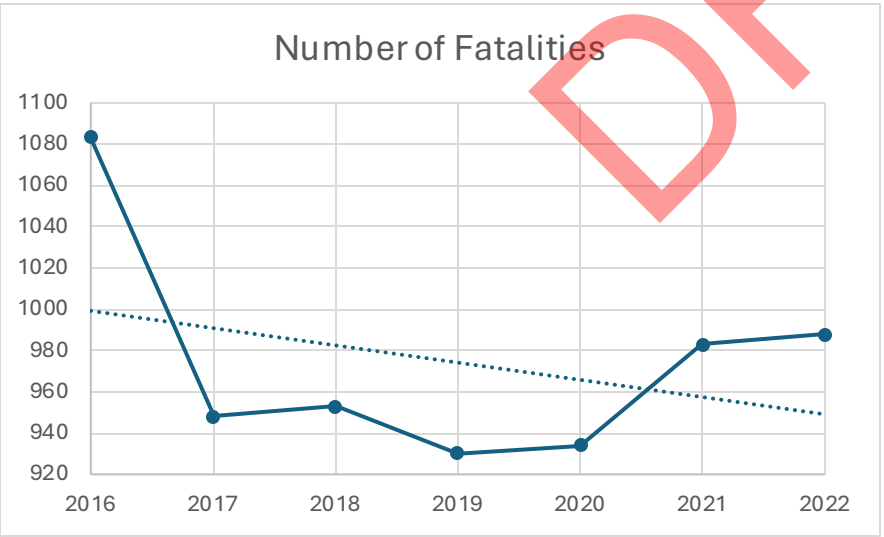
The process used to develop the Huntsville Area MPO's Long-Range Transportation Plan (LRTP) includes analysis of safety data trends, including the location and factors associated with crashes with emphasis on fatalities and serious injuries. The data is used to help identify regional safety issues and potential safety strategies for the LRTP and TIP.

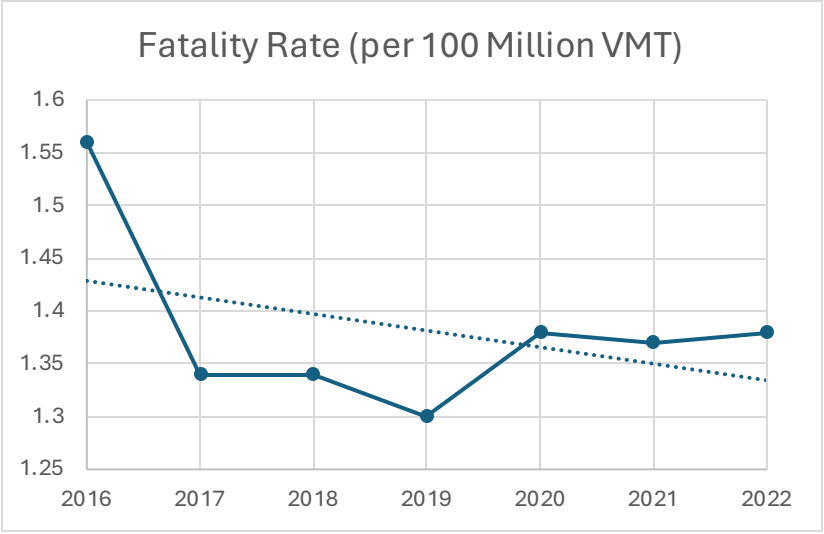
The Alabama 2022 Strategic Highway Safety Plan (SHSP) focuses mainly on (1) speed and impaired driving, the two largest factors that cause injury and fatal crashes, and (2) lack of proper restraint use, which is the single greatest factor influencing severity. Locations with the highest numbers of severe injury crashes, or hot spots, were included rather than a serious injury rate or number.

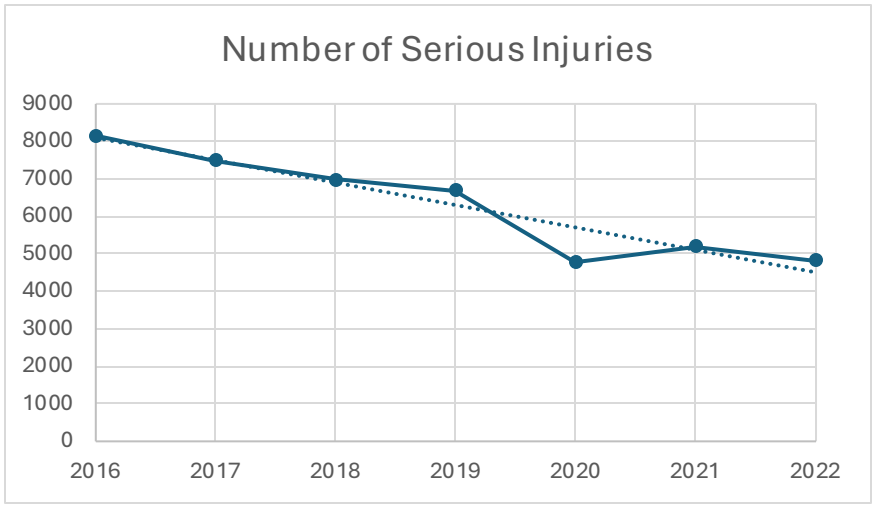
By focusing on the prevalent speeding locations, stakeholders implemented countermeasures such as evidence-based enforcement, educational programs, and engineering or design fixes to reduce fatalities, Alabama is committed to reducing this rate. Alabama continues to work toward the 2035 goal to reach a 50% reduction and sustain significant Toward Zero Deaths (TZD) progress.

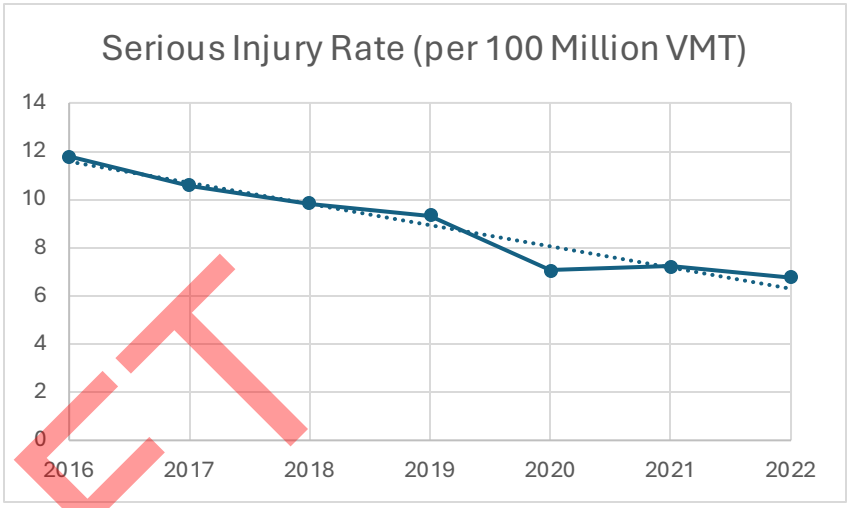
A recent impacting trend is the direct effect of the Covid-19 pandemic on the transportation system. Freight, vehicle, and transit use, and therefore volume, moderately decreased in 2020. An important local economic driver, tourism and hospitality services also experienced a decrease with tourist destinations closed for a brief period, resulting in lower demand for transportation services and use. Volume has rebounded in subsequent years.

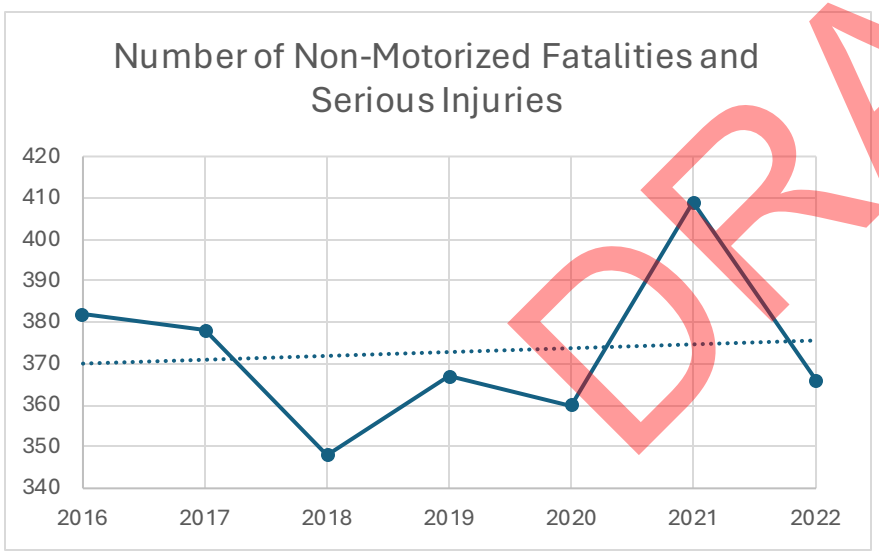
The following charts show the historical trend (2016-2022) for each performance measurement metric, according to the State Highway Safety Report for Alabama on FHWA's website.






Number of Serious Injuries
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2016
2017
2018
2019
2020
2021
2022


Serious Injury Rate (per 100 Million VMT)
14
12
10
8
6
4
2
0
2016
2017
2018
2019
2020
2021
2022


Number of Non-Motorized Fatalities and Serious Injuries
420
410
400
390
380
370
360
350
340
2016
2017
2018
2019
2020
2021
2022

Coordination with Statewide Safety Plans and Processes

The Huntsville Area MPO recognizes the importance of linking goals, objectives, and investment priorities to established performance objectives, and that this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the LRTP reflects the goals, objectives, performance measures, and targets as they are available and described in other state and public transportation plans and processes; specifically, the Alabama Strategic Highway Safety Plan (SHSP) and the Alabama Statewide Transportation Plan.

The Alabama Strategic Highway Safety Plan (SHSP) includes five major component areas to address roadway safety in the state. The goal of the plan is Toward Zero Deaths (TZD) program by working in all areas that influence fatal crashes, including changing the highway safety culture in the State by making TZD the responsibility of everyone.

The Alabama Statewide Transportation Plan is a long-range plan that assesses the State's multimodal transportation system and presents plans for improvement and maintenance. The plan forecasts a minimum of 20 years and involves engagement with both public and private entities. The plan is designed to meet the goals and other requirements required by federal legislation with its emphasis on performance management. The most recent Statewide Transportation Plan was completed in July 2017.

The Alabama Highway Safety Improvement Program (HSIP) is an annual report that documents the statewide performance measures toward the zero deaths vision. It also identifies and reviews traffic safety issues around the state to identify locations with the potential for improvement.

LRTP Safety Priorities

The LRTP increases the safety of the transportation system for the Huntsville region for motorized and non-motorized users. The LRTP also aligns with the Alabama SHSP with safety projects and educational initiatives working towards TZD.

The LRTP identifies safety needs within the metropolitan planning area and provides funding for targeted safety improvements. The Huntsville Area MPO has developed a project selection process using evaluation criteria to rank the established five safety performance measures.

Chapter 2 Vision & Goals of the LRTP describes and lists some safety goals and objectives. “Increasing the safety of the transportation system for motorized and non-motorized users” is listed as one of the goals of the LRTP. Another goal suggests: To improve the safety of our streets for all users, MPO member jurisdictions build sidewalks, ramps, crosswalks, pedestrian signals, bike routes and bike lanes. These infrastructure improvements are designed to reduce casualties and fatalities for pedestrians, cyclists, and people with disabilities.

The safety goal and objectives support the IIJA/BIL Planning Factors and the Alabama Statewide Transportation Plan which had an emphasis on Performance Management.

The Huntsville Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the LRTP directly reflects the goals, objectives, performance measures, and targets as they are described in other transportation plans and processes.

Part 2: Pavement and Bridge Condition Measures (PM2)

Bridge and Pavement (PM2) was the second national goal identified in the FAST Act and was finalized in May 2017 and published in the Federal Register. The rule requires MPOs to set targets for the following bridge and pavement-related performance measures and report progress to the State DOT:

Targets for assessing Pavement and Bridge Condition for the National Highway Performance Program (PM2) for the following measures:

- Percentage of pavement on the Interstate System in Good condition
- Percentage of pavement on the Interstate System in Poor condition
- Percentage of pavement on the NHS (excluding the Interstate System) in Good condition
- Percentage of pavement on the NHS (excluding the Interstate System) in Poor condition
- Percentage of NHS bridge deck area classified in Good condition
- Percentage of NHS bridge deck area classified in Poor condition

The four pavement condition measures represent the percentage of lane-miles on the Interstate and non-Interstate NHS that are in good condition or poor condition. The PM2 rule defines NHS pavement types as asphalt, jointed concrete, or continuous concrete. Five metrics are used to assess pavement condition:

- International Roughness Index (IRI) - an indicator of roughness; applicable to asphalt, jointed concrete, and continuous concrete pavement;
- Cracking percent - percentage of the pavement surface exhibiting cracking; applicable to asphalt, jointed concrete, and continuous concrete pavement;
- Rutting - extent of surface depressions; applicable to asphalt pavement only;
- Faulting - vertical misalignment of pavement joints; applicable to jointed concrete pavements only; and
- Present Serviceability Rating (PSR) – a quality rating applicable only to NHS roads with posted speed limits of less than 40 miles per hour (e.g., toll plazas, border crossings). States may choose to collect and report PSR for applicable segments as an alternative to the other four metrics.

For each pavement metric, a threshold is used to establish good, fair, or poor condition. Using these metrics and thresholds, pavement conditions are assessed for each 0.1-mile section of the through-travel lanes of mainline highways on the Interstate or the non-Interstate NHS. Asphalt pavement is assessed using the IRI, cracking, and rutting metrics,

while jointed concrete is assessed using IRI, cracking, and faulting. For these two pavement types, a pavement section is rated good if the rating for all three metrics is good, and poor if the ratings for two or more metrics are poor.

Continuous concrete pavement is assessed using the IRI and cracking metrics. For this pavement type, a pavement section is rated good if both metrics are rated good, and poor if both metrics are rated poor.

If a state collects and reports PSR for any applicable segments, those segments are rated according to the PSR scale. For all three pavement types, sections that are not good or poor are rated fair.

The good/poor measures are expressed as a percentage and are determined by summing the total lane-miles of good or poor highway segments and dividing by the total lane-miles of all highway segments on the applicable system. Pavement in good condition suggests that no major investment is needed and should be considered for preservation treatment. Pavement in poor condition suggests major reconstruction investment is needed due to either ride quality or a structural deficiency.

The bridge condition measures refer to the percentage of bridges by deck area on the NHS that are in good condition or poor condition. The measures assess the condition of four bridge components: deck, superstructure, substructure, and culverts. Each component has a metric rating threshold to establish good, fair, or poor condition. Each bridge on the NHS is evaluated using these ratings. If the lowest rating of the four metrics is greater than or equal to seven, the structure is classified as good. If the lowest rating is less than or equal to four, the structure is classified as poor. If the lowest rating is five or six, it is classified as fair.

The bridge measures are expressed as the percentage of NHS bridges in good or poor condition. The percentage is determined by summing the total deck area of good or poor NHS bridges and dividing by the total deck area of the bridges carrying the NHS. Deck area is computed using structure length and either deck width or approach roadway width.

A bridge in good condition suggests that no major investment is needed. A bridge in poor condition is safe to drive on; however, it is nearing a point where substantial reconstruction or replacement is needed.

Federal rules require state DOTs and MPOs to coordinate when setting pavement and bridge condition performance targets and monitor progress towards achieving the targets. States must establish:

- Four-year statewide targets for the percentage of Interstate pavements in good and poor condition;

- Two-year and four-year targets for the percentage of non-Interstate NHS pavements in good and poor condition; and
- Two-year and four-year targets for the percentage of NHS bridges (by deck area) in good and poor condition.

MPOs must establish four-year targets for all six measures. MPOs can either agree to program projects in the LRTP and TIP that will support the statewide targets or establish their own quantifiable targets for the MPO's planning area.

Pavement and Bridge Condition Baseline Performance and Established Targets

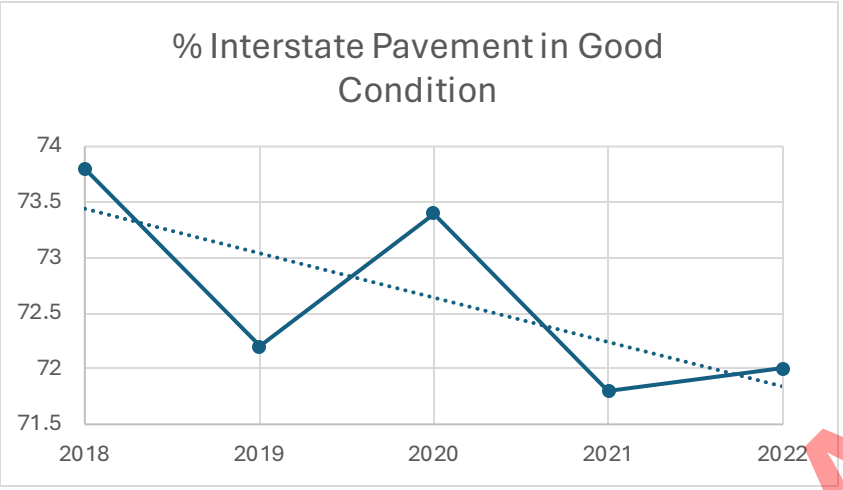
This System Performance Report discusses the condition and performance of the transportation system for each applicable target as well as the progress achieved by the MPO in meeting targets in comparison with system performance recorded in previous reports. Because the federal performance measures are new, performance of the system for each measure has only recently been collected and targets have only recently been established. Accordingly, this System Performance Report highlights performance from 2018-2022. ALDOT will continue to monitor and report performance on a biennial basis. Future System Performance Reports will discuss progress towards meeting the targets since this initial baseline report.

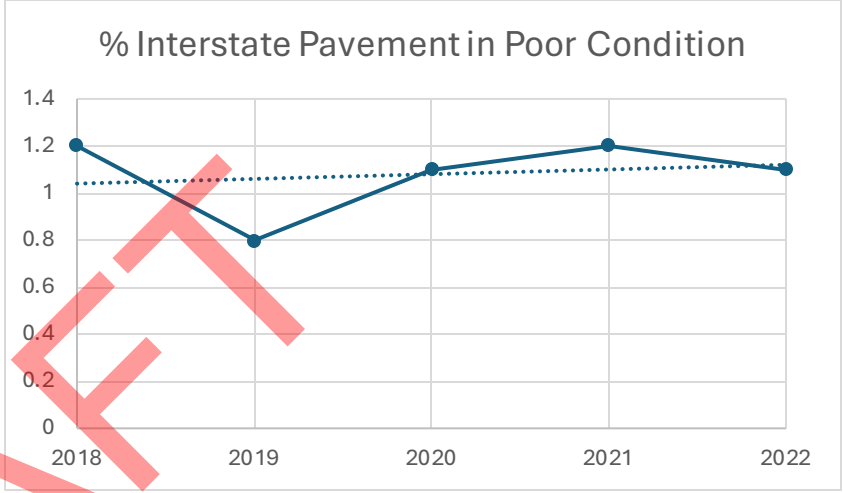
The following table presents the latest performance for each PM2 measure approved by ALDOT and supported by the Huntsville Area MPO as of the adoption of the LRTP for the State of Alabama:

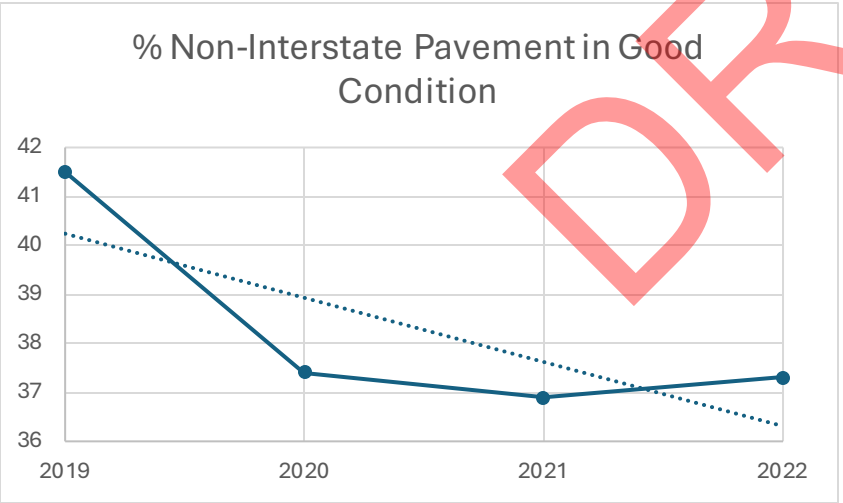
Metric	Baseline	2-Year Target	4-Year Target
% of Pavement of the Interstate System in Good Condition	71.8%	50%	50%
% of Pavement of the Interstate System in Poor Condition	1.2%	5%	5%
% of Pavement of the Non-Interstate System in Good Condition	36.9%	25%	25%
% of Pavement of the Non-Interstate System in Poor Condition	2.6%	5%	5%
% of NHS Bridges Classified as Good Condition	27.3%	25%	20%
% of NHS Bridges Classified as Poor Condition	0.5%	3%	3%

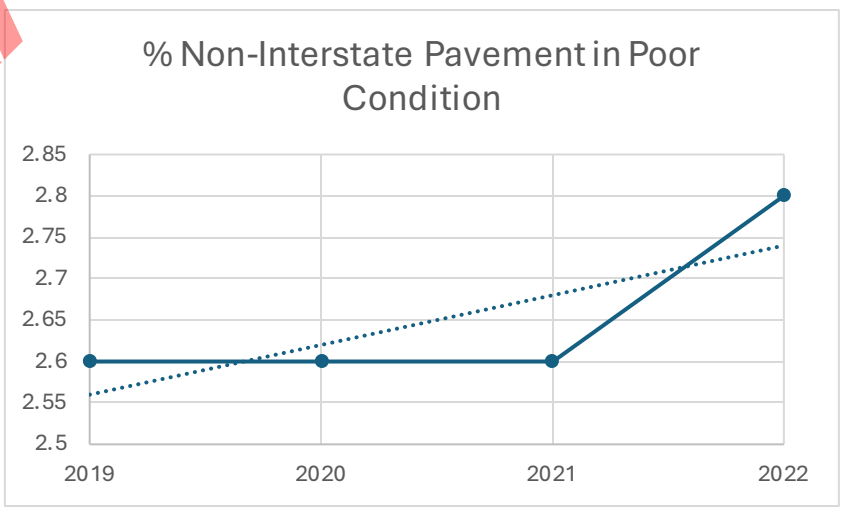
Table K-2: Pavement and Bridge Condition Performance Measures (PM2) for 2024/2026

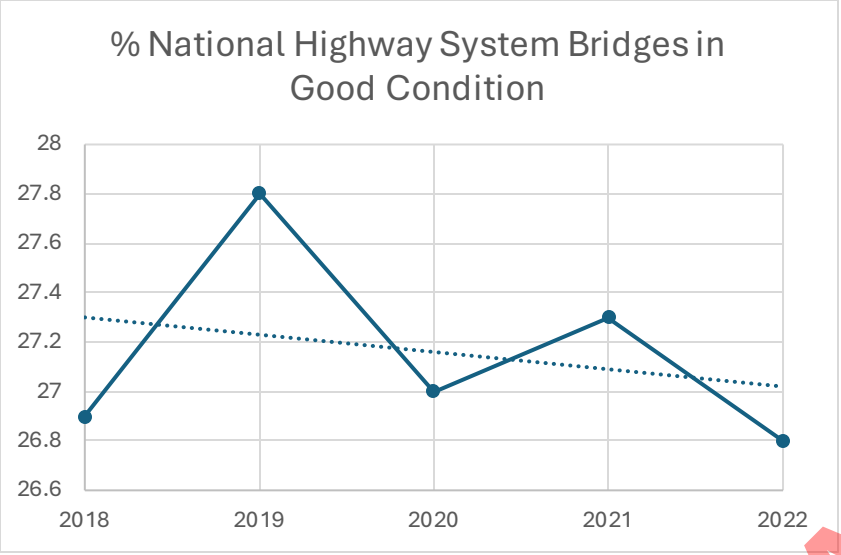
The following charts show the historical trend (2018-2022) for each performance measurement target, according to the State Highway Safety Report for Alabama on FHWA's website.

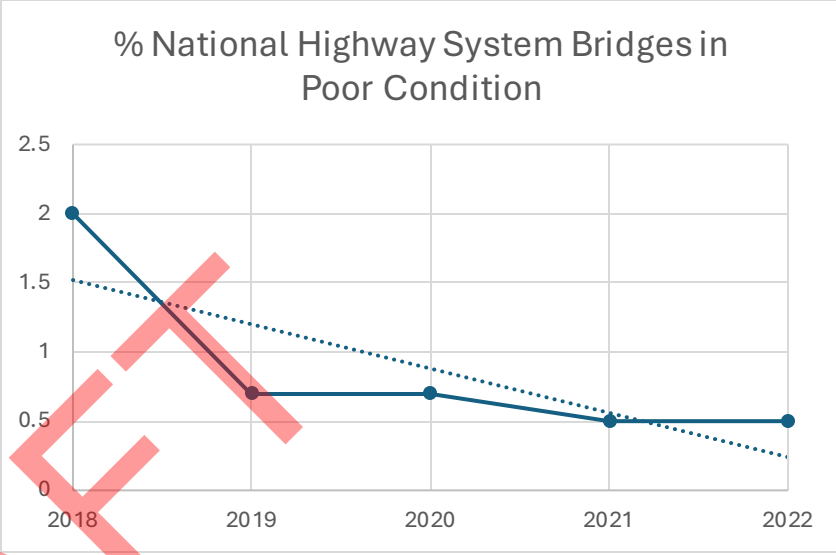












In compliance with MAP-21 and the FAST Act, ALDOT established PM2 targets and were adopted by MPO's by April 2019. ALDOT and the MPOs, along with Transit Providers, have a cooperative agreement in place to coordinate the development of the targets, the sharing of information related to the transportation performance measures, selection of targets, and reporting requirements. Typical highway projects, such as highway capacity, system preservation, bridge and safety projects, support the established targets.

ALDOT's Pavement Preservation Policy, approved by FHWA on June 2, 2019, is the planned strategy of cost-effective treatments to an existing roadway system that preserves the system, inhibits future deterioration, and maintains or improves the functional condition of the system without significantly increasing the structural capacity of the pavement.

In addition, MAP-21 required DOTs to develop a Transportation Asset Management Plan (TAMP) for all NHS pavements and bridges within the state. The TAMP must include investment strategies leading to a program of projects that would make progress toward achievement of the state DOT targets for asset condition and performance of the NHS. The latest Alabama TAMP was released in December 2022.

ALDOT's Transportation Asset Management Plan (TAMP) is consistent with ALDOT's desire to make data-driven spending decisions related to its assets. The TAMP is a central resource for multiple ALDOT Bureaus. The TAMP includes pavement

and bridge inventory and condition, financial data, a revised risk register, and investment scenarios.

The Huntsville Area MPO agrees to support ALDOT pavement and bridge condition performance targets. By adopting ALDOT targets, the Huntsville Area MPO agrees to plan and program projects that help ALDOT achieve these targets in the LRTP and TIP.

The Huntsville Area MPO recognizes the importance of linking goals, objectives, and investment priorities to established performance objectives, and that this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the LRTP reflects the goals, objectives, performance measures, and targets as they are described in other state and public transportation plans and processes, such as the Alabama Transportation Asset Management Plan.

The LRTP seeks to address system preservation, identifies infrastructure needs within the metropolitan planning area, and provides funding for targeted improvements. Goal #8 of the LRTP has been established to emphasize the preservation of the existing transportation system, with objectives to direct resources to preserve the existing infrastructure and replace deficient infrastructure.

Part 3: System Performance Measures (PM3)

System Performance (PM3) was the third national goal identified in the FAST Act was also finalized in May 2017 and published in the Federal Register. The rule requires MPOs to set targets for the following system performance related performance measures and report progress to the State DOT.

Targets for assessing performance of the National Highway System, Freight Movement on the Interstate System and Congestion Mitigation and Air Quality Improvement Program (PM3) for the following performance measures:

- Percent of Person-Miles traveled on the Interstate System that are Reliable
- Percent of Person-Miles traveled in the Non-Interstate System that are Reliable
- Percentage of the Interstate System Mileage providing Reliable Truck Travel Times
- Annual hours of Peak-Hour Excessive Delay Per Capital
- Percent of Non-Single-Occupant-Vehicle (SOV) Travel
- Total Emissions Reduction

The data used to calculate PM3 measures are provided by FHWA via the National Performance Management Research Data Set (NPMRDS). This dataset contains travel times, segment lengths, and Annual Average Daily Travel (AADT) for Interstate and non-Interstate NHS roads.

The PM3 rule requires state DOTs and MPOs to coordinate when establishing performance targets for these measures and to monitor progress towards achieving the targets. ALDOT must establish:

- Two-year and four-year statewide targets for percent of person-miles on the Interstate system that are reliable.
- Four-year targets for the percent of person-miles on the non-Interstate NHS that are reliable; and
- Two-year and four-year targets for truck travel time reliability.

PM3 Baseline Performance and Established Targets

The System Performance Report discusses the condition and performance of the transportation system for each applicable PM3 target as well as the progress achieved by the MPO in meeting targets in comparison with system performance recorded in previous reports. Because the federal performance measures are new, performance of the system for each measure has only recently been collected and targets have only recently been established. Accordingly, this LRTP System

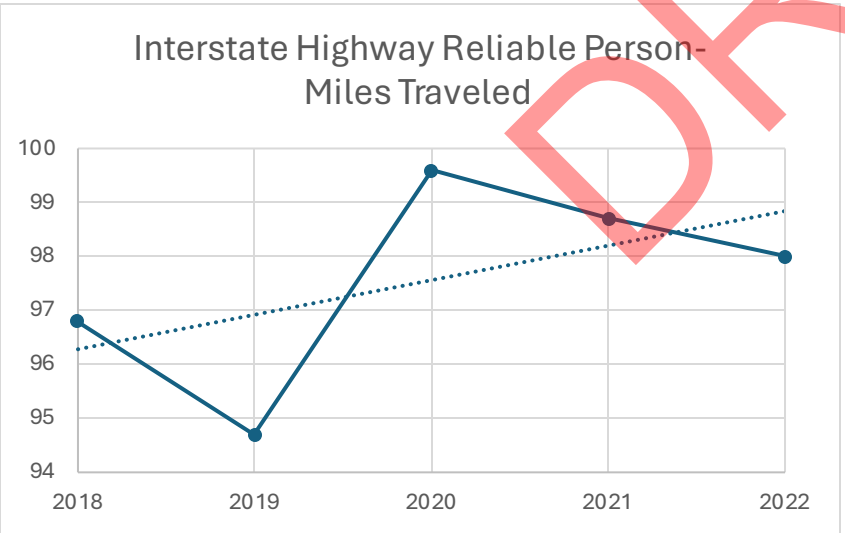
Performance Report highlights performance from 2018-2022. ALDOT will continue to monitor and report performance on a biennial basis.

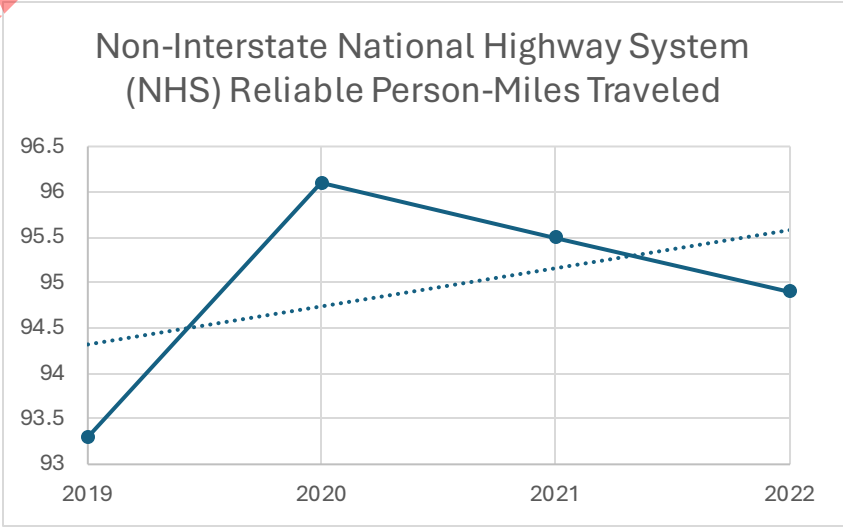
The following table presents performance for each PM3 measure and the most recent two-year and four- year targets established by ALDOT and supported by the Huntsville Area MPO:

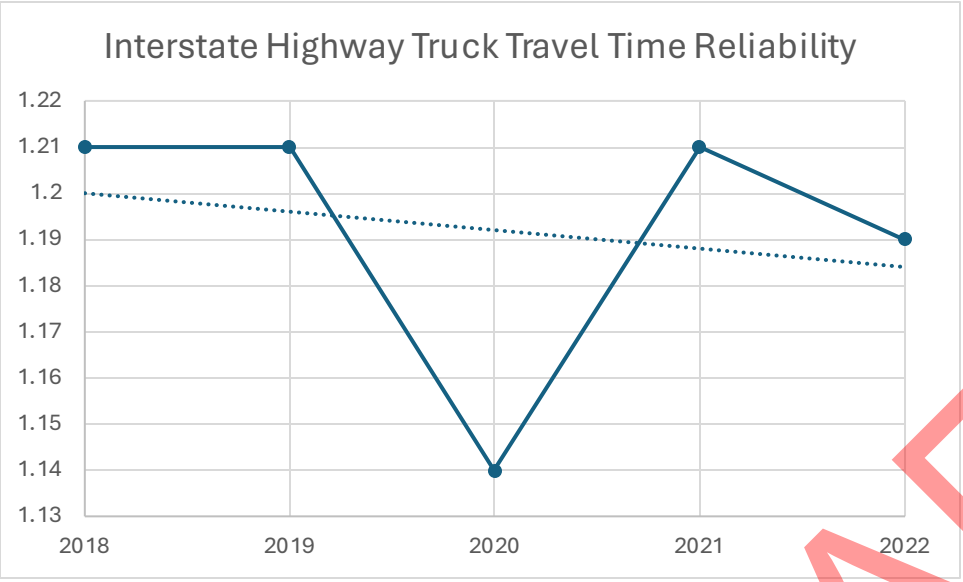
Metric	Baseline	2-Year Target	4-Year Target
% Person-Miles Traveled on Interstate That Are Reliable	98.7%	92%	92%
% Person-Miles Traveled on Non-Interstate NHS That Are Reliable	95.5%	90%	90%
Truck Travel Time Reliability (TTTR) Index	1.21	1.3	1.3

Table K-3: System Performance Measures (PM3) for 2024/2026

The following charts show the historical trend (2018-2022) for each performance measurement target, according to the State Highway Safety Report for Alabama on FHWA's website.







To establish data-informed targets for the Truck Travel Time Reliability Performance (TTTR) measures, ALDOT used a novel forecasting methodology relating segment-level roadway capacity and traffic volume to reliability performance to forecast future performance as roadway volumes and capacities change. In addition to PM3 target setting, this methodology supports other planning uses, including estimating capacity project performance impacts, and supports a better understanding of the relationship between roadway volumes, capacities, and reliability.

For PM3 target setting purposes, this methodology generated multiple forecast scenarios, reflecting different levels of possible traffic growth rates and multiple investment strategies. The forecasts provide a realistic basis for setting future targets, while simultaneously demonstrating how growing travel demand affects system reliability and the user experience improvements created by ALDOT's investments in new system capacity.

The forecasting methodology uses a statistical model to relate road segment reliability performance to roadway volume and capacity. Future performance is forecasted at the segment level by growing future traffic volumes by known growth rates, updating future road capacity to reflect programmed capacity projects scheduled for completion during the first performance period, and measuring the forecasted change in performance. Segment-level forecasts are aggregated to state-wide performance measure forecasts using the PM3 Final Rule measure calculating methodology.

Part 4: Transit Asset Management (TAM) Measures

The Huntsville Area MPO is also required to adopt State of Good Repair Performance Measures for Transit Asset Management (TAM). The TAM rule from the Federal Transit Administration became effective on October 1, 2016. The rule requires MPOs to set targets for transit related performance measures and report progress to the State DOT.

Targets for assessing performance of the Transit Asset Management (TAM) Plan for the following performance measures:

- Asset Category: Rolling Stock (All revenue vehicles)
  - Age- % of revenue vehicles within an asset class that have met or exceed their Useful Life Benchmark
- Asset Category: Equipment (Non-revenue vehicles)
  - Age- % of revenue vehicles within an asset class that have met or exceed their Useful Life Benchmark
- Asset Category: Facilities (the STATE will only rate FTA funded facilities)
  - Condition- % of facilities with a condition rating below 3.0 on a FTA Transit Economic Requirement Modal (TERM) Scale
- The TAM final rule requires that all transit agencies that are recipients and sub recipients of 49 USC Charter 53 funds to develop a TAM Plan.
- Transit agencies that are a part of the Group (Statewide) TAM Plan will provide transit data by asset class (both revenue and non-revenue) and facilities conditions on an annual basis to the STATE.
- Transit agencies and MPOs developing their own TAM plan will provide their targets and the final report to the State.
- The State and the MPO are required to integrate the transit agency performance targets into the planning documents including Statewide Transportation Improvement Plan (STIP) and Transportation Improvement Plan (TIP), respectively, and the Statewide Long-Range Plan (LRP) and Metropolitan Transportation Plan (MTP).

For equipment and rolling stock classes, Useful Life Benchmark (ULB) is defined as the expected lifecycle of a capital asset, or the acceptable period of use in service, for a particular transit provider's operating environment. ULB considers a provider's unique operating environment such as geography and service frequency.

TAM targets in the Huntsville MPO area are developed by the City of Huntsville Public Transit Division, which is the primary fixed-route transit provider in the urban area. These targets are supported by the MPO via resolution. The infrastructure category does not apply to the Huntsville Area MPO since there is no rail transit in the MPO area.

The rolling stock category consists of Vans, Cutaway Buses, Body on Chassis, and Full-Size Buses. The targets for these categories are Vans (reduce by 10 Percent of current inventory), Cutaway Buses (reduce by 10 Percent of current inventory), Body on Chassis (reduce by 10 Percent of current inventory), and Full-Size Buses (reduce by 10 Percent of current inventory).

The equipment category is to reduce Service Vehicles by 10 percent that have met or exceeded their Useful Life Benchmark.

The following table presents performance for each measure and the most recent targets established by the City of Huntsville and supported by the Huntsville Area MPO:

Asset Category	Target	February 2024 Actual
Paratransit Fleet	Not greater than 30% of Vehicle Fleet exceeds 200,000 miles	35%
Fixed Route Bus Fleet	Not greater than 30% of Vehicle Fleet exceeds its useful life in years	0% (Note: Includes buses with new engines, extending the life of the vehicle)
Facility Condition	Not greater than 20% of facilities fall below 3.0 Condition Rating	0% (All transit centers and buildings rated at 3.0 and better)

Table K-4: Transit Asset Management Performance Measures for 2024-2025

Public transportation agencies are required to establish and report transit asset management targets annually for the following fiscal year. Each public transit provider or its sponsors must share its targets, TAM, and asset condition information with each MPO in which the transit provider's projects and services are programmed in the MPO's TIP.

The TAM rule defines two tiers of public transportation providers based on size parameters. Tier I providers are those that operate rail service or more than 100 vehicles in all fixed route modes, or more than 100 vehicles in one non-fixed route mode. Tier II providers are those that are a subrecipient of FTA 5311 funds, or an American Indian Tribe, or have 100 or less vehicles across all fixed route modes or have 100 vehicles or less in one non-fixed route mode. A Tier I provider must establish its own transit asset management targets, as well as report performance and other data to FTA. A Tier II provider has the option to establish its own targets or to participate in a group plan with other Tier II providers whereby targets are established by a plan sponsor, typically a state DOT, for the entire group.

The Huntsville Area MPO has the following Tier I and Tier II providers operating in the region.

- Tier I: Madison County Commission's Transportation for Rural Areas of Madison County (TRAM)
- Tier II: Huntsville Public Transit System

The Huntsville Public Transit system is included in group TAM plans developed by the ALDOT office in Montgomery. The statewide group TAM targets are based on the condition of existing transit assets and planned investments in equipment, rolling stock, infrastructure, and facilities over the next year. The targets reflect the most recent data available on the number, age, and condition of transit assets, and expectations and capital investment plans for improving these assets during the next fiscal year.

As required by FTA, ALDOT will update the TAM Plan at least once every four years. ALDOT updated the TAM Plan June 2020. ALDOT will update the statewide performance targets for the participating agencies on an annual basis and will notify the participating transit agencies and the MPOs in which they operate when the targets are updated.

Part 5: Transit Safety Measures

The Public Transportation Agency Safety Plan (PTASP) regulation, at 49 CFR Part 673, requires covered public transportation providers and State Departments of Transportation (DOT) to establish Safety Performance Targets (SPTs) to address the Safety Performance Measures (SPMs) identified in the National Public Transportation Safety Plan (49 CFR § 673.11(a)(3)).

According to the National Safety Council, passengers on the nation's bus, rail, or commuter rail systems are 40 times less likely to be involved in a fatal accident, and 10 times less likely to be involved in an accident resulting in injury compared to traveling by automobile. Targets for assessing performance of the Public Transportation Agency Safety Plan (PTASP) for the following performance measures (applicable to demand response/fixed route services):

- Fatality by Mode
  - Fatality Total
  - Rate of Fatalities (per vehicle revenue mile)
- Injuries by Mode
  - Injuries Total
  - Rate of Injuries (per vehicle revenue mile)
- Safety Events by Mode
  - Safety Event Total
  - Rate of Safety Events (per vehicle revenue mile)
- System Reliability by Mode
  - Miles between major mechanical failures
- The PTASP final rule requires that transit agencies that are recipients and sub recipients of Urbanized Area Formula Grant Program under 49 USC 5307 develop safety performance targets within their Agency Safety Plan (ASP). Each transit agency must provide the state and its respective MPOs its safety performance targets to assist the state and MPOs with capital program planning process.
- State and MPOs are required to integrate the transit agency performance targets into the planning documents including Statewide Transportation Improvement Plan (STIP) and Transportation Improvement Plan (TIP), respectively, and the Statewide Long-Range Plan (LRP) and Metropolitan Transportation Plan (MTP).

Each provider of public transportation that is subject to the rule must certify it has a PTASP, including transit safety targets for the above measures. Once the public transportation provider establishes targets, it must make the targets available to MPOs to aid in the planning process. MPOs have 180 days after receipt of the PTASP targets to establish transit safety targets for the MPO planning area. In addition, the Huntsville Area MPO must reflect those targets in any LRTP, and TIP updated on or after July 20, 2021.

In Alabama, transit agencies develop their own Public Transportation Agency Safety Plans. The transit agency's governing body adopts their respective safety plan. The ALDOT will review, approve, and monitor the implementation of the Public Transportation Agency Safety Plan to ensure compliance with the oversight agency's program standard at each transit agency.

In future LRTP updates, additional TAM performance data and targets will be available to allow a fuller discussion of trends and progress toward achieving targets.

The Huntsville Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the LRTP directly reflects the goals, objectives, performance measures, and targets as they are described in other public transportation plans and processes, including the TIP, the current LRTP, and the Huntsville Public Transit Development Plan.

The Huntsville Area MPO will coordinate with public transportation providers in the planning area on the development and establishment of transit safety targets. LRTP amendments or updates after July 20, 2021, will include the required details about transit safety performance data and targets.

The following table presents performance for each measure and the most recent targets established by the City of Huntsville and supported by the Huntsville Area MPO:

Baseline								
Mode	**Fatalities**	**Rate of Fatalities**	**Injuries**	**Rate of Injuries**	**Safety Events**	**Rate of Safety Events**	**Assaults on Transit Employees**	**Mean Distance Between Major Mechanical Failures**
Fixed Route Bus	0	0	0	0.0000162	30	0.000038	0	23,858
Demand Response	0	0	0	0.000017	28	0.000045	0	67,610

2023 Actual								
Mode	**Fatalities**	**Rate of Fatalities**	**Injuries**	**Rate of Injuries**	**Safety Events**	**Rate of Safety Events**	**Assaults on Transit Employees**	**Mean Distance Between Major Mechanical Failures**
Fixed Route Bus	0	0	1	0.00001	13	0.000016	0	11,993
Demand Response	0	0	0	0.000000	9	0.000015	0	18,706

Mode	**Fatalities**	**Rate of Fatalities**	**Injuries**	**Rate of Injuries**	**Safety Events**	**Rate of Safety Events**	**Mean Distance Between Major Mechanical Failures**
Fixed Route Bus	0	0	4	0.0000505	19	0.000024	6,700
Demand Response	0	0	8	0.00001296	15	0.000024	15,140

Table K-5: Transit Safety Performance Measures for 2024-2025